

Barriers – The Big Ten

Perceived economic impacts

Description: sustainability projects cost more up front

Root cause: lack of knowledge; external factors that will eventually go away

Barrier breakers: look for first cost offsets; see also lack of resources for ideas on leveraging “free” external resources; explicitly build in a cost factor to allow for learning curve items, premium products, etc.; begin with low or no cost solutions to establish a history of success, e.g., reuse of existing structures, change paint colors, native plantings to eliminate irrigation requirements; seek projects with rapid payback; use true cost accounting and count all benefits!

Example: Homestead Fire Station; Kansas City EPA; infrastructure cost savings

Resources: *Natural Capitalism* (see <http://www.naturalcapitalism.com>), <http://www.greenguide.com>

Resistance to change

Description: stake in the status quo; lack of appropriate trigger (see Jorge’s original slides); perception of added responsibilities

Root cause: lack of motivation; lack of knowledge

Barrier breakers: Explicitly articulate costs and benefits – provide better information to encourage appropriate reactions; education; focus on the long term vision; top management support of key players; provide sufficient resources; focus on alignment; choose battles wisely to ensure short term victories; develop explicit goals; publicize via web site; emphasize existing sustainability successes; do pilot projects; develop awareness and alignment with vision; get everyone talking about it

Examples: quick seminar to key players on command staff; planning retreat to allow people to develop internal solutions – Fort Bragg charrette, Camp LeJeune; CDC – low VOC paints example demonstrates that they’re already doing sustainable building strategies successfully

Resources: *Agent of Change*

Lack of necessary knowledge

Description: ties to risk of failure; lack of awareness of sustainability goals by all stakeholders

Root cause: none (this is the ultimate root cause of unsustainability)

Barrier breakers: more education and training; lunch and learns, case studies, field trips; establishing a resource center (product samples, reference materials); developing detailed guidelines for sustainability projects; safe environment for trial and error (tie to trialability); add experienced personnel to project teams; use mentors; develop a green team; get certain personnel trained deeply in specialty areas; periodic refresher training; give green team authority to audit projects and make change recommendations; partnering and mentoring (add to RFQ for A/E)

Examples: lunch n' learns; SFI training; CA/WA energy mentoring approach

Resources: see *Training.doc*

Risk of failure

Description: the caged guinea pig conundrum – products don't perform as anticipated, expected returns on investment don't materialize, and people lose credibility

Root cause: lack of knowledge about likely outcomes

Barrier breakers: Try new products in situations where no one *always* has to live with the consequences and where different technologies can be compared to one another, e.g., showers in gyms, toilets in dining facilities, etc. More information can lead to better decisions (raw data, case studies, analysis tools) with lower risk of failure; manage penalties associated with failure, especially when failure results from innovation. Establish a knowledgeable core team that can review potential ideas and confirm their reasonableness (distributing risk of failure across a team); partnering; mentoring

Example: Robins gym showerhead idea – get manufacturers to donate different showerheads, then conduct a study to see which ones people like the most and how well they work

Resources: Case studies; lessons learned sites like <http://www.3di.com/gbof>; Karen Kivela's mailing list; Green Clips, greenbuilding digest

Lack of management buy-in

Description: upper levels of management get in the way and fail to provide necessary resources, either through discouraging behaviors or sheer apathy

Root cause: never attribute to malice what can be adequately explained by ignorance. Lack of information about true costs and benefits.

Barrier breakers: develop mission and vision to help management understand what you're talking about in language they will understand; put the "get your star" spin on it; seek positive publicity; make management look good; emphasize federal policy trends; ensure that all stakeholders receive sustainability training; proactive alignment measures; command staff training; sustainability functional unit to provide continuity through command changes (civil servants always outlast command staff); organizational

infrastructure that can sustain sustainability; promoting successes; investment in knowledge resources; creating awareness of (and subsequent demand for) sustainability benefits; framing benefits in ways command staff can understand

Example: the Anderson conversion (see *Mid-course Correction*), John Mogge in AFRC

Resources: project alignment training; 3rd party facilitation/diagnostics; spin doctoring; publicity opportunities

Lack of resources

Description: lack of extra time, money, and human resources to devote to the challenge of implementing sustainability; exacerbating factors include downsizing, already heavy workloads, etc. Ties to lack of management buy-in.

Root cause: sustainability is perceived to require more resources (and for now that's probably true). But what internal and external sources of resources could be exploited to fill the gap? How much waste could be eliminated?

Barrier breakers: Seek ways to leverage existing tasks/responsibilities; management providing extra resources; using external "free" resources; seek solutions that solve multiple problems at once; seek durable solutions

Example: Robins P2 program; NREL prototype technology; Minneapolis fuel cell; free assistance from DoE

Resources: available tech assist programs and resources for federal agencies

Lack of incentives/rewards

Description: no benefits to change agents for doing things differently, and no penalties for staying the same

Root cause: implementers are already overworked, and altruism is inherently unsustainable

Barrier breakers: formal (programs to officially recognize and reward people who take steps toward sustainability), informal (management pats on the back), or inverse (policies to absolve penalties for trying new ideas) incentives; distribute responsibility for sustainability across whole teams to manage penalties of failure; choosing *visible* places to start; designating projects as pilot projects to highlight successes and explain failures

Example: GSA Awards for SDD

Resources: list of awards that can be achieved for doing sustainable projects (e.g., silver hammer, GSA awards, etc.)

Unclear payoffs/measures of success

Description: uncertainty about the true impacts of trying sustainable solutions; traditional metrics such as total installed cost or on-time completion may seem to penalize sustainability projects, and metrics that could give sustainability projects an advantage are not traditionally considered.

Root cause: no one wants to take a risk of failure if the requirements for “winning” have not been defined and the rules of the game are not understood

Barrier breakers: Consideration should be given to establishing additional project metrics that are performance based (e.g., via whole project commissioning to ensure functionality to design specs), life cycle oriented (i.e., that take into account not only front end costs but also operations, maintenance, and end of life cycle costs), and environmental (i.e., that weight as important issues of ecological impact and human health, safety, and livability). Explicit goals and measurable objectives should be clearly established.

Example: sustainable schools; cost of sustainment; LEED and SPiRiT as metrics for project success

Resources: LEED/SPiRiT sites; check back with SFI about the sustainment study next year

Existing procedures/standards

Description: Fragmentation and failure to convey information between parties as a project passes from initiation to contracting can result in sustainability features being "value engineered" out of a project in the interest of reducing installed costs, while significantly increasing life cycle costs. Color of money, dollar fencing, public accountability, and extra time requirements for sole sourcing can also stand in the way.

Root cause: procedures designed to increase process efficiency and accountability have to be robust enough to work in all situations, and therefore they have a lot of extra fat.

Barrier breakers: Existing procedures and standards exist for a reason – they represent the evolution of many years of trial and error. But they can also unnecessarily constrain situations where custom solutions are desired and adequate resources exist to make them successful. Changes in policy to improve the procurement process is one way to address this barrier, although such changes will likely only take place over time. More immediate strategies include training and education of *all* project stakeholders about the organization’s vision and mission for project sustainability, better documentation of design decisions that gets passed on to contracting, and feedback review of downstream changes. Application of life cycle-based metrics of project acceptability can also ensure that both contracting and engineering are making decisions on the same basis.

Example: AFCEE’s design decision documentation sheet (Appendix B in the *Environmentally Responsible Facilities Guide*); value-based selection processes; infusion of \$ from nontraditional sources; capture of dollars saved back to the installation.

Resources: see Eisenberg's www.dcat.org survey

Conflicts with mission requirements

Description: the possibility that implementing sustainability strategies for a project may compromise the ultimate performance of the facility with respect to mission requirements.

Root cause: the perception that sustainability is an “add-on” requirement; early experiments with alternative materials

Barrier breakers: First, better knowledge about the likely performance of sustainable facility technologies and strategies can provide a greater confidence that they will perform as intended (see also Lack of Knowledge strategies). Second, reframing the existing mission to include sustainability can address this barrier. Piggyback on other requirements!

Example: CDC mission integration of sustainability; AFCEE's mission integration; force protection requirements like shatter-proof windows can also prove to have energy efficiency benefits.

Resources: AFCEE guide; lessons learned site; Piggyback!