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MEMORANDUM

TO: John Fittipaldi
FROM: David Eady
DATE: 15 July 2004
SUBJECT: Report on Consulting for AEPI

This memo provides a final status report to the Army Environmental Policy Institute (AEPI) Contracting Officer's Representative (COR) on consulting services provided by Georgia Institute of Technology, School of Public Policy (SPP), from 26 February to 9 July 2004.

General Consulting and Project Management

Throughout the period of performance, I prepared status briefings for AEPI on various sustainability initiatives/projects. In June I assisted John Fittipaldi in preparing a status briefing on the AEPI Sustainability Thrust Area for Ray Fatz, DASA (ESOH).

In June I compiled electronic folders with deliverables for each AEPI FY03 Work Plan project and forwarded those files to John Fittipaldi and the AEPI contracts administrator. As part of this task, I contacted a previous consultant to AEPI (Natural Strategies, Inc.) and requested a revised final report to complete requirements under a project initiated in FY02.

Sustainability Analysis for Stationing Planning and Analysis

On 4 March I delivered an email that recommends an amendment to the MIPR AEPI sent to the office of the Deputy Assistant Secretary of the Army (DASA) for Cost and Economics (CE). The purpose of this amendment is to request DASA(CE) assist AEPI with executing the "Installation Resource Elasticity Methodology" (IREM) in support of The Army Basing Study (TABS).

When the TABS office first asked us to assist with this requirement, we were asked to develop the methodology and then the TABS office would execute—i.e. they would do the actual resource elasticity analysis. Since the original requirement was defined in December 2003, the TABS office realized they needed additional support in the execution phase and, therefore, requests we conduct the analysis for the BRAC 2005 Study list. Based on current TABS milestones, we must begin this analysis no later than 5 June and complete no later than 5 July. The CALIBRE/Energy and Security Group team, working under contract to DASA(CE), is the only cost effective and timely means to responding to this request.

On 15 March I attended an in-progress review (IPR) with the TABS office regarding IREM. We discussed revised questions to include in an upcoming data call to installations that supplements the previous data call. We also discussed the basic measurements and how they will contribute to the BRAC 2005 Military Value Analysis (MVA). Since the meeting on 15 March we have prepared a document that outlines the IREM, which evaluates the costs for an installation to provide critical environmental and energy resources as a component of the Army's stationing analysis. The methodology also determines the thresholds of these resources to support the stationing of additional soldiers at an installation.

On 30 March I delivered a revised statement of work (SOW) to Jean Duval, office of the DASA(CE), articulating the requirements to complete the resource elasticity analysis. I included justification for the additional tasks in this amendment to the current scope.

On 4 May I submitted a white paper to AEPI outlining work to develop a strategic approach to environmental impact assessment (EIA) in support of stationing planning and analyses. It will outline how EIA could contribute to stationing and the Total Army Basing Study (TABS) process in terms of strategic value that will inform analysis and decision making.

Specifically, it will assist the Office of the Deputy Assistant Secretary of the Army (DASA) for Infrastructure Analysis (IA) in meeting the requirements for DoD Base Realignment and Closure (BRAC) selection criterion 8, defined as "The environmental impact, including the impact of costs related to potential environmental restoration, waste management, and environmental compliance activities." The following is an excerpt from the Background section in the white paper:

Stationing actions consist of two components: a force structure component, which addresses manpower issues; and an installation component, which addresses facility management, to include military construction (MILCON) and facilities revitalization, housing and base support, base operations (BASOPS), family programs, environment, audio visual/base communications (AV/BC), and real property maintenance issues. With respect to environmental aspects to stationing actions, the National Environmental Policy Act (NEPA) facilitates planning efforts throughout the stationing process. NEPA is especially important for pre-decisional analysis of potential environmental impacts associated with stationing decisions, as reflected in the Record of Decision (ROD) for the Programmatic Environmental Impact Statement (PEIS) for Army Transformation.

An important part of Army Transformation is a continued emphasis on caring for the environment that surrounds and enables Army operations. The Army must size and locate its installations in such a manner that the environment is not unduly harmed while simultaneously maintaining the best mission training opportunities. The Army must engage in operational practices that support the mission today without compromising our abilities to meet future mission requirements.

This project, as outlined in the 4 May white paper, consists of the following tasks:

- (1) Review Army policy and procedures implementing the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) policy and position on improving the NEPA process, and literature on strategic environmental assessment/appraisal. Include in this review documents on environmental lessons learned from past Base Realignment and Closure (BRAC) processes.
- (2) Identify environmental (to include energy) issues that may prove significant and, therefore, warrant strategic consideration in stationing scenario development and/or other aspects of the TABS process. Specifically, identify those issues noted as potentially significant in the Programmatic Environmental Impact Statement for Army Transformation. Propose an effective approach to addressing these issues, on a strategic level, as part of stationing analysis and the TABS process.

On 21 June I revised the 4 May white paper, based on requirements articulated by COL Bill Tarantino and LTC Crabtree in the DASA (IA) office. It includes the following tasks:

- (1) Develop prescriptive rules for assessing the relative environmental impacts associated with a categorization/typology of units potentially involved in stationing actions. Consider environmental impacts associated with resource areas designated by the Joint Process Action Team (JPAT) for Criterion 8 and other areas identified as potentially significant from an environmental resource perspective. Use the unit categories provided by the Office of the DASA (IA).
- (2) Develop prescriptive rules for assessing the relative significance of environmental conditions and/or baseline impacts for environmental resource areas at each study installation. Base evaluations on expert judgment, Installation Environmental Profiles, provided by ODASA (IA), and other sources of data and/or analysis, as approved by the Technical POC.
- (3) Develop prescriptive rules for assessing the relative environmental impact, including cost impacts, associated with specific stationing scenarios. That is, develop protocols for evaluating the interaction between environmental impacts associated with various unit types potentially involved in a stationing action and the baseline environmental conditions at the receiving installation.

On 25 May I contacted Lisa Booher (USAEC), who then referred me to Joe Murphy, and Bill Russell (USACHPPM) to discuss coordination on input to the Criterion 8 assessment methodology. I also contacted Ted Reid (FORSCOM G3) and Stu Cannon (IMA-SERO) in order to explore their preliminary willingness and ability to support this effort. Furthermore, I contacted Bill Goran (ERDC-CERL) to discuss support from his team as well—beyond the work CERL already performed in support of Military Value Analysis (MVA). And I contacted Stacey Hirata and others at HQ USACE. From each of these organizations I requested candidate subject-matter experts (SMEs) in each of the 10 environmental resource areas covered under Criterion 8.

I organized a meeting with the TABS office and representatives from the SME organizations—ODEP, AEC, CHPPM, CERL, COE, AEPI, etc.—on 17 June. This served as a “kick-off” meeting, with Marstel-Day, LLC and Energy and Security Group (ESG) both attended as consultants to AEPI and TABS.

Sustainability Cost Accounting and Lifecycle Cost Analysis

On 23 March Michael Cain sent me a briefing you wanted me to see titled, “Investing in America’s Environmental Infrastructure,” by Maureen Koetz, the Deputy Assistant Secretary of the Air Force for ESOH. I noted the date, 02 July 2002, and made the connection to a briefing Tad McCall forwarded, which Ms. Koetz delivered in February 2004. This latter briefing seems to reflect the continued evolution and sophistication in Ms. Koetz’s approach.

I am very impressed with the concepts put forth in both presentations, and I think it resonates well with some of our thinking at AEPI. We have discussed previously the convergence of ideas with respect to linking operational requirements to resource requirements—and, thus, getting a “demand” function—to resource capacity (or capability, as the Air Force prefers; this, in turn, provides the “supply” function). This linkage gives us a powerful basis for planning and programming (or, as some of us would suggest, *investing*) in our natural infrastructure—our *natural capital*—to best enable current and future operational requirements.

There is additional benefit to articulating the full spectrum of "value" that is derived from such Army (and, indeed, DoD) assets, especially when balanced against the liabilities so often highlighted by others. The better able we are to articulate the value our built and natural infrastructure brings to the nation as a whole, as well as the distinct communities in which these assets reside, the better able we are to argue for additional resources from Congress in support of sustaining and, perhaps, expanding our holdings in areas where "deficiencies" may exist.

But what I see in these presentations is a philosophy—a mindset that pervades the organization and guides its strategy for transformation. I think there is a similar mindset within AEPI, but we may not have articulated it corporately and, perhaps, as effectively as Ms. Koetz and her team. This mindset is also reflected in the draft Army Strategy for the Environment. My fear is that there is so much "business as usual" surrounding attempts to transform the way we do business that there is need for strong expressions of leadership and real vision within I&E (particularly ESOH) to move us toward something genuinely new.

On 1 April I submitted additional comments to Michael Cain and others at AEPI for their consideration. My comments were as follows:

First, I want to point out that the briefing on "Investing in America's Environmental Infrastructure" corresponds to item #3 (slide 9) discussed in the briefing on "ESOH Resource Transformation". The latter briefing lays out four "principles," which could be described as objectives, that support an overarching goal: "Sustain resource supply to operational capability." The four principles/objectives are as follows:

- (1) Identify operational and financial risks to resource requirements in an objective, quantified manner
- (2) Inform risk management decisions through total cost visibility for ESOH resource requirements
- (3) Leverage equity value of the ESOH resource portfolio
- (4) Manage risk through investment that supports operational and regulatory requirements

Item #3 is the idea laid out in the former briefing, which proposes to inventory and appraise the value to the nation derived from natural infrastructure—natural capital—on military installations. Clearly there is military value to these resources, but there is social and environmental (and, perhaps, economic) value that has not yet been quantified and monetized. The argument is that we tend to quantify only our environmental liabilities—contamination, noise, hazardous materials, air emissions, soil erosion/sedimentation, UXO, etc. We don't account for the environmental assets on the other side of the financial ledger sheet. Our natural infrastructure is an asset, or, rather, a portfolio of assets, that represents value to the military and to the nation—it enables us to sustain readiness and it provides other social, ecological and economic benefits. The problem is that we have not yet quantified this value in terms of dollars—the universal language. This value assessment is what Ms. Koetz from the Air Force proposes in the first briefing, and I support her proposal to attempt this at several pilot locations. We should meet with her office to discuss the specifics regarding execution.

Now, as for the other items in the second briefing... Item #1 is similar in philosophy and approach to our work to quantify resource elasticity. The Air Force Resource Capability Model (RCM), developed by Booz-Allen Hamilton (BAH), attempts to quantify the resource capability needed to support operational requirements. That is, it quantifies the resource requirement (i.e. the "demand") to meet the operational requirement. The basic methodology is sound, but BAH approaches the question from the perspective of a given location—what is needed to meet operational requirements at this location. They should start with the operational requirements, and associated resource requirement, for specific military units (e.g. a Battalion, or Brigade levels), with distinctions for light, medium and heavy land assault and support capabilities and

other distinctions for air assault and support capabilities. Then the methodology should quantify the spectrum of resource capabilities (to use the AF term), which I refer to as resource capacities.

It is important to note, however, that these capacities are not static and that they assume certain consumption/use levels. And it is important to understand there is a cost to sustaining and (possibly) expanding resource capacity for a given installation. That is where the elasticity concept comes in—what does it cost to “supply” a given resource in response to a given “demand”. Competition for a given resource, such land or air space, and/or increased demand in general, may increase the cost. And additional investment may increase the supply. So resource capacity is somewhat a function of cost, and at some point it becomes financially infeasible to provide the resource beyond a given capacity. I’ve made this point previously, but I rehash here due to its relevance to the AF briefings.

The second principle/objective noted above (from slide 9 in the second AF briefing) is consistent with our sustainability cost accounting and management initiative. The intent is to gain visibility for the full cost of doing business with respect to managing environmental resources. We want to inform investment decisions and better manage costs. Measuring total costs and benefits should account for intangible as well as tangible items, and should address (in some manner) externalities—impacts that result from our “business” but which are not captured as an internalized (i.e. accounted for) cost. Externalities may be social, economic and/or environmental. These costs (from the externalities) may never be internalized, and therefore may never become “real” costs to the Army (or Air Force, etc.), but they should be considered as financial expressions of our social, economic and environmental impacts that may lead to a future liability. But it is important to point out, as Ms. Koetz does in her second briefing, that environmental regulations promulgated over the past 30+ years have internalized costs that were once externalized. It is also worth noting that the European Union is moving toward a policy directive requiring “full cost accounting”...

The final principle/objective is consistent with my recommendation that we develop the architecture for managing investments and actions in the Army to ensure we move toward our strategic goals and objectives expressed in the new Army Strategy for the Environment. Part of this architecture is a resource strategy for investing in our built and natural infrastructure to ensure we sustain our installations, operations, and communities. I think Tad characterized it as moving from “must fund” to “smart fund”...

These comments represent my attempt to connect the dots between Ms. Koetz’s briefing and our work at AEPI. I recommend the Army develop a capability akin to the Resource Capability Model—beyond our work with The Army Basing Study (TABS), which is subject to nondisclosure—that incorporates the concept of resource elasticity into the capacity equation. This speaks directly to our 2nd Army Strategy for the Environment (ASE) goal.

The second point is that the Army needs to develop the capability to resource and execute the ASE effectively. I suggested we develop an integrated architecture that builds upon best practices in industry, linking ASE strategic goals to the Army SRS strategic goals and the “Resource Framework”. We also need performance measures that ensure we are measuring and managing the right things and that enable us to monitor progress toward attaining our strategic goals and objectives. This “strategic management system” that I am describing also must institute the means to accountability among those charged with executing initiatives that advance the strategic goals in support of the Army mission. What happens if one critical piece of the organizational puzzle (e.g. the Acquisition or Logistics or Training or Installation Management piece) doesn’t do its part...?

And thirdly, I strongly believe the Army needs to develop a full cost accounting approach, which includes an assessment of externalities, in order to better understand the cost of doing business and to enable us to reduce those costs over time. While there are those who would argue against quantifying externalities and assigning financial value to them, I

contend there is value in understanding these costs as a burden we impose on others and as potential liabilities that we may one day internalize either due to regulations or, perhaps, due to legal action.

I contacted Lance Hancock, Institute for Defense Analyses (IDA), and requested electronic copies of the reports sponsored (at least in part) by AEPI with respect to lifecycle environmental considerations for weapon systems development. Under AEPI sponsorship, IDA developed a "Systems Engineering Environmental Methodology" for identifying environmental aspects. Lance delivered these reports via email on 2 April.

I drafted a white paper on developing an "Integrated Architecture...", building upon work completed in the sustainability costing initiative and leveraging requirements implied by the draft Army Strategy for the Environment—covered in the SPP and SMS initiative below. AEPI used this white paper to develop a statement of work (SOW) to accompany a MIPR to DASA-CE for obligation and execution using an existing ID/IQ contract with CALIBRE Systems, Inc. Energy and Security Group (ESG) is a subcontractor to CALIBRE on this task order, but serves as the project manager.

Strategic Planning Processes and Sustainability Management Systems

On 10-11 March I attended a working meeting with other members of the "core writing team" to complete edits on the Army Strategy for the Environment (ASE). We completed the document and developed slides to present to the review group meeting the following week. I attended the review group's meeting on 15 March to ensure they understood the intent behind goal statements and narrative provided in the draft document. Once the review group completed its recommended changes to the ASE, the writers were offered the opportunity to provide comments in response. I prepared comments, to include a proposed revision to the draft ASE, which I placed on the website provided by Battelle, in support of AEPI, for that purpose.

In addition to my work on the ASE, I continue to prepare a white paper, "Sustaining the Mission to Secure the Future: Strategic Objectives, Significant Aspects and Sustainable Operations." My intent is to demonstrate how strategic planning and management systems contribute to sustaining the mission and enhancing operational effectiveness, without compromising the resources and communities the Army aims to secure. The paper explores how sustainability objectives can and should be designed to keep the Army ready and relevant, now and into the future.

The white paper discusses the basic concepts of environmental management systems (EMS) within the context of strategic planning and management for sustainability in the Army. It briefly discusses the fundamental "business" of the Army and the strategic objectives designed to support core competencies during a transformation from the Current to Future Force. Then it discusses sustainability aspects and impacts in relation to the major functional areas reflected in the Army Strategic Readiness System (SRS). It uses an understanding of significant aspects and impacts to discuss how to develop strategic objectives, from a sustainability perspective, to support the Army mission and (perhaps) enhance operational effectiveness. This approach includes considering the significant community, cost and environmental aspects of the Army mission that can impact on the long-term sustainability of that mission, to include the resources on which it depends. The underlying premise is that to sustain the Army mission, and thereby remain relevant and ready (today and tomorrow), the Army must work to sustain those natural resources and environments on which we all depend and secure them for the future.

On 19 March I submitted for consideration a white paper on the need to develop an integrated architecture for strategic planning processes and sustainability management systems. The intent is to enable the Army to resource and execute the ASE. Furthermore, it is intended to enable the Army to institute an ISO 14001 conforming management system at the headquarters or "corporate" level, which is linked explicitly with the SRS and other management processes.

The ASE, draft as of 15 March 2004, is an ambitious strategy to carry the Army toward more sustainable operations and installations over the next 25 years. But strategies tend to fail in execution due to an inability to translate planning into action. One significant challenge is in the realm of "resourcing": the Army needs a long-term investment strategy that moves it toward these goals. Another challenge is to develop a system for managing execution of the strategy—a strategic sustainability management system complete with objectives, measures, initiatives, and resources. It is critical to identify responsibilities for planning, programming, budgeting, executing and reporting if the Army is to ensure that sufficient accountability is built into this strategic management system. And this system for managing strategic environmental goals must link to the Army's system for managing other priorities rather than building a separate system for the environment.

On 5-8 April I attended the NDIA Environmental and Energy Symposium, held in San Diego, California. During an AEPI-sponsored session on 5 April, I provided an overview briefing on sustainability, which was well received.

On 13 April, I received a paper written by a friend and colleague, Karen Kivela, at the Air Force Center for Environmental Excellence (AFCEE). It is a good reflection of the ideas we've been promoting within the Army for the past few years, and she does a commendable job in discussing the relationship between sustainability, sustainable design/development, and environmental management systems. Karen acknowledges me for allowing her to "steal" his ideas in preparing this paper.

I have known Karen for about 4 years. We met initially to discuss ways to promote "cross fertilization" of ideas about sustainability, sustainable design and development, etc. across the Services. Karen manages a list-serve through DENIX called "Sustain-Net", which promotes (primarily) green buildings and environmentally preferable products).

I advised Linda Rice, P2/EMS Manager at Fort Eustis, on how best to integrate sustainability principles/concepts into workshops as part of the installation's EMS implementation. The first workshop is intended as a general awareness session, helping personnel understand sustainability—what it is and how it relates to them—and to identify environmental aspects and impacts associated with major installation activities. The second workshop is designed to evaluate the aspects and impacts according to significance criteria, reflecting broader sustainability concerns—mission (capability), cost, community (well-being), and the environment (i.e. resources and ecosystem services). Within the second workshop, participants also draft challenge statements, which reflect the most significant impacts on the environment and threats to military value. The third workshop revolves around setting 25-year strategic objectives (or goals) for the installation, based on the challenges identified in the second workshop. From these goals, which set strategic direction, team members define objectives and measures against which to measure success. They identify specific targets to achieve—how much and by when—and develop initiatives and actions to bridge the gap between baseline conditions (where they are today) and objective conditions (where they want to be in 5, 10 or 25 years).

On 4 May I&E/ESOH began formal staffing on the coordination draft of the Army Strategy for the Environment (ASE). ESOH requests comments no later than 1 August 2004. The final ASE will be signed by the Secretary of the Army (SA) and the Chief of Staff of the Army (CSA) sometime before the end of this FY—probably in September.

On 12 May I met with AEPI and ESOH staff, along with other consultants under contract to AEPI, to discuss sustainability initiatives for the Army in the international arena. We discussed existing projects/initiatives and potential FY05 initiatives, focusing on issues and opportunities for AEPI to support ESOH.

On 18 May I met with George Carellas, Carl Scott, Michael Cain, John Fittipaldi and others to discuss the AEPI project, "Integrated Architecture for Strategic Planning Processes and Sustainability Management Systems." The emphasis for this project is on how to "manage" investment and execution in support of the Army Strategy for the Environment; however, this effort evolves from the AEPI sustainability costing initiative. It actually merges that initiative with issues and objectives noted under another AEPI "project" on strategic planning processes and sustainability management systems. It ties together the need to develop a funding strategy that allows us to invest in the future, to identify and reduce the full (and true) cost of doing business, to measure performance toward strategic goals and objectives, and to ensure accountability among all parties. That is why this effort is an evolution and convergence among our foci on sustainability costing/accounting, strategic planning, and management systems.

On 16 June I met with Beverly Robertson, Herb Wolverton, and Annette Mann—all from the Plans Division within HQ IMA—along with Tim Rensema (under short-term contract to IMA) and Linda Rice (on 90-day detail from Fort Eustis) to discuss integrating sustainability with installation strategic planning. I provided some general recommendations on how to proceed, including a list of names from which to draw upon for facilitation at a workshop they plan for September. The purpose of this workshop will be to build consensus on an installation strategic planning process that integrates sustainability principles and practices. This meeting resulted in a request from HQ IMA, through ODEP, to AEPI for support from me on this initiative. Here are the specific tasks on which HQ IMA requests assistance:

- (1) Assist in the Development of Strategic Plan Training and Professional Development
 - (a) Develop a listing of strategic planning facilitators and participants for the Sep Planning Session and World Wide Conference.
 - (b) Provide technical support to the development of the theme, agendas and methodology (Keynote, panel, field trip) for the Sep Planning Session, World Wide Conference, and possible installation workshops.
 - (c) Provide a list of strategic planning courses to be included in enhancing the professional capabilities of strategic planners (LEEDs, GIS, etc)
- (2) Assist in Development of a Straw Man Model for the IMA Strategic Plan
 - (a) Evaluate AR 5-3 to determine how it could be changed to reflect Installation Strategic Planning vs. Installation Management.
 - (b) Assess the relationships among Government Performance Results Act (GPRA), Army Strategic Planning Guidance, The Army Plan, The Army Environmental

Strategy, IMA Strategic Plan, AR 200-1, AR 200-2, and other strategic planning documents in order to develop an IMA Strategic Plan model.

- (c) Evaluate installation baseline data related to their efforts in strategic planning and sustainability
- (d) Develop a Strategic Planning process with linkages between the Common Levels of Support (CLS) and the SRS (Balanced Score Card)

Planning and Policy Integration for Sustainable Installations

I continue to advise Elizabeth Keysar on her ORISE participation to outline an integrated installation planning process to meet multiple requirements simultaneously. Her work began with a review of major environmental (and related) planning requirements managed by installations to determine the extent to which there are linkages and overlaps that lead to (unnecessary) redundancies and inefficiencies. Our hypothesis is that improved integration among these planning requirements will reduce costs, improve efficiency, and better advance the principles and practices implied in the concept of sustainability.

On 5 March I submitted an abstract on this project to the 9th Annual Joint Services Environmental Management Conference & Exhibition. We should hear on our about 17 May whether this abstract was accepted for presentation during the conference.

Elizabeth continues to work in close coordination with John Wuichet, who is employed by J.M. Waller and supporting the Southeast Regional Office of the Installation Management Agency, in the execution of this phase of the project. Elizabeth is building the integrated planning framework and validating it through interactions and discussions with installation master planners and environmental professionals.

I advised Elizabeth et al on the format for the FPD session, and I attended the FPD Workshop and APA National Planning Conference.

Sustainable Management of Army Land-Based Assets

No action has been taken specifically on this aspect of the contract scope of work. However, we have discussed leveraging AEPI resources with those of the Engineer Research and Development Center (ERDC), Construction Engineering Research Laboratory (CERL). There is an opportunity to bring convergence on several efforts that attempt to quantify resource capacity available to installations and competition for resources leading to "encroachment" on mission and support operations. At a minimum, installations must have sufficient capacity with respect to air shed, watershed, land and energy resources. They also must have sufficient waste management capacity, to include solid and hazardous waste management and wastewater treatment.

I'm not an economist, but I believe the quantification of resource capacity and costs can be effectively considered as a matter of "resource elasticity". This recognizes that capacity is somewhat a function of cost in that we can/must "invest" in several ways to sustain and possibly expand resource capacity for any given location. For example, we can "buy" more land (in terms of actual ownership, access easements, or conservation easements as buffer) to meet current and/or future requirements. This might allow us to manage those land resources more sustainably in that we can "rest" the land more and cycle our training over a larger area, thereby not degrading it as fast and, hopefully, saving land maintenance costs

in the long run. Also we can invest in conservation measures that increase the productivity of a given resource and/or our efficiency in the use of the resource, effectively lowering the floor on the overall capacity and thereby expanding what is available—i.e. how much activity and/or how many people the resource is able to sustain.

The Office of the Deputy Under Secretary of Defense (DUSD) for Installations and Environment (I&E) sponsored MITRETEK to look at quantifying mission encroachment. The Office of the Deputy Assistant Secretary of the Air Force (DASAF) for Environment, Safety and Occupational Health (ESOH) sponsored Booz-Allen Hamilton (BAH) looking at the match between operational requirements for resources versus the availability (or capability) of local/regional resources to meet those requirements.

The Booz-Allen work is promising, but it fails to account for resource elasticity. At this point, it merely quantifies the deficiencies or opportunities within a given area (i.e. an installation and its operational area) given a particular mission taking place at that location at this point in time. It is a "snap-shot" and doesn't offer any dynamic analysis or optimization of the match between resource requirements and resource capacity/capability. Furthermore, it doesn't look at the investment potential to expand, or even sustain, the amount of resources available at that moment in time. Another limitation is the cost to conduct the analysis is too high (~\$80K per installation) for an optimization drill across the entire spectrum of military installations—thereby allowing us to look at "joint opportunities".

I recently suggested to researchers with the U.S. Army Engineer Research and Development Center (ERDC), Construction Engineering Research Laboratory (CERL), there may be opportunity to leverage work sponsored by the offices of the DUSD (I&E) and the DASAF (ESOH) to further develop a methodology that integrates these attempts to quantify "encroachment" and its implications on sustaining capabilities on a given installation. ERDC-CERL is exploring the economic (or cost) implications of "exogenous factors". Leveraging these initiatives affords us an opportunity to address more fully the General Accounting Office (GAO) criticism that the Department of Defense (DoD) doesn't have an effective methodology for identifying the actual costs and/or impacts of encroachment on mission and support operations.

I drafted a white paper on further developments to the BAH "Resource Capability Model" (RCM) for application to Army installations. AEPI used this white paper to prepare a SOW and issued a task order to BAH through a Broad Purchase Agreement (BPA) with the Veterans Administration.