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Utilizing distance learning technology for international capacity-building initiatives in environmental protection, and using performance measures to evaluate their effectiveness in achieving EPA's goal of building strong international environmental institutions and legal structures



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For more than two decades, the U.S. government, through the coordinated activities of the Department of State, the Agency for International Development, and the Environmental Protection Agency, has been assisting developing countries and countries with economies in transition in strengthening their environmental regulatory infrastructures. This includes building the enforcement ability of trading partners and promoting the rule of law through capacity-building initiatives.

International capacity building in environmental law has become highly important to the United States and to our interests abroad. Last year EPA Administrator Lisa Jackson issued an agency-wide memorandum on EPA's six international priorities. The first priority listed is "building strong environmental institutions and legal structures." As she stated, "Countries need adequate governmental structures to enforce environmental protections. The EPA will work with countries such as India, Ghana, Kenya, and Brazil to develop and support the promotion of good [environmental] governance, improve judicial and legal structures, and design the regulatory systems necessary for effective environmental protection around the world." Her memorandum supports the efforts of EPA subject matter experts to engage in international capacity-building initiatives through bilateral and multilateral partnerships.

For a number of reasons, however, agency experts and educators cannot travel to every developing country within a year, two years, or even five years to facilitate the multiple-day workshops that are desperately needed. First, the travel costs would be prohibitive. Second, such extensive travel would be taxing on the energy, skills, and resources of the small number of EPA staff in headquarters and the regions dedicated to this work. Even augmented with outside experts from non-governmental organizations and contractors, the needs exceed the time and resources available. Moreover, those agency experts are not able to follow up after the workshops have been completed because of limited resources and time demands.

Under these budgetary, time, and personnel constraints, EPA and others who engage in capacity building may need to consider whether distance learning technology is an alternative to conducting in-person workshops. Additionally, to track and improve results, the agency may need

to develop appropriate performance measures, in collaboration with the host country, for measuring whether the lessons learned from these virtual classrooms will, in fact, be measurable and sustainable. Performance measures are critical for any international capacity-building initiatives and, as new distance learning approaches are being developed, it is especially critical to demonstrate their effectiveness.

Distance learning is not a new idea. The technology has progressed significantly from basic correspondence courses in mid-19th century Europe, to instructional radio and television training, to videotaped lectures of university and professional courses, to audiotapes sent through the mail, to compact disk courses that teach foreign languages, to today's computer-based communication programs. Today's courses are taught or facilitated using e-mail, instant messaging, video, satellite television, and the internet.

According to Professor Gary Greenberg, distant learning is "a planned teaching/learning experience that uses a wide spectrum of technology to reach learners at a distance and is designed to encourage learner interaction and certification of learning." Essentially, distance learning occurs when the instructor and the learner are separated by space but not necessarily in time. It is typically college-level instruction, where students work on their own at home or at the office and communicate with faculty and other students via electronic forums, videoconferencing, chat rooms, bulletin boards, and other forms of computer-based communication. Where the internet is readily accessible, distance learning produces a virtual classroom.

Two forms of communication are used to deliver instruction through computer-based training systems: synchronous and asynchronous. Synchronous communication allows a teacher and students

to participate in the distance learning exercise at the same time, whereas asynchronous communication allows participants to be separated in time and distance from the delivery of the instruction. Distance learning based on asynchronous communication may use recorded materials.

In the United States, distance learning technology is utilized by institutions of higher learning, business and industry, and the military. Executive branch agencies also use distance learning. For example, AID's Deliver Project offers a computer-based logistic course for its health care personnel abroad. This training course allows participants to gain a basic understanding of health commodity management and procedures. The five interactive e-learning sessions in basic logistics management can be accessed online or through a CD. This learning is self-paced and "chunked" into

short activities that keep the learner engaged using any combination of audio, text, graphics, and animation. In addition to interactive instruction, each lesson includes a knowledge check, a review, and a final assessment.

As with any computer-based technology, there are advantages and disadvantages. Generally speaking, some of the recognized advantages of distance learning are:

- Cost-effectiveness, because instruction is delivered to participants who are unable to attend because of time and distance;
- Increased access to instruction while resources are decreasing;
- Enhanced positive learning effects, since the discussion can be extended between the instructor and the participants beyond the time limits imposed by an in-person class or a short duration seminar or workshop;
- A certain amount of distance and protective cover for discussions;
- More efficient use of computer-based technology if an instructor is well-trained in this technique; and
- Self-paced learning, which accommodates slower and faster learners.



TABLE 1

EPA/Jordan Performance Measures for Environmental Inspectors

Measure and Type	Method and Feasibility	Example
1. Number of participants trained [Output]	Count participants: Review EPA records <i>High feasibility</i>	"In FY 2009, EPA trained X Environmental Inspectors of the MoENV."
2. Number of trainers trained by EPA [Output]	Count participants: Review EPA records <i>High feasibility</i>	"In FY 2009, EPA trained 10 individuals identified by MoENV who will be facilitators for future workshops for Environmental Inspectors."
3. Number of courses conducted by EPA [Output]	Review EPA records <i>High feasibility</i>	"In FY 2009, EPA conducted 3 train-the-trainer courses with the 10 facilitators for the Environmental Inspectors Workshops."
4. Number and % of participants rating course effective [Output]	Survey participants through Course Evaluations: Review EPA records <i>High feasibility</i>	"In FY 2009, X% of the X Environmental Inspectors participating in EPA train-the-trainer courses rated the courses effective."
5. Percentage of participants reporting increased understanding of the subject matter [Intermediate Outcome]	Survey participants at the beginning/end of the course: Review EPA records <i>High feasibility</i>	"In FY 2009, X% of participants in EPA train-the-trainer courses increased their understanding of the subject matter."
6. Number of subsequent trainings offered by EPA-trained facilitators in Jordan [Intermediate Outcome]	Count participants at the trainings. Survey participants at the beginning/end of the course. And, survey participants at 12 months after course: Collect information from MoENV's Project Implementation Coordinator <i>Medium feasibility</i>	"In FY 2009, the 10 EPA-trained facilitators conducted X subsequent training workshops in Jordan for X Environmental Inspectors." "In FY 2009, X% of the Environmental Inspectors trained by the 10 EPA-trained facilitators rated the course effective."
7. Percentage of participants reporting changes in productivity or quality of performance [Intermediate Outcome]	Survey participants and supervisors at end of course, and 12 months after course: Collect information from MoENV's Project Implementation Coordinator <i>Medium feasibility</i>	"In FY 2009, X% of Environmental Inspectors trained by EPA-trained facilitators increased the number of inspections conducted in 12 months after completing the training." "In FY 2009, X% of supervisors of Environmental Inspectors reported that inspectors who had received training improved the quality of their Environmental Reports at the conclusion of inspections."
8. Percentage increase in key activities [Intermediate Outcome]	Compare pre-training baseline to Outputs after 12 months: Collect information from MoENV's Project Implementation Coordinator <i>Medium feasibility</i>	"The number of inspections increased by X% within 12 months after training by EPA-trained facilitators."

TABLE 1 (Continued)

Measure and Type	Method and Feasibility	Example
<p>9. Percentage of inspections leading to cases/prosecutions [Intermediate Outcomes]</p>	<p>Review Environmental Inspectors data to track disposition of activities: Collect information from MoENV's Project Implementation Coordinator</p> <p><i>Low-medium feasibility</i></p>	<p>"After training by EPA-trained facilitators, X% of Environmental Inspectors' inspections led to enforcement cases."</p>
<p>10. Percentage increase in the number of cases/prosecutions leading to conclusions such as settlement or conviction [Intermediate Outcome]</p>	<p>Review Environmental Inspectors data to track disposition of activities and compare to prior data if possible: Collect information from MoENV's Project Implementation Coordinator</p> <p><i>Low-medium feasibility</i></p>	<p>"After training by EPA-trained facilitators, 85% of Environmental Inspectors' cases led to settlements or convictions, an increase of 25% over the year prior to the training."</p>
<p>11. Implementation of specific institutional capacity or reform [Intermediate Outcome]</p>	<p>Collect information from MoENV's Project Implementation Coordinator about implementation 12-24 months after training</p> <p><i>Medium feasibility</i></p>	<p>"After training by EPA-trained facilitators, Environmental Inspectors are able to prepare analytical reports regarding the industrial; agriculture; professional workshops; and services sectors in Jordan reflecting priorities and environmental hotspots]."</p>
<p>12. Comparison of activity levels and resources allocated [Intermediate Outcome]</p>	<p>Collect information from MoENV's Project Implementation Coordinator about activity levels and resource allocations for FY 2009 to FY 2011</p> <p><i>Low-medium feasibility</i></p>	<p>"From FY 2009 to FY 2011, after training by EPA-trained facilitators, the Environmental Inspectors were able to [produce more activities with the same level of resources] [produce the same amount of activities with reduced resources]."</p>
<p>13. Environmental improvements and pollution reductions from Environmental Inspectors' actions [End Outcome]</p>	<p>MoENV Project Implementation Coordinator develops estimate at conclusion of cases based upon data from Environmental Inspectors, Environmental Rangers and RSCN, and JIJ</p> <p><i>Low-medium feasibility</i></p>	<p>"Enforcement cases brought to sitting judges and public prosecutors by Environmental Inspectors and others trained by EPA-trained facilitators reduced pollution by 950 million pounds in FY 2011. About 65% of those reductions were for the most hazardous air pollutants."</p>
<p>14. Compliance rates for selected sectors of regulated universe in Jordan [End Outcome]</p>	<p>MoENV collects data through on-site inspections</p> <p><i>Low feasibility</i></p>	<p>"After training by EPA-trained facilitators of sitting judges, public prosecutors, MoENV Environmental Inspectors, Environmental Rangers, and RSCN enforcement personnel, compliance in industry sector Y increased by 15% in two years."</p>

Research results have consistently shown that with good instructional design there is no significant difference between distance learning and in-class learning. Nonetheless, some of the generally accepted disadvantages of distance learning are:

- Quality of instruction, which may suffer significantly, depending on the skill of the teacher;
- Hidden costs associated with training technicians and instructors;
- Costly and complex technology;
- Lack of immediate feedback;
- Social isolation, since the learner most often is studying alone, although this has been lessening with advances in computer-based communication technologies;
- Problems with the equipment during the sessions;
- Goals of the distance learning effort may be different between the instructor and the participants; and
- Concerns of participants who may not be suited to learning via this method of instruction.

Based upon the above, it is clear that certain measures must be taken to ensure that distance learning is effective, including, among other things, a professional assessment of the quality of the equipment, instituting feedback mechanisms, carefully evaluating the comfort of participants with the medium, understanding all of the costs involved, properly assessing the skill of the instructors with the technology, and, most importantly, ensuring that the participants are sufficiently motivated to reach a learning goal that is well-defined and understood by everyone involved. This is important because with strained travel budgets and stressed staff, EPA may decide to explore the advantages of distance learning as it continues to implement the administrator's international priority of "building strong environmental institutions and legal structures." Doing so might also provide a model for other training entities to follow.

Although EPA has been engaged in international capacity-building initiatives for more than two decades, the agency had never attempted to measure the results of these activities until three years ago. In October 2008, the Office of International and Tribal Affairs, in cooperation with the Office of General Counsel, the Office of Enforcement and Compliance Assurance, and the Environmental Appeals Board, issued "EPA's Environmental Law, Enforcement, and Judicial Capacity-Building Training Activities: Organizing Concepts and Performance Measurement." This report was an effort to develop a framework for measuring for the first time the results of those offices' interna-

tional capacity-building activities.

In the report, those offices explained the differences between output, intermediate, and end-outcome measures: "Output measures are easiest to establish but limited in value because they don't provide insight into the results created by the activities. End-outcome measures are hardest to establish because such outcomes can take a long time to manifest themselves and often raise difficult technical issues about how to measure. . . . Intermediate outcomes, however, do offer some promise as a way to understand, analyze, and report results being achieved by the program."

Those offices proceeded to develop 14 suggested output, intermediate, and end-outcome performance measures for the agency's international capacity-building efforts. [See previous two pages.] ELI was the contractor to EPA on this groundbreaking project.

Subsequently, EPA, in cooperation with AID and the Kingdom of Jordan, applied those performance measures to the capacity-building training of inspectors, judges, and environmental police. EPA, AID, and Jordan's Ministry of the Environment and its Judicial Institute negotiated sets of performance measures before the various workshops were scheduled and agreed that the Ministry of the Environment and the Judicial Institute would collect and track the data. Table 1 on pages 46 and 47 contains the specific performance measures that the parties agreed to. These performance measures will allow EPA to determine the success of this international capacity-building initiative. More importantly, Jordanians should be able over time to measure improvements to the environment and public health.

Distance learning technology and performance evaluation are two approaches that are merging in the area of international capacity-building of environmental professionals. As we move to a time when these approaches are standard, here are some observations and lessons learned.

First, distance learning in international capacity-building should utilize fully advanced computer-based technology. Distance learning means different things to different people. Some refer to distance learning as the greater use of talking heads on a screen beamed to a workshop in another country. Still others believe that distance learning occurs when subject matter experts travel extensively and facilitate workshops around the

We read in *U.S. News and World Report* about the best places to go for a training in environmental law and policy: Vermont Law School. Northwestern School of Law of Lewis and Clark College. Pace University. Florida State. Berkeley. University of Oregon. But many seeking environmental legal training simply can't find their way to Vermont, Oregon, New York, or California. What's an advocate in search of training to do?

The growth of distance learning programs has dominated the higher education news for the last ten years. From Duke University to Phoenix University Online, reputable Ivy League schools and questionable for-profit ventures offer classes and degrees to anyone with an internet connection. Yet law schools have all but missed the distance learning trend.

The American Bar Association has long barred JD students from taking all but the most minimal credits through any distance, correspondence, or online program. The sanctity of the Socratic classroom is well guarded by the ABA's Rules Standards and Rules of Procedure for Approval of Law Schools.

Yet a few law schools have sought to experiment with online and distance learning programs through their non-JD degrees. A handful of LLM programs, exempt from the ABA's online prohibition, have quietly found their way onto the internet. Such programs join a panoply of online undergraduate and graduate education options in a field that has grown some 21.1 percent in the last decade, accounting for almost 30 percent of all growth in higher education, according to the Sloan Consortium, which tracks online education in the United States.

In 2007, Vermont Law School recognized it had two non-JD programs that could be offered online in accordance with ABA rules. The first,

a master's degree in environmental law and policy, targets non-JD students and professionals working in advocacy, government jobs, and industry. The second, an LLM in environmental law, capitalizes on the law school's considerable environmental course offerings.

Two years ago, Vermont Law School began studying the opportunity to put these degrees online. The administration commissioned market studies to test interest, and hired consultants to assess whether the law school's unique and robust curriculum could be delivered successfully via computer. The faculty conducted significant soul-searching. Concerns over academic quality and the perception of the school dominated both formal faculty meetings and discussions among trustees.

After careful consideration, and with some trepidation, Vermont Law School has decided to venture into the distance learning arena. The ultimate decision included many factors, but two predominated: First, as has been reported both within the industry and in the popular press, the law school fiscal model may need revision. *New York Times* headlines ask, "Is Law School a Losing Game?" and the *Wall Street Journal* cries, "Law School Loses Its Allure as Jobs at Firms are Scarce." Vermont Law School has already created legal institutes to help sponsor students through projects and fellowships, such as its Institute for Energy and the Environment and the newly formed Center for Agriculture and Food Systems. Moving to distance learning provides yet another way to offer environmental law and policy education at a lower overall cost to students.

Second, and perhaps even more important to our faculty, was the need to provide law and policy education to advocates, leaders, and decisionmakers both in the United States and abroad who simply cannot take the time out

of their lives and away from their communities to pursue traditional graduate education. We anticipate attracting students who are working full time in jobs they can't afford to leave, and students who have important ongoing work in their communities that they refuse to abandon.

Our classes will be small, and exclusive. Each student cohort — a group of students working together over five semesters to complete their degree — will consist of only 15 students. These students will take one class at a time (to better fit into busy lives and juggled responsibilities) and complete each class in a compact and rigorous seven weeks. Students will work with our tenured and central faculty, and be supported throughout their journey by student service and retention personnel and alumni mentors.

We do not know where this journey will take us, as a law school, or as a community of environmental faculty invested in training and cultivating future environmental leaders. We hope to reach a pool of people hungry for, but previously unable to access quality legal education. We do know that those future leaders and advocates are already finding us: Our applicant pool for our inaugural class starting May 2011 comes from locales ranging from New York to Hong Kong, and are filled with the likes of bankers, scientists, community organizers, and even an administrative law judge.

Although this initiative has risks, Vermont Law School believes that high quality, exclusive, online education targeted at those who cannot participate in the traditional classroom is one of the many ways we will reform legal education. This venture into distance education may also be the way in which we reach, train and support a whole new population of environmental leaders and advocates.

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Rebecca Purdom

globe. For example, the United Nations Institute for Training and Research has a distance learning course in international environmental law designed to reach a large number of people working for national governments and NGOs, as well as for professionals and students from academic and research institutions throughout the world. The course consists of a series of 10 books on the basics of international environmental law. The authors of the books serve as faculty for national and regional workshops for governmental officials and professionals, as well as seminars for magistrates. UNITAR's training materials, however, are not on the internet. This is not the type of distance learning that is envisioned in this article. To the contrary, we believe that subject matter experts need to be online and take advantage of synchronous and asynchronous computer-based communication, depending upon the needs of the participants and the availability and sophistication of the technology. Moreover, we believe that subject matter experts need to invest more time and energy in developing disk-based instructional sessions, as necessary, where internet access is not readily available.

Second, distance learning technology must be made available to environmental professionals in developing countries and countries with economies in transition. Colleges and universities have blazed an enviable trail in the area of distance learning. In the United States, several law schools offer LLM degrees through distance learning: Boston University School of Law offers an LLM in international business law and Vermont Law School offers an LLM in environmental law and a master's in environmental law and policy. To our knowledge, however, other than the University of North Carolina Water Institute's effort to develop online training for water safety professionals around the world, there are no computer-based distance learning international capacity-building initiatives for professionals who must deal with major environmental law and policy issues on a day-to-day basis.

Third, distance learning for environmental professionals must be accompanied by additional strategies and tools in order to institutionalize the lessons learned. Adult learning for environmental professionals requires the strategic use of many tools. For example, ELI has found that judicial education on environmental and natural resources issues is most effective when it is part of a general system of education for judges. Many jurisdictions have established institutions dedicated to educating judges about environmental and natu-

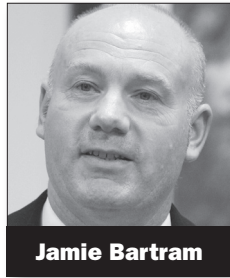
ral resources law. Several jurisdictions, with ELI's assistance, have added environmental and natural resources law courses to an existing continuing judicial education system so that these subjects are offered on a regular basis.

Courses are not the only method by which judges can learn about environmental issues, particularly after they have been introduced to the subject and developed an appreciation for its importance. Motivated judges will conduct research on their own, but others can be encouraged to further their education when it is easier to obtain information. ELI provides judges with written materials, audiovisual materials, and other learning aids that they can refer to on their own. Additionally, internet-based materials may be an effective method of providing information to many judges.

Fourth, a distance learning initiative for environmental professionals must be tailored to the laws and the environmental issues that the individuals face on a day-to-day basis. There cannot be a cookie cutter approach for distance learning. For example, in two decades of working with judges around the world about environmental and natural resource issues, ELI has learned that it is essential to make the program directly relevant to their duty to decide cases based on the laws of their jurisdiction. Judges and judicial institutions in different jurisdictions certainly share certain characteristics, including expertise in the judicial process, but vary substantially in their authority, the laws they apply, and their preferred methodology for learning about new areas of the law. Thus, the national context is critical to the success of most environmental education programs. In the judicial context this includes, but is not limited to, the type of legal system, judicial system, existing educational programs for the judiciary, ethical norms for judges, accepted educational methods in the country, national laws, and the cultural context. Consequently, ELI designs education programs for a particular nation's judiciary.

With these caveats, there are general principles that can guide the development of appropriate distance learning programs in a national context. It may be useful to have a component that describes the environmental and natural resource context of the country. This may include the particular resources of the country and some baseline data, such as the quality of air and water, biodiversity, commercially valuable resources, and globally significant natural resources, if any. It may also be useful to include information about the economic value of the environment and natural resources to the country. The statutes and jurisprudence of the

The Millennium Development Goals and other high-profile initiatives focusing on safe water, adequate sanitation, and hygiene, or WaSH, are increasing the demand for trained WaSH professionals around the world. This demand is not easily met by traditional instructional institutions because of the limited number of individuals able to teach the material, inadequate access to educational institutions in many settings, and the inability of individual or institutions to afford the cost for a course or the time away from work. This has created an educational deficit that can be addressed through distance learning programs.



Jamie Bartram

Distance learning programs can be appropriate for a diverse audience, provide a consistently high level of teaching across international boundaries, and can leverage the varied experiences of participants to provide a greater opportunity for lessons. Most importantly, distance learning can allow established teaching institutions to radically accelerate capacity to deliver high quality training.

The Water Institute is developing its distance learning program with the assistance of Dr. Rohit Ramaswamy, a Gillings Visiting Clinical Associate Professor in the public health leadership program at the University of North Carolina. Dr. Ramaswamy is currently leading the Global Learning Program's distance learning effort, a non-degree education program that is intended to enhance the management skills of health professionals around the world by offering practical, facilitated learning units through distance education that emphasize the immediate application of learning to everyday work.

The GLP provides field staff of international NGOs, their partners

in implementation, and state or district level government health officials with management, leadership, and analytical skills through online learning units. The learning units are designed to focus on the application of practical concepts and tools to day-to-day work responsibilities. Currently there are three learning units being offered and students from 11 countries have participated.

In addition to instruction, the program requires participants from various countries (including some with poor internet connectivity) to engage in facilitated on-line discussion so that they can learn from each other's practical experience.

Multiple methods of delivering content and multiple technologies for communication are used to ensure that all participants have the ability to connect and engage. Content is available online and through CDs. Communication with and between participants occurs through email, blogs, online discussion forums, SMS texts, web seminars, and online conferences. Traditional methods of assessment, such as quizzes and assignments, are complimented with new tools that allow quantification of participation in blogs and twitter streams. Participants remain connected through an on-line community of practice after they have completed a learning unit.

The Water Institute is developing two distance learning programs, one on the implementation of water safety plans and another concerning the development of drinking water regulation. Building on the experience gained from the GLP, these courses are to be made available to professionals in a variety of resource settings. The courses use physical media for primary content delivery and rely on periodic interaction with the internet, perhaps through an internet café or library, for student assessment activi-

ties, participation in group work, and participation in seminars. The courses are designed to accommodate asynchronous participation so as to encourage interaction from students and teachers from around the world to broaden the shared experience and forge international relationships.

Professionals at many organizations are naturally pressed for time and unlikely to welcome another activity unless it is of perceived high value. This value is established by the reputation of the host institution providing the training, which could be UNC or one of its partner universities. Utilities or government agencies may also recognize the value of the course by allocating paid time for taking the course or through recognition upon course completion. Courses must also be designed to not overwhelm those who already have a full personal and professional schedule; for UNC's program, about five hours per week appears to provide the optimal learning experience.

The Water Institute sees distance learning as a key to improving the lives of millions through improved water and sanitation. Despite the highly visible international effort in this area, most investment, by far, in WaSH is by the people and institutions within each country. Distance learning can help develop in-country capacity for WaSH professionals to make informed choices as to how to improve the lives of their communities at a scale large enough to address the problem globally.

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jurisdiction will be important components of a distance learning course, whether it is for judges, attorneys, enforcement officials, business and industrial managers, NGOs, or citizens.

It should be noted that environmental and natural resource law has developed rapidly since the 1960s, and many developing countries have adopted legal concepts and regimes from developed countries, often irrespective of whether they come from similar legal systems. These include concepts such as the polluter pays principle, the precautionary principle, environmental impact assessment, public trust law, intergenerational equity, ambient environmental quality standards, and emissions standards. There is, therefore, much that can be learned from the laws of developed countries and comparative law can be useful in teaching about environmental and natural resources law, but the basis of education on substantive law should remain the laws in effect in the jurisdiction.

Again, the cookie cutter approach does not work and, in many instances, may be counter-productive to the stated goals of the capacity-building project, as well as to the sustainability of the lessons learned by the host country's environmental professionals.

Fifth, a distance learning initiative must include appropriate performance measures that are negotiated with the host institution before the training takes place. Based upon the EPA/ELI experience in Jordan, there must be clearly articulated performance measures that are negotiated between the subject matter experts and the host institution before the training sessions are scheduled. Otherwise, there is no way to determine, in the long run, whether the lessons are learned, are sustainable, and whether there are concomitant improvements to the environment and the public health in the host country. ELI has long recognized the need for, and worked to design and implement, methods of monitoring and evaluating the results of its capacity-building programs.

One of the methods of evaluating capacity-building training is to establish indicators of success and measures of those outcomes. Such measures have typically been used for determining if an individual course or other discrete activity has been successfully delivered, but have not often been applied to the more difficult but important issue of whether the activity succeeds in changing behavior or meeting other goals. Performance measures include those that measure outputs such as the number of workshops conducted and the number of judges educated. Of more importance, however, to demonstrating the success of a pro-

gram are outcome measures, which show that the activity leads to results related to the goals and objectives of the program. Outcome measures may relate to ultimate goals or to intermediate steps that demonstrate progress toward the goals. Outcome measures include changes in environmental conditions or in behavior such as compliance with environmental laws and their implementing regulations.

The performance measures that will be applicable, for example, to public prosecutors, and to staff working on water management-related issues will necessarily be different from those applicable to judges or to industry managers. The point, however, is that performance measures must be negotiated and clearly understood by the parties before the distance learning sessions are scheduled.

Distance learning technology and performance measures methodology are tools that are merging in the area of international capacity-building training of environmental professionals in environmental law and policy. Spreading the environmental law and policy gospel may become more effective and efficient for subject matter experts through the increased use of advanced computer-based communication technology and the further development of a process for measuring whether the lessons learned from these virtual classrooms are sustainable in host countries. In the future, these experts may be walking less through international airports, but their fingers may be walking more across their keyboards. •