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Construction Managers Association of America

## Member Communication Experience

Financial, social, and environmental outcomes define the three elements of sustainability.
Large programs, comprised of multiple inter-related projects, present new challenges and opportunities from a sustainability perspective.
Elements of sustainability are increasingly a fundamental requirement to undertake large capital construction programs.
Owner's and program manager's focus must shift to a more comprehensive life-cycle perspective.
Sustainability is lacking an obvious and measurable common "currency" (monetary or non-monetary) for expressing the magnitude of all the good and bad produced.
In many industries, securing this "social license to operate" is key to a program's success.
Social sustainability issues are program-wide and not geographically bounded.

Large, complex engineering and construction programs may be found in all industry sectors. Such projects range from extractive industries such as oil, gas, and mining to infrastructure programs for

An owner or program manager has many reasons to practice sustainability including:

- Reduced costs and waste.
- Reduced liability, emissions, and environmental hazards.
- Efficient and effective management and disposal of materials.
- Enhanced image in communities and a reduced

Recognizing the major elements of sustainability are increasingly a fundamental requirement to the successful undertaking of large capital construction programs. Sustainability drivers include not only the owner's and program manager's commitment to sustainability

Allocation or virtualization of portions of project labor to lower cost locales.
Acceleration or schedule modification of engineering and other program activities through workshare approaches that act to expand the available labor pool.
Standardization to reduce overall supply chain size and spare part inventories.
Maximization of preassembly and modularization efforts by treating as client-furnished materials (CFM) to multiple projects.
Craft training of the shared labor pool, elevating overall safety awareness and consistency while improving productivity for the program's benefit in ways that may not be justified on a project-by-project basis.
Design efforts better focused on project execution and life-cycle cost reduction.
Capturing and sharing lessons learned and best practices on a programmatic basis for the benefit of all program contractors.
Risk consolidation opportunities, including commodity hedges, exchange rate risk retention and hedging, and contractor or owner provided insurance wrap-ups across the supply chain.
Facilitating smaller supply chain activity with augmented supplier quality assurance assistance.
Early input gathering on the eventual operations & maintenance (O&M) requirements on a programmatic

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What is lacking is an obvious and measurable common “currency,” either monetary or non-monetary, for

The program manager's social responsibility program must be guided by an overarching set of principles based on values and purpose,

ISO 26000 – Social Responsibility lays out a number of areas requiring the program manager's attention. Among these is involvement in and development of the communities affected by the program. It is important for the program manager to recognize these may all not be at the final project locations, but could also include major manufacturing, logistics, or module assembly sites far away from the final

Performing supplier prequalification surveys such as querying whether procedures exist to prevent discrimination and harassment and querying existence of certifications such as ISO 14001.

Also, are there processes precluding child or compulsory labor, reducing work-related injuries, and reducing construction waste sent to landfill that can result in reducing truck noise in communities?

Additionally, are there established programs for conducting craft worker training programs, providing training facilities for craft personnel, providing training for projects in remote locations, and developing owner's local staff capabilities? These projects also typically provide a huge learning environment for careers in STEM for students of all age

Increasingly, social justice is a core focus area in society as a whole. Attention to the needs of the personnel involved with the project and community where they work and live is important.

Training, technology transfer, and organizational development are not confined to the owner's staff. Recognize the broader societal objectives as well as the opportunities created through the program.

– The implementation and longer term maintenance of the program's facilities will often require the local construction industry to expand its skills base to include specialized skills associated with the program. In addition, increased attention to safety is paramount in a program of scale since construction-related accidents can be a primary cause of project disruption. Craft certification programs can be used to create a permanent, local craft pool to meet operating phase requirements.

– This program will identify targeted areas with a long-term requirement for subcontracting to local contractors. These sectors

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Large projects require cognizance of the requirements and guidance contained in the ISO 14000 family of standards. Increasingly these standards may be directly included inproject contracts. The following table identifies the standards that comprise the ISO 14000 family of standards.

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| Environmental management systems | Requirements with guidance for use |
| Environmental management systems | General guidelines on principles, systems, and support techniques |
| Environmental assessment of sites and organizations | |

On a portfolio of projects or programs utilizing a broad-based program management approach, the importance of attention to environmental sustainability continues to be heightened. Multiple projects managed in an uncoordinated way may cause total environmental impacts from the program to exceed threshold limits. Additionally, various emissions and discharges, while on average may be within acceptable levels, may also reach unacceptable levels if discharges by multiple projects coincide or overlap in unanticipated or unacceptable ways.

Comprehensive attention to the environmental, health, and safety bottom line will not only help eliminate these unintended consequences, but can identify opportunities for performance enhancement in each of these areas on a programmatic basis.

The environmental bottom line facts associated with large engineering and construction programs include the following:

Estimated that 25 percent of construction materials are waste.
Estimated that 20 percent of landfill volume are due to construction waste.
Construction consumes estimated 40 percent of extracted resources in developing countries.
Construction consumes estimated up to 40 percent of generated energy in world.

Large programs utilizing a program management approach have an opportunity to change this paradigm by undertaking program-wide efforts that may be financially prohibitive on a project-by-project basis. Examples of some of these environmental opportunities that a program management approach may facilitate include:

Large, complex engineering and construction programs are a major driver of the triple bottom line of financial, social, and environmental outcomes. It is essential that sustainability be a foundational consideration in every aspect of the programmatic endeavor. Reduced costs and waste, reduced liability, emissions and environmental hazards, efficient and effective management and disposal of materials, enhanced image in communities and a role model for others, along with corporate responsibility both short-term and long-term are all elemental outcomes of a sustainability program.

In reviewing the subject,