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Teaching a *New* Dog *Old* Tricks: The Synergy of ISO 14000, NEPA, and Integrated ES&H Management

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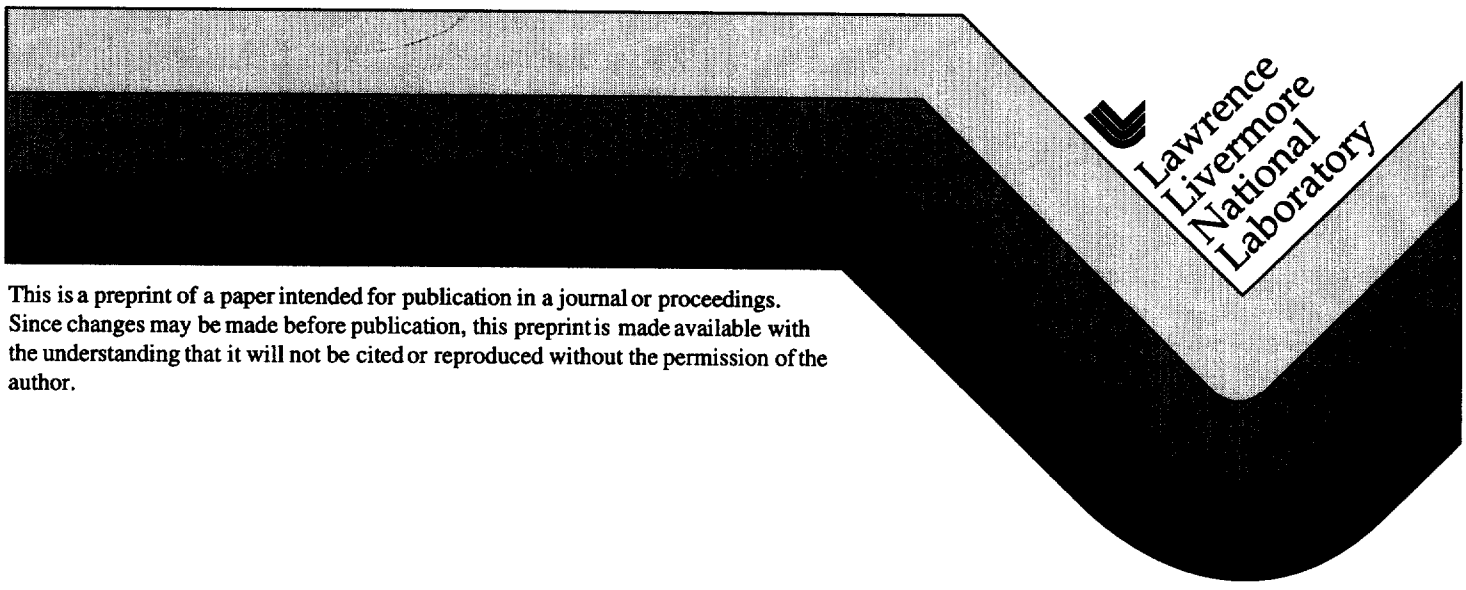

TEACHING A *NEW* DOG *OLD* TRICKS: THE SYNERGY OF ISO 14000, NEPA, AND INTEGRATED ES&H MANAGEMENT [1]

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ABSTRACT

For more than twenty-five years, federal agencies have wrestled with (and even learned from) the planning and decisionmaking processes of the National Environmental Policy Act (NEPA). Accordingly, agencies have developed established processes for environmental planning, impact assessment, and environmental-based decision making. Agencies are now faced with an opportunity to align existing environmental planning systems developed under NEPA with those of ISO 14001, the new international standard for environmental management systems. Through experience gained with NEPA, agencies may have an opportunity to assist the private sector through sharing of lessons learned in identification and mitigation of environmental aspects and impacts. However, agencies should also learn from the private sector how integrated "environmental" management includes integrating environment, safety, and health (ES&H) considerations in such a way as to add direct value to the business. In times of continued and increasing federal agency downsizing, the government can streamline ES&H management planning by integrating ES&H values with business goals.

The first synergy of NEPA and ISO 14001 is the identification and assessment of environmental impacts. Under ISO 14001, an organization must identify the "environmental aspects of its activities, products or services." This is similar to the approach taken in NEPA where agencies must evaluate significant environmental impacts of its actions.

The second synergy is the reduction and mitigation of the impacts. ISO 14001 requires a commitment to prevention of pollution and the NEPA process integrates pollution prevention with environmental planning. ISO 14001 requires checking and corrective action to monitor and measure progress toward environmental goals. NEPA applies mitigation measures to avoid or mitigate potential impacts.

Because agencies have been conducting NEPA impact assessment for more than twenty-five years, this body of impact assessment experience can provide valuable knowledge to the private sector where environmental impact analysis is a new approach for some industries. One of the ISO 14000 series of standards actually states that impact assessment is "still in relative infancy." Therefore, NEPA analysts may be able to provide established impact assessment techniques to industry.

However, Federal ES&H managers must learn from the private sector by using the integrated environmental management system as a corporate tool to tie agency objectives with environmental goals. In a time of increasing federal downsizing, the ES&H professional must become smarter about how their service adds to the agency goals and makes the most of the taxpayer's dollar. Integrating ES&H management in such a way that business goals are met is the way of the future in both the public and private sector.

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ISO 14001, NEPA, AND INTEGRATED ENVIRONMENTAL MANAGEMENT

In September 1996, the International Organization for Standardization (ISO)[2] released the approved environmental management systems standard, ISO 14001, which is the first of a series of standards generally known as ISO 14000. ISO 14001 is the specification standard for establishing an environmental management system largely based on a total quality management (TQM) management framework (plan, do, check, review). ISO 14001 calls for an environmental management system that supports the corporate environmental policy, establishes compliance with applicable regulations, commits to prevention of pollution, and strives for continual improvement.

More than twenty-five years prior to the release of ISO 14001, the Federal government issued the National Environmental Policy Act of 1969 (NEPA). One of the primary focuses of NEPA was to "utilize a systematic, interdisciplinary approach which will insure the integrated use of the natural and social sciences and the environmental design arts in planning and in decision making" (NEPA 1969, Section 102(2)(A)). Experience with NEPA has shown that an interdisciplinary approach creates a synergy among disciplines and encourages the development of comprehensive strategies that cross administrative and political boundaries (CEQ 1997). This ability of NEPA lends itself well to the use of NEPA as a management system, or the integration of NEPA with other management systems.

Application of an ISO 14001 environmental management system could help more fully integrate environmental issues with existing programs such as NEPA and is consistent with the interdisciplinary review approach of NEPA. ISO 14001 and NEPA directly correlate in many aspects including the identification of potential environmental impacts (called "aspects" in ISO 14001), and the prevention or mitigation of these impacts.

SYNERGIES OF INTEGRATED ENVIRONMENTAL MANAGEMENT

Both ISO 14001 and NEPA individually have strengths and weaknesses. When used in concert, a synergy of benefit results enhancing the strengths and mitigating the weaknesses. This synergy is further examined in two areas: identification of impacts, and the mitigation of those impacts.

Aspects and Impacts

The first interface is the identification and assessment of environmental impacts. Under ISO 14001, an organization must identify the "environmental aspects of its activities, products or services that it can control and over which it can be expected to have an influence, in order to determine those which have or can have significant impacts on the environment" (ISO 1996).

[2] "ISO" is not an acronym for "International Organization for Standardization," but rather a term, derived from the Greek *isos*, meaning "equal." The term has the advantage of being valid in each of the organization's three official languages - English, French and Russian. (ISO 1997).

This is similar to the approach taken in NEPA where agencies must use an interdisciplinary approach to evaluate significant environmental impacts of its actions.

The interdisciplinary review concept espoused in NEPA provides the basic framework for impact assessment. The CEQ NEPA Effectiveness Study found that NEPA's most enduring legacy is its ability for use as a framework for collaboration (CEQ 1997). This basic premise of NEPA can be applied in the ISO process of identifying the significant environmental aspects. For example, AlliedSignal at the Kansas City Plant is moving through the process of certification to ISO 14001. In their certification process, they gathered key environmental personnel, facility representatives, and other ES&H personnel to provide a interdisciplinary review of the Plant's operations, products, and services. AlliedSignal found that existing documentation (such as NEPA documents), when used alone, were not comprehensive enough to fully address all environmental aspects. AlliedSignal found they needed several input methods and a true interdisciplinary review to fully capture their environmental aspects; especially the indirect aspects. The existing documentation such as NEPA and safety analysis reports were useful, but the pieces tended to be disjointed and needed the interdisciplinary review to fully bring the pieces together in a transparent, clear, and logical process (EFCOG 1997). Thus, there may not always be a one-to-one correlation of NEPA "significant impacts" and ISO "significant aspects." However, the NEPA documentation such as site-wide or programmatic environmental impact statements or environmental assessments provide a good starting place to begin evaluation of "significant aspects."

Mitigation and Monitoring

A second synergy is mitigation and monitoring.

Under NEPA, agencies are encouraged (but not required) to "take actions that protect, restore, and enhance the environment" (40 CFR 1500.1(c)). When an agency decides to implement another course of action (one that has environmental impacts), the agency is required to follow through with monitoring and mitigation as part of the decision (40 CFR 105.2(c)).

However, the NEPA process has not been fully utilized to achieve the desired level of mitigation and monitoring. At the 25th Anniversary of NEPA Conference, March 1995, Mr. Ray Clark and Mr. Richard Carpenter charged Federal agencies to "find ways to get feedback for predictions and environmental management" citing that "no environmental impact statement process has never done a decent job of providing feedback" (DOE 1995).

To help counter this shortcoming, Mr. Clark called for a model to "predict-monitor-adapt" using the information learned from feedback and monitoring (DOE 1995). Carpenter called for the need to continuously modify environmental management practices based on new information learned from environmental monitoring (Carpenter, 1995). The need for monitoring and adaptive management was also highlighted as a future challenge for NEPA in the NEPA Effectiveness Study which called for "science-based and flexible management approaches adapting mitigation and project implementation" (CEQ 1997).

Such an approach of adaptive management is precisely the management system approach called for in ISO 14001 which is based on the "plan, do, check, review" total quality environmental management approach. Under ISO 14001, periodic audits are needed to determine if the management system conforms to the requirements of ISO 14001 and to look for evidence of continuous improvement. Based on identification of aspects, the management system should have mechanisms in place to mitigate the aspects and correct any non-conformances. In this regard, the ISO 14001 total quality environmental management approach could help close the circle on the NEPA mitigation and monitoring deficiencies cited above.

An ISO 14001 ES&H management system could help ensure consideration and mitigation of potential impacts and hazards identified during NEPA, safety analysis, or through enhanced work planning.[3] For example, when a NEPA document identifies potential impacts related to routine or accidental releases, the ISO 14001 ES&H management system could assure assessment and implementation options for pollution prevention or other mitigation measures. The assessment would determine the feasibility of emissions reduction by adjusting operations or installing technology. Ideally, the analysis of pollution prevention options would be considered in the NEPA process. Although the Environmental Protection Agency (EPA) has issued guidance on the integration of NEPA and pollution prevention activities, the NEPA process many times is only a paper exercise without any follow-up activities focused on pollution prevention. An integrated ES&H management system could set objectives and allocate responsibility and resources to assure that NEPA and pollution prevention activities actually result in operational changes that reduce routine emissions (Meier 1997).

PITFALLS TO BE AVOIDED

Although synergies exist between ISO 14001 and NEPA, there are pitfall to be avoided.

"ISO-lation"

While ISO 14001 sets the framework for an environmental management system, the standard remains focused on *environmental* objectives and might not be explicit enough in calling for integration of ES&H practices. As a unfortunate result, an ISO 14001 environmental management system might lead to "iso-lation" or further stovepiping and segregation of the ES&H disciplines. Although ISO 14001 is a management system, it unfortunately is labeled as an "environmental" management system. This terminology may inadvertently segregate the environmental professionals from safety and health professionals, and may cause managers to view ISO 14001 as just another environmental issue.

[3] Enhanced work planning is a recent DOE initiative that focuses on prevention of accidents through early identification and mitigation of hazards (DOE 1996c). Such approaches generally assemble interdisciplinary teams, which include line managers, ES&H professionals, and the workers involved in the operation, to plan how the hazards associated with a task or proposed action can be controlled or prevented.

In the DOE realm where safety is a key priority, "safety" management under the auspices of the DOE Integrated Safety Management System claims to embrace environmental protection, waste management, and pollution prevention, but the claim is not substantiated. Although the current guidance defines "safety" as "environment, safety, and health," the current draft does not yet embrace the broader ES&H issues.

A similar fate could await ISO 14001 if it is viewed as strictly an "environmental" management system. Although the standard "is not intended to address, and does not include requirements for, aspects of occupational health and safety management," the standard clearly states, "it does not seek to discourage an organization from developing integration of such management system elements" (ISO 1996). It is unfortunate that ISO 14001 is labeled as an "environmental" management system. If ISO 14001 is viewed as management system framework, perhaps the ES&H professionals can work together to integrate efforts realizing that safety issues can affect the environment, and environmental issues can have human health impacts.

Therein lies one of the strengths of NEPA: NEPA requires an interdisciplinary approach to planning and decision making. If used effectively, the NEPA interdisciplinary approach can lead to great synergy of effort by integrating ES&H issues in planning and decision making. However, in the private sector, NEPA is not a tool that is generally used (unless invoked by one of the handles of NEPA). ISO 14001 may be the right tool to use to begin to achieve some of the interdisciplinary cross fertilization necessary to integrate ES&H into one management system that supports the business goals and gives a competitive advantage. To be successful, the environmental management system must be integrated with the organization's other ES&H activities and business goals. If seen as a separate program, an "environmental" management system may be difficult (if not impossible) to maintain.

NEPA Planning

Although NEPA calls for an interdisciplinary approach, the NEPA Effectiveness Study found that NEPA's role as a strategic planning tool has not been fully utilized because agencies tend to examine project-level environmental effects in microscopic detail (CEQ 1997). One resolution of this shortcoming is to incorporate the interdisciplinary approach of NEPA as the basis for the "environmental" management system which would then be expanded to become an integrated ES&H management system. The explanation of and need for such an approach is further explained below.

THE NEED FOR AN INTEGRATED ES&H MANAGEMENT SYSTEM

An integrated management system approach is needed that effectively brings together consideration of the environment, and human health and safety as part of the planning and decision making process. Decisions that result in environmental impacts affect human health, and the prevention of facility accidents protects both human health and the health of the environment.

Public Sector Challenges

It is a continuing challenge at DOE sites to develop linkages among the existing ES&H programs, such as NEPA, pollution prevention, and safety management. Work planning and execution often proceed without sufficient consideration of how to protect the environment and public and worker health and safety or how to prevent pollution. When ES&H is an add-on or an afterthought, there is more potential for adverse consequences and increased costs that could have been avoided. At many of the DOE sites these programs have tended to be implemented independently (or "stovepiped"), and only minimal efforts are made to establish linkages between them (Meier 1997). Linkages among these programs are needed to prevent accidents, human exposures, and environmental injury. An integrated management system is needed to assure that staff in various ES&H programs (as well as the other line organizations, managers, and workers) communicate and coordinate with each other in order to more effectively identify, mitigate and avoid impacts. It is important for the ES&H professionals to work closely with each other to identify potential significant impacts from a particular project or operation, and assure that resources are applied to mitigate those impacts and that progress is measured and evaluated. Furthermore, although NEPA has a lofty goal of achieving such an integrated management approach for planning and decision making, CEQ has shown where this goal is not always achieved in the public sector. However, the public sector should recognize that they are not alone in this struggle.

Private Sector Challenges

Marc Epstein, in his book, *Measuring Corporate Environmental Performance*, found in many cases where corporations have little functional cooperation between ES&H and other departments. Epstein's interviews with corporate CEOs indicate that many are only just beginning to integrate environmental impacts into management decisions (Epstein 1996). In similar studies, researchers have also found that corporate ES&H programs tend to be isolated from the mainstream of site operations and are too focused on regulatory compliance (Epstein 1996, Herbst 1996).

Integrated ES&H Management

In the corporate world, integrated ES&H management is found among some of the industry leaders. However, even these industry leaders are continuing to search for ways to further integrate ES&H management with business goals and operations, including the need to integrate ES&H performance in such a way that adds dollar value to the corporate bottom line. In this regard, many of the industry leaders are looking to application of incentive-based ES&H approaches which help the company's economic or competitive position rather than the traditional command and control approaches (Herbst 1996).[4]

Those in the public sector associated with DOE sites may be well-aware of the current lack of integration among the ES&H disciplines. Some DOE sites achieve ES&H integration in project

[4] Among the industry leaders, a group of approximately 30 companies have formed the Global Environmental Management Initiative (GEMI) to foster environmental excellence based on the principles of total quality environmental management. This organization includes companies such as 3M, Xerox, Dupont, Dow, and Browning-Ferris Industries (BFI).

and program planning.[5] However, DOE in general could use improvement in this area and has announced plans to change.

DOE Transition to a Corporate Environmental Management System Model

In the DOE report on external regulation, DOE recommends moving to a corporate ES&H model based on examples such as the DuPont company (DOE 1996d). However, the corporate model could be further examined for additional lessons learned as opposed to those currently identified in the External Regulation report. For example, the DuPont company has learned that *regulatory-driven* waste reduction projects cost three times more than *voluntary-driven* ones for the same benefit (Schmidheiny 1996, and Epstein 1996). As stated by a DuPont manager, "the result is also some hard evidence to back up the commonly held belief that regulatory work is more expensive than voluntary measures" (Schmidheiny 1996). By moving toward voluntary or incentive-based programs, DuPont is freeing resources to work on other business issues such as sustainable economic growth. DuPont is now working to integrate environmental performance with business performance where the environmental strategy integrates into all aspects of corporate decision making, including the capital budgeting system. DuPont wants to see this integration such that environmental performance truly adds to the bottom line of business operations (Epstein 1996).

DOE is making progress in this direction, but more remains to be done to expand on use of voluntary initiatives and to incorporate ES&H management systems into the business operation. DOE hopes to achieve the change through its Integrated Safety Management System. The proposed integrated ES&H or "safety" management system, as discussed in the implementation plan for Defense Nuclear Facilities Safety Board (DNFSB) Recommendation 95-2 [6], has a goal to ensure the following: (1) integration of ES&H processes with DOE business activities by coupling ES&H interests with financial incentives, (2) requiring contracts to contain better terms and conditions relating to ES&H performance, and (3) requiring more direct measures of ES&H performance tied to contractual fees (DOE 1996d). However, existing safety management policy and guidance falls short of this goal (DOE 1996a and b).

Although DOE is in the process of changing by developing guidance to achieve fundamental ES&H integration, current efforts such as the External Regulation report and the Integrated Safety Management System Guidance do not fully capitalize on the opportunity to use the integrated

[5] DOE sites such as the Lawrence Livermore National Laboratory (LLNL) have successfully applied such approaches to integrated ES&H management for many years (LLNL 1996). Other sites such as the Oak Ridge Y-12 Plant utilize an interdisciplinary project walk-through to evaluate potential worker and environmental hazards of a proposed project.

[6] In 1995, the Defense Nuclear Facilities Safety Board (DNFSB) issued Recommendation 95-2 to the Secretary of Energy. In this Recommendation, the Board urged DOE to "institutionalize the process of incorporating . . . controls necessary to ensure that environment, safety and health objectives are achieved" (DNFSB 1995). The Department accepted this recommendation and recognized ". . . the need to further institutionalize the process of incorporating environment, safety and health considerations into the planning and execution of all activities at our facilities" (61 FR 1752).

environmental management systems approach of ISO 14001 to help achieve an integrated ES&H management system. Furthermore, neither the External Regulation report nor the Integrated Safety Management System guidance fully discuss integrating the ES&H management system such that ES&H goals work together to provide for a business advantage. However, despite the omission, some of the DOE sites recognize these opportunities and are moving in this direction to integrate ES&H management systems using ISO 14001 as a tool (EFCOG 1997).

RELATING ISO, NEPA, TQM, AND DOE SAFETY MANAGEMENT

DOE now has several management system tools available for use to help achieve ES&H integration. This paper has examined how overlaps in NEPA and ISO 14001 can work together to achieve goals that might not be fully realized if each were used alone. Other papers have examined how ISO 14001 and the DOE Integrated Safety Management System work together (Meier 1997). While many similarities and dissimilarities could be noted, a comparison of management systems frameworks discussed in this paper is presented in Table 1. The purpose of this comparison is to show that all of these frameworks contain similar structures and should all be able to be used in concert rather than independently.

Table 1: ***Comparison of Environmental Management Systems Framework***

TQM	*ISO 14000*	*DOE Safety Management*	*NEPA*
Corporate Values	Policy	Direction	Establish Purpose and Need for Action
Plan	Planning	Define Work	Develop Proposed Action & Alternatives
		Analyze Hazards	Conduct Inter-Disciplinary impact Assessment
		Develop Controls	Plan Mitigation
Do	Implementation	Do Work Safely	Implement Decision
Check	Checking & Corrective Action	Feedback	Follow-up Mitigation & Monitoring
Continuous Improvement	Continuous Improvement	Improvement	

PATH FORWARD: MAKING ES&H ADD VALUE TO THE CORPORATE BOTTOM LINE

Thus far, we have seen how NEPA and ISO 14001 can produce a synergy of effect because both are management systems frameworks with their individual strengths and weaknesses. Used together, the product may be greater than the sum of the individual parts. However, perhaps the most difficult synergy, is still to be realized: making ES&H count in the corporate bottom line.

Climbing the "Green Wall"

Business leaders have recognized for some time that business decisions can have environmental implications, and that environmental impacts can influence business decisions. However, business managers and ES&H managers are only now realizing the importance of finding a way to use ES&H as a business advantage. No longer is the world-class ES&H leader the one who simply meets compliance. The leaders of today and tomorrow look for opportunity to go beyond compliance to integrate environmental values into the business objectives, and actually use ES&H as a competitive business tool. Business managers and environmental managers are beginning to see and capitalize on the competitive advantages that may be gained by integrating business objectives with environmental goals. In some cases, the lack of integration is due (in part) to the ES&H professionals. Many times the ES&H specialists are too segmented either within their own discipline or among themselves and are all too frequently divorced from the mainstream of the business strategy and decision making. In some cases, by failing to make the business case for environmental strategy, the environmental management team has inadvertently created a "green wall" between the business and the ES&H groups (ADL 1995).

AT&T provides examples of ways to help overcome the "green wall." AT&T uses cross-functional teams composed of researchers, business analysts, lawyers and ES&H staff to come together to help solve issues such as aligning the financial system with environmental costs, and conducting life cycle assessment to understand the overall environmental impact of their products (ADL 1996 and Graedel 1995).

Becoming "Eco-Efficient"

Companies that overcome the "green wall" are said to be "eco-efficient" denoting both economic and ecological efficiency in corporate management. Eco-efficient management processes are those processes that provide for continuous improvements and continuous rewards; and, at the same time, maximize value-added while minimizing resource consumption, waste, and pollution. Whereas regulatory compliance requires a company to reach a certain standard and then do no more, eco-efficient processes challenge corporations to use market forces to protect and improve the quality of the environment while at the same time, realizing value added to the company. Although the shift towards eco-efficiency is a new direction for many, the more forward-looking firms are investing in this direction. Businesses that do not keep up with such eco-efficient advances and changes will suffer (Schmidheiny 1996).

Companies that claim to have "sustainable" or "eco-efficient" strategies will be those who truly integrate environmental considerations as part of the business strategy. To do this, managers must

view ES&H issues as potential business opportunity, not just a liability or something that has to be done to maintain compliance. Voluntary environmental initiatives such as ISO 14000 or some of the EPA programs such as Project XL can help further these corporate realizations.

Communicating ES&H Value

The role of the ES&H professional has to change as well. The ES&H professional must act as a "knowledge broker" and more like a consultant selling his or her service to the business managers. The ES&H professional must determine how their skills, knowledge, and abilities directly tie into the business line and how their services can help the company as a competitive advantage or actually add to the bottom line (ADL 1995). The ES&H professional must realize, however, that when ES&H managers and business managers sit down together and look at this integration, many times, the business manager may see less added value in the ES&H activities than does the ES&H manager. Such as gap in perception is a direct fault of the ES&H professional of not effectively communicating their value in corporate operations. To effectively communicate value, the ES&H professional must speak in the language of the business manager and show how they fit into the business framework and value chain. The future direction calls for integration of ES&H across the entire value chain and life cycle of the business enterprise from design to materials acquisition, to manufacturing, to distribution, to sales and service, and to product recycling (ADL 1996).

Structured environmental management systems (such as ISO 14001) can help business begin to think about ways to integrate environmental considerations with business objectives. However, in too many cases, the "environmental" emphasis on the management system may tend to further segregate the ES&H community among itself and from the business objectives unless the direction from the top recognizes the inter-connectedness of ES&H with business goals. Voluntary initiatives such as ISO 14001 can be used to initiate dialogue among ES&H managers and business managers. The synergy must build from there with the ES&H professional leading the discussion of how their services can help the company go beyond compliance and strike a competitive advantage.

Integrating ES&H into Corporate Management

To the extent that non-compliance with regulations is caused by systems deficiencies, implementing an environmental management system (either ISO 14001 or some other structured management system framework) can reduce the number of non-compliances and increase overall operating efficiency. It can (and should) lead to waste reduction, pollution prevention, chemical and other materials substitution, less energy usage, cost-savings through recycling and other such programs. However, because ISO 14001 is an "environmental" management system, care should be taken not to fall into the trap of even more "stovepiping" among the ES&H disciplines by leaving ISO 14001 with the environmental staff. The most competitive advantage will only be realized when the "environmental" management system follows the interdisciplinary approach of NEPA and integrates ES&H considerations in management planning and decision making. In today's E&SH management systems (in both the public and private sectors), ES&H considerations are all too often fragmented among themselves and not integrated with business decisions. ISO

14000 can, however, serve as a starting place to help provide such a structured framework for integrating fragmented systems, or for creating one if none exists (Tibor 1996). Thus "environmental" (ES&H) management is becoming more and more, effective corporate management.

EXTENDING THE LESSONS LEARNED: PUBLIC AND PRIVATE PARTNERSHIPS

Organizations in both the public and private sectors continue to be challenged by the need to improve the integration of facility operations with ES&H management. In a survey of senior corporate ES&H managers, the Global Environmental Management Initiative (GEMI) identified the need to:

- more fully integrate ES&H management with business goals and operations, including the need to achieve ES&H performance in ways that add positive dollar value, improve customer satisfaction and enhance overall corporate reputation; and

- Create more analytically robust methods for . . . environmental cost accounting; . . . metrics . . . cost/benefit analyses . . . and life cycle assessment. . . . (Herbst 1996).

Because both the public and private sector experience common issues, and because both the public and private sector bring different areas of expertise to the table, more partnership among the two should be considered to advance the goals of integrated ES&H management. Advances in impact assessment among the governmental agencies should be shared with private industry. Likewise, private sector insight regarding integration of ES&H considerations with business considerations should be shared with the public sector for the benefit of the taxpayer. The National Academy of Sciences (NAS) supports and encourages such public/private partnership:

> Governments should encourage industry to develop and deploy environmentally advantageous technologies through economic incentives and support universities and other research institutions in developing and implementing these technologies. All parties should pursue arrangement for monitoring and assessing environmental conditions and their economic implications (NAS 1997).

The partnership should be fostered for business reasons as well: to realize regulatory relief. Some state agencies are already leading the way with public-private partnerships. For example, the Department of Environmental Protection (DEP) in the Commonwealth of Pennsylvania has developed a framework to assist Pennsylvania businesses and local governments in the adoption of strategic environmental management practices. These practices are designed to "achieve environmental benefits far beyond regulatory compliance" and look to broader business goals such as reducing cost, increasing competitiveness, and increasing capacity for growth. The Pennsylvania framework "believes ISO 14001 is one of several tools to establish this Strategic

Environmental Management System as an alternative to, and a positive step away from, the current "command and control" approach to environmental protection and toward a market-driven, voluntary zero emissions goal." The PA DEP believes this approach can lead to "significant performance beyond regulatory compliance while providing maximum savings and flexibility to business and local governments" (PA DEP 1996).

Former EPA Administrator Reilly highlights results of industry-government partnerships. "The result has been that companies not only help the environment, but also increase their bottom line by reducing utility costs and maintenance. As industry and government come together on voluntary programs . . . in a non-confrontational way they begin to build trust while laying the groundwork for a new way of protecting the environment" (Reilly, 1996).

CONCLUSION

In a study released this year, the National Academy of Science (NAS) upholds NEPA's original intent:

> For human societies to achieve a productive, healthful, and sustainable relationships with the natural world, the public and private sectors must make environmental considerations an integral part of decision making (NAS 1997).

We have seen, however, that consideration of environmental factors alone is not enough because ES&H decisions are interrelated and require an interdisciplinary approach to effective planning and decision making.

With the advent of the international environmental management system standard (ISO 14001), both the public and private sector have now been provided another tool to help integrate ES&H factors into the planning and decision making process. Both parties have expertise in some areas and need help in others. Accordingly, both parties could benefit from sharing of their lessons learned and should actively seek opportunities to foster that exchange to better each other, our economy, and our environment. As the old tale states about teaching "an old dog new tricks," its time to shift the focus and teach a *new* dog a few *old* tricks about sharing impact assessment knowledge and adding value to the corporate bottom line.

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