

## **Global perspectives and how can the ETV schemes cooperate**

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I appreciate the opportunity to consult on the European proposal for an Environmental Technology Verification Program beginning as early as about five years ago when the European Environmental Technology Action Plan was being developed. More recently I've been a member of the advisory board for the European pilots along with representatives from Canada and Italy.

Over this time I have seen that there are many common features of ETV programs, in the US, in Canada, in Europe and in other countries, such as Korea, Japan, and the Philippines. It's exciting to see the unifying desire in these programs to assist and stimulate new environmental technology commercialization to solve some of the world's biggest challenges – clean water, air, land and now, energy - for all.

Many of you know that Canada, the European Commission and US ETV programs have established an international group to develop a common approach to ETV globally. This group of three is also welcoming new members who have either a fully operating or pilot ETV program. These countries and the Commission have hosted a succession of three international ETV forums held first in Washington DC, next in Vancouver, and last year in Paris. We are in planning stages with the Philippines to hold a fourth in Manila in late 2009. I'll return to the international effort shortly but I'd like to briefly give some insights from the US program.

What have we learned in the US about ETV? The US program started in 1995 and has produced over 400 verifications and 90 protocols. While we showed important impacts within the first several years, after ten years the influence US ETV had on acceptance of new technology really accelerated. We have especially good evidence for this in the drinking water and wastewater areas where surveys of states or web searches have been conducted. A large majority of the 50 US states now accept or promote ETV for permitting innovative drinking water technology. Pilot testing requirements are also reduced for ETV technologies, saving time and money for vendors and technology users.

Don't let the ten year figure intimidate or discourage you; I am confident that this lag time between starting a program and widespread acceptance and use can be shortened in new ETV programs. Why? There is now a greater understanding of ETV worldwide and, through information technology like the web, there is faster information dissemination. New programs can also build on the lessons and products of the existing programs, such as the testing protocols. There is also undoubtedly a greater need and demand for ETV as populations grow, and fast developing countries like India and China must leap frog over developed countries with newer and ever more innovative environmental and energy technologies if the global environment is to be protected while standards of living rise.

I believe the success of the US program has depended on a number of key things: establishing values for the program at its onset, and implementing those values through a strong public/private ETV team. Those values are the following three: transparency, quality, fairness, all leading to a fourth - credibility. Another key to success is the large group of stakeholders who eventually use the ETV performance information to regulate, purchase, or invest in the technologies. Lastly, the US government has supported the ETV Program with over \$50 million US dollars to establish the ETV centers infrastructure, to develop protocols for testing, and to share the testing cost with vendors and technology users. For four years now, we have leveraged ETV funding with funding from others at about 50%, representing a doubling of the ETV budget. We are entering a period now where we must go beyond that with dramatically increased funding from others as ETV is being directly funded very minimally – less than \$500,000 in 2008.

Back to prospects for global cooperation: the ETV International Working Group is committed to developing a common approach to ETV in which there would eventually be mutual recognition of verifications among ETV programs. Our motto is “verify once, accept everywhere” as you may have heard. The group was formalized in 2007, with a statement of intent signed by the three parties in late Spring 2008.

I wouldn't be telling the truth if I said that we don't have many complicated issues to work through, especially related to differences in approaches to quality assurance, third party testing, stakeholder involvement, transparency, and others. We must study all of these, think creatively and with a fresh outlook to identify common ground that we can all agree to. While we are embarking on this major effort, I have also been pushing for gaining practical experience with each other and beginning to know first hand each others programs by doing on the ground verification projects together. The objective is early successes in producing bi-, tri- or multilateral joint protocols and verifications. In a short period of time, less than a year, we already are seeing results. The US ETV and ETV Canada have already finalized a joint protocol for rapid soil toxicity testing; we are now advertising for vendors who want to have joint US /Canada ETV verifications. US ETV is also now working with NOWATECH, the Nordic ETV Program, to jointly verify a passive groundwater sampling technology. There are several more joint verifications in the planning stages between the US and Canada.

As I mentioned, the ETV International Working Group is accepting and encouraging new members; Korea and Philippines are likely to join within the next year. Japan and China may soon follow. Japan has been operating a pilot program since 2002 and attended a working group meeting last November. Within the last year, the US ETV program hosted a delegation from the Peoples Republic of China Ministry of Environment that is interested in starting an ETV China program. In April a memorandum of understanding (MOU) to cooperate on environmental technology was signed by US EPA and the Chinese Ministry of Science and Technology. The MOU featured collaboration on ETV as an early action item. I presented on ETV at a workshop in Beijing then and encouraged them to pilot an ETV program and consider collaborating, not only by becoming a member of the International Working Group but also by developing joint protocols and verifications as early steps.

The interest in ETV around the globe is truly snow balling. The impact that ETV could have in improving environmental protection is enormous if the world's most populous countries such as China and India develop successful programs. US ETV tracks website interest in our program. The five most active countries visiting our website recently are India, Canada, China, Germany and Korea. While we haven't always tracked which countries are visiting our site, we suspect that China and India are recent additions to the list of the top five.

Exchanging personnel is another way that ETV programs can work together, and by coming to greater understanding, converge on ETV approaches. Earlier this year, the US ETV program sent one of its staff members to Manila under a US State Department fellowship to intensively work with the Philippines ETV program for almost two months. Another EPA employee will soon follow the visit and continue to work with the Philippine program. I mentioned earlier that the Philippines is interested in joining the International Working Group and will likely host the next international ETV forum.

In working globally to advance ETV, all programs have to gain experience and sensitivity for the particular cultures and drivers motivating the different ETV programs. All programs will likely have to morph and modify to accommodate each other. In the US we have been asked to update our own ETV program with additional features that may coincidentally help us integrate into and align with other country programs. The changes we are considering are:

- expanding technology evaluation to earlier stages of the research, development and deployment continuum, so that a technology would not have to be commercially ready to be verified;
- for a screening type technology review, accepting vendor data instead of requiring only 3<sup>rd</sup> party testing;
- delegating quality assurance auditing and accreditation out of the EPA;
- including sustainability metrics and tools such as life cycle analysis in evaluating new technology.

These changes, if implemented, would dramatically broaden the types of technology evaluation that could occur under the umbrella of the US ETV program. As a whole, and if overlaid on the current program, it would represent a more flexible, tiered approach to technology review that would have the potential to accommodate the types of verifications being done and being considered in other country programs. Key then to developing a common approach to ETV would be for the international ETV community to recognize, define and finally market through branding, the several degrees of scrutiny, independence, quality, and transparency that may be decided on. In summary, we have much thinking, working, and creating to do to come to a common approach or maybe I should say common approaches to ETV in the coming years. The significant environmental and related economic challenges facing the world demand that we sincerely and effectively work together to agree on these approaches. This so that new technology can better advance in the marketplace, be put into use, and begin improving the environment, public health and wellbeing.