2013 International E-Waste Management Network (IEMN) Meeting Report

Summary:

The U.S. Environmental Protection Agency (USEPA) and Environmental Protection Administration Taiwan (EPAT) convened the third annual meeting of the International E-Waste Management Network (IEMN), formerly known as the GEM Network, from July 15-19, 2013. The meeting was hosted by CalEPA in Sacramento, CA and by USEPA Region 9 in San Francisco, CA. Participants joined from Vietnam, Thailand, Malaysia, Indonesia, Japan, India, Ghana, Nigeria, Colombia, Argentina, El Salvador, and Brazil. This meeting coincided with the 20th anniversary of environmental collaboration between USEPA and EPAT.

This year's IEMN meeting focused on e-waste management in the United States. Participants learned about California's consumer-fee-based e-waste management system as well as the Extended Producer Responsibility-based e-waste management systems of Oregon and Minnesota, and interacted in depth with state officials. The group also heard from speakers representing U.S. NGOs, certifying bodies and auditors for third-party recycler certification programs, third-party certified recyclers, and manufacturers. As in previous years, meeting participants exchanged their latest updates related to e-waste management. EPA Assistant Administrator for International and Tribal Affairs Michelle DePass moderated these updates. EPA Deputy Assistant Administrator for Solid Waste and Emergency Response Lisa Feldt presented an overview of the National Strategy for Electronics Stewardship. Staff from ORD, OSWER, MIT, USITC, and EPA Regions 3 and 9 presented the results of specific activities under the National Strategy. The participants also visited three certified recyclers in California: California Electronic Asset Recovery, E-Recycling of California, and Belmont Technology Remarketing. EPAT Minister Shen and DRA Alexis Strauss joined the last day of the meeting, which included a session in which participants from each region shared their experiences using the information from this network.

At the end of the meeting, IEMN participants identified topics for continued discussion and information sharing as well as economy-level activities that could be enhanced with the input or experiences of Network participants. The group also committed to continue sharing updates through quarterly teleconferences and to meeting again in 2014 in Asia.

Day 1: Spotlight on California

CalRecycle Chief Deputy Director Ken DaRosa welcomed IEMN participants to CalEPA and described the State of California's recycling achievements to date and its future goals. USEPA and EPAT thanked participants for traveling from all over the world and thanked CalEPA for hosting the opening day of this meeting.

To provide context for the state-level presentations, Dan Gallo of EPA Region 3 gave an overview presentation of e-waste management in the United States. The U.S. has a limited legal

framework on managing used electronics. 25 states have laws on e-waste management that differ in scope and methodology. The Federal government does not specifically regulate the management of e-waste but does have rules on cathode ray tubes (CRTs) and spent lead acid batteries. Electronics recyclers in the U.S. perform a variety of functions from resale to shredding. The Federal government's recommendations under the National Strategy for Electronics Stewardship have led to a significant increase in the number of third-party-certified recyclers in the U.S.

CalRecycle and the California Department of Toxic Substances Control (DTSC) gave an overview of e-waste management in California, which is unique compared to other states and the Federal government. Rita Hypnarowski of DTSC introduced how e-waste is regulated in California. Electronic devices were classified as universal waste in the state in 2002, which prohibited them from landfill disposal. There is no household exemption for e-waste in California. E-waste that is disposed of in California can be regulated as hazardous based on characteristics of toxicity, but e-waste is exempt from full hazardous waste regulations as long as it is recycled. Handlers of e-waste, such as collectors and recyclers, must notify and report their activities to DTSC (including exports), label and track e-waste, and meet other requirements.

Jeff Hunts of CalRecycle presented the history of California's payment system to subsidize e-waste recycling. Multiple state governmental bodies are involved in administering this system. California's Electronic Waste Recycling Act was passed in 2003 with multiple goals, including reducing the illegal dumping that had become a problem following the landfill disposal ban. It established a consumer recycling fee on retail sales of covered electronic devices (CEDs) which would in turn fund payments to qualified handlers of covered electronic wastes (CEWs). Recycling of CEDs and collection of CEDs which are in turn recycled are eligible for payment, but reuse is not. Although CEDs are just a subset of electronics and mostly consist of video displays, California consumers have expected recyclers to handle their full range of waste electronic devices. Consequently, California's electronic waste recycling industry has grown significantly since 2003.

E-waste recycling in California mainly consists of dismantling since heat treatment and wet treatment are only possible through a very expensive permit. As is the case around the world, downstream markets for CRT glass are limited for California recyclers. Recent emergency regulations were introduced in California to allow landfilling of panel glass from cathode ray tubes (CRTs), but so far no recyclers in the state have taken advantage of this disposal option. This is likely because of the cost associated with landfilling panel glass and because landfilled glass is not eligible for subsidy payments under California's e-waste program.

IEMN meeting participants made a site visit to California Electronic Asset Recovery (CEAR), an R2 and E-Stewards certified collector and recycler of e-waste. CEAR was founded as a refurbisher in 2000, prior to the establishment of the CEW payment system. After the payment system went into effect, CEAR began recycling, first processing CRTs and then all types of electronics. The company expanded over time, eventually investing in a "green machine" that uses centrifugal force to dismantle electronics. According to CEAR, this machine dismantles electronics into cleaner components than shredders can. The dismantled pieces are then separated by hand into commodity categories. This manual separation

has resulted in increased employment, even as CEAR became more mechanized. The centrifugal technology is not used for CRTs and other CEWs, which must be "cancelled" through manual dismantling in order to be eligible for payments from the state.

Mike Miller of CalRecycle gave a presentation on the Californian Beverage Container and Litter Reduction Act, commonly known as California's bottle bill. This 26-year-old program has had highs and lows from its years of generating surplus revenue to its current deficit. The program has met its 80 % recycling rate goal for the past several years, but all structural payments will go to zero by 2015 unless action is taken by the state legislature to address the program deficit.

Day 2: State Policies and Stakeholder Involvement

Associate Director of USEPA Region 9's Waste Management Division Tom Huetteman opened the second day with an introduction to the role of the EPA Regional Office in managing e-waste.

Lillian Li of Environmental Protection Administration Taiwan's Recycling Fund Management Board (EPAT RFMB) summarized the 4-in-1 Recycling Program in Taiwan, which was presented in detail at the previous IEMN meeting in 2012. Through the 4-in-1 Program, the municipal solid waste stream in Taiwan has reduced dramatically, from 1.4 kg/day/person in 1998 to 0.4 kg/day/person in 2012. The 4-in-1 Program uses fees from manufacturers and importers to subsidize electronics recyclers who meet EPAT's standards and auditing requirements. IT equipment recycling and home appliances recycling have increased 24.4 times and 5.9 times, respectively, from 1998 to 2012.

Recently, Taiwan has implemented a "green differential fee rate" to encourage the development of environmentally friendly products by reducing the fees that manufacturers and importers pay for putting those products on the market. EPAT identifies products eligible for a 30% discount on the fees charged with a "Green Mark". The Green Mark and associated fee reductions were implemented for home appliances beginning in 2013 and will be implemented for IT equipment beginning in 2014. EPAT is also adding tablets and CCFL bulbs to the 4-in-1 Program's list of regulated recyclable waste beginning in 2014.

Garth Hickle of the Minnesota Pollution Control Agency presented an overview of the Minnesota Electronics Recycling Act, which uses the Extended Producer Responsibility model to manage certain discarded electronic products. Although Minnesota's e-waste program was enacted in 2007, e-waste has been collected since 1992 in Hennepin County, the state's most populous county, which includes Minneapolis. A state-wide e-waste disposal ban was proposed in 1995 but was not enacted until 2003 and became effective in 2006. However, the state's Product Stewardship Policy, which was adopted in 1999, included CRTs and led to the formation of a multi-stakeholder CRT task force. This increasing outreach to and engagement of stakeholders, especially that of manufacturers such as Best Buy (headquartered in Minnesota), IBM, and others, led to the widely-supported passage of the Minnesota Electronics Recycling Act in 2007. This law requires electronics manufacturers of video display devices to pay annual registration fees and meet e-waste takeback obligations.

Minnesota's takeback program uses the market-share approach, which the state asserts is easier and more equitable than other methods. Manufacturers have an 80% obligation level based on the weight of Visual Digital Displays (VDDs) sold in the state that year, but can meet this obligation with a broader range of covered electrical devices. Additional credit towards the obligation is given for units collected in rural areas. Manufacturers can accumulate and trade credits, and can apply credits equivalent to up to 25% of their annual obligation to future years. Manufacturers in the state have consistently exceeded their collection obligations.

In the fifth year of the program, 6.6 lbs/capita of consumer-generated material were collected. 87% of material is being handled by certified processors. Six other states have built upon the Minnesota experience when fashioning their legislated e-waste programs. Although the amount of material collected and available for collection have far exceeded expectations, some of the challenges of this program include its narrow scope of covered devices, the lack of incentives for reuse, and the imbalance between the newer, lighter products that define manufacturers' obligations and the older, heavier products that are collected to meet them.

Loretta Pickerell of Oregon's Department of Environmental Quality (DEQ) presented the Oregon E-Cycles program, which also uses an Extended Producer Responsibility approach to manage e-waste. As in Minnesota, stakeholder involvement was essential to the successful development and implementation of Oregon's program. In particular, local governments were of great importance because they implement waste prevention, recycling, waste collection and disposal programs and conduct education and outreach. DEQ, in comparison, is responsible for developing the state's Solid Waste Management plan every 10 years and for establishing goals and measures as well as developing product stewardship and waste management programs.

DEQ convened stakeholder dialogues on producer responsibility models for e-waste in Oregon from 2001 to 2007. In 2007, the Electronics Recycling Law, the state's first producer responsibility law, was passed unanimously. The law requires manufacturers to provide free, convenient, state-wide recycling for computers, monitors and TVs. Amendments in 2011 added printers and computer peripherals beginning 2015. Under Oregon E-Cycles, manufacturers must register their brands and join either a state contractor-run recycling program or a manufacturer-run recycling program. Recycling program plans are approved by DEQ and have to be updated annually. Plans must meet standards for collection convenience, environmental practices, program promotion, and other requirements. Although manufacturers' registration fees are intended to cover DEQ's costs for program administration and compliance assurance (about $400,000/year), those fees alone are not sufficient. The state has also used solid waste disposal funds to make up the funding difference for Oregon E-Cycles. Oregon uses a contractor to manage its recycling program. The contractor can be a non-recycler who engages and hires recyclers.

Manufacturers' performance goals under Oregon E-Cycles are based on return share for IT manufacturers and market share for TVs. Return share goals are set based on manufacturers' share of returned devices from the previous year. For televisions, goals are based on manufacturers' share of TVs sold in Oregon. As in Minnesota, manufacturers in Oregon can earn credits for collection beyond

their obligations; these credits can be sold to other manufacturers or can be applied for up to 15% of their annual obligation in any given year. Manufacturers can count only the covered devices to meet their goals and penalties are levied for under-collection. Disposal of TVs, computers and monitors is banned in Oregon, and retailers are only permitted to sell products from registered brands.

Oregon E-Cycles' recycling goals increase each year. In 2012, 6.9 lbs per capita were collected; projections for 2013 and 2014 are 7.3 lbs/capita and 7.4 lbs/capita, respectively. More e-waste recyclers in the state are third-party certified than in previous years. In general, the program has increased e-waste processing capacity in Oregon and neighboring Washington State, creating new jobs in the process. Challenges associated with this program include a narrow scope of products, a lack of retailer oversight, and a lack of incentives to reuse and improve the design of new products.

Barbara Kyle of the Electronics Takeback Coalition (ETBC) presented the role of non-governmental stakeholders in e-waste management in the United States. ETBC is a coalition of environmental and consumer organizations in the United States that promotes sustainable design and responsible recycling in the electronics industry.

Based on ETBC's experience, there is no national e-waste legislation in the U.S. because of various opposing stakeholder interests. Now that states have moved ahead with legislation, a federal law would not be very useful from ETBC's perspective. ETBC's first step on e-waste was to get companies like Dell to do free takeback. It has been involved in state policy development by serving as a technical advisor to advocates and state groups working on passing takeback laws. ETBC has connected states and advocates working on similar programs and found that the local government is the key stakeholder whose engagement is needed in order to create a successful state program.

A variety of collection goals and requirements exist across the various state programs in the U.S. Similarly, requirements are not consistent across states on what must be done with collected e-waste, including whether it must be processed by third-party-certified recyclers. ETBC has identified the need to assign responsibility for making sure that electronics are recycled responsibly as the greatest challenge facing state laws. Other challenges that ETBC has identified include collection payments that may not be adequate to fund environmentally sound management of CRTs and other electronics, encouraging manufacturers to exceed collection goals, increasing rural collection, encouraging reuse, and enabling free recycling for a broad scope of products.

Following these presentations, USEPA Region 3's Dan Gallo moderated a Policy Roundtable Discussion featuring officials from California (Andrew Hurst), Minnesota (Garth Hickle), Oregon (Loretta Pickerell), and the Electronics Takeback Coalition (Barbara Kyle). Panelists were asked to describe the biggest influences on state programs, similarities and differences among state programs and among their results, goals and ideal outcomes for state programs, lessons learned from state programs, and policies that can promote local recycling and the use of secondary materials.

Panelists emphasized a number of key points. One recurring theme was that programs that set collection and recycling targets do not necessarily advance the goals of improving product design and recyclability or of achieving zero municipal solid waste. Another point was that the indicators used to

compare state program results do not necessarily reflect the program's full impact. For example, measurements of pounds per capita of e-waste collected only reflect items covered under the state program. In California, this indicator only counts CEW; other e-waste items that are recycled but which are not eligible for state payments are not accounted for in this measure. All of the state programs represented had driven the economic expansion of the recycling industry in their states even though each took a different approach to determining who should fund the program and how. A universal issue among states is how to ensure that obsolete equipment such as CRTs get properly recycled and how existing programs can support new recycling solutions rather than just encouraging collection, which has the potential to lead to stockpiling.

Day 3: Presentations from Around the World and Breakout Discussions

USEPA Assistant Administrator for International and Tribal Affairs Michelle DePass addressed the IEMN group on Day 3 of the meeting. AA DePass emphasized the unique opportunity afforded by the IEMN meetings for participants to directly exchange information and best practices, and, this year, to learn from the experiences of U.S. state officials. She reminded the group that e-waste management, a growing challenge around the world, is one of EPA's Global Top Six priorities. She also expressed the value that both she and EPAT Minister Shen place on being able to work multi-regionally on this and other issues through the EPA-EPAT collaboration.

As in previous IEMN meetings, participants shared the latest updates on e-waste management in their countries. Speakers from Asia, Central and South America, and Africa presented the results of recently completed projects, the status of new legislation, and discussed outstanding challenges and next steps. Many speakers also shared that they had been able to use information from the IEMN in their own work.

Speakers shared a variety of highlights from around the world. In Asia, Malaysia completed a project in March of this year that piloted a system intended to shift recycling away from the informal sector to licensed operators on Penang Island. Collection points were established at local hypermarkets and customers who turned in e-waste could receive vouchers for future purchases; however, the vouchers were not an effective incentive for all types of waste. Japan passed a new Small Appliances Recycling Act, which will expand the scope of regulated e-waste from the six appliances covered under the Home Appliances Recycling Act. Japan exports a significant amount of secondhand goods for reuse and is trying to learn more about how these goods are managed when they reach their end of life. Thailand's Draft Act on Fiscal Measures for Environmental Management would enable the government either to charge product fees in order to fund e-waste collection and recycling or to set up an Extended Producer Responsibility model which would require the private sector to fund and manage e-waste collection and recycling. The Vietnam Environment Administration is carrying out a study on developing a set of criteria for assessing technologies for handling e-waste. Indonesia is hoping to finalize its new e-waste regulations next year, which will enable the Ministry of Environment to monitor e-waste management from collection to disposal.

In Latin America, Argentina's federalist system has resulted in a similar situation to the United States; several states and municipalities have adopted e-waste management laws while the national legislature has been unable to a national law due to stakeholder disagreement. Colombia just passed a new law establishing an Extended Producer Responsibility system to manage waste electric and electronic equipment (WEEE) and is working on a conformity assessment with the Swiss EMPA that will adapt regional recycling standards to apply to Colombia. In Central America, there is potential for Costa Rica to become a regional hub for both Spent Lead Acid Battery (SLAB) and e-waste recycling. In addition, a UNIDO project to develop national WEEE management policies in 13 Central and South American countries is working to become a GEF project in 2014. Brazil continues to progress in implementing its National Solid Waste Policy; proposals from the private sector have been submitted for the reverse logistics system for e-waste and the process is underway to get public comments and streamline the multiple proposals into a final sector strategy. In general, the Policy faces producer opposition and challenges relating to orphan waste and geographic distribution.

In Africa, Ghana's bill to control and manage hazardous waste, including e-waste, is being re-processed for consideration by Ghana's new Parliament following elections in December 2012. The bill will require manufacturers and importers of electronic equipment to register with EPA Ghana and pay fees based on the products placed on Ghana's market. Ghana is also working on a conformity assessment with the Swiss EMPA to develop recycling standards. Nigeria has been using Taiwan's recycling standards as well as the R2 and E-Stewards standards to develop Nigerian standards for recyclers and to inform its proposed Extended Producer Responsibility policy. Nigeria is now trying to develop a registry for producers and a fee system that would fund recycling.

Throughout the presentations, participants made note of topics that they wanted to suggest for the afternoon's breakout discussion sessions. Three topics were chosen: how to fund recycling, standards for recycling, and technologies for difficult-to-process wastes.

Day 4: Spotlight on the Private Sector

Lisa Feldt, EPA Deputy Administrator for Solid Waste and Emergency Response opened the day with an introductory presentation on the U.S. National Strategy for Electronics Stewardship (NSES). The four goals of the NSES address the entire life cycle of electronics. Under the National Strategy, EPA has the most commitments of any Federal agency. EPA activities include efforts to improve safe management of used electronics, developing new standards for the Electronic Product Environmental Assessment Tool (EPEAT), and launching the Federal Green Challenge (FGC) under which participants reported recycling 5,700 tons of electronics in 2012. These activities also involve other federal agencies, such as the General Services Administration.

Sharada Rao of Perry Johnson Registrars, which is a Certifying Body for the R2 Practices Certification and is soon to be a Certifying Body for the E-Stewards standards as well, presented on the role of third-party certification bodies. Organizations choose to become third-party certified for a number of reasons, including to be more competitive and to meet client demands for downstream due diligence. A

recent survey by R2 solutions found that 79.3% of recyclers saw an improvement in business after becoming certified. The certification process consists of two audit stages, where the first is more document-focused and the second is more hands-on. After organizations become certified, surveillance visits are conducted every 6-12 months depending on performance. Certified companies must be re-certified every three years. It takes an average of 8 to 12 months to get certified (8 months with a consultant and 1 year or more without a consultant) and can cost from $15,000 to $20,000 for a company to become certified, depending upon the size and experience of a company. Training of employees is also very important to support certification.

Kelley Keogh of Green-Eyed Partners presented the role of auditors in third-party certification. She also introduced the development and requirements of the two third-party certification programs for electronics in the U.S., the Responsible Recycling (R2) Practices and the E-Stewards certification program. R2 was developed through a multi-stakeholder group that met over a three to four year period. It is not an environmental, health and safety management (EH&SM) standard by itself, but must be incorporated into an EH&SM system such as ISO 14001 or OHSAS 18001. Implementing an EH&SM system is usually the largest change organizations make in becoming certified. The nonprofit Basel Action Network developed the E-Stewards certification after it left the R2 process. E-Stewards requires ISO 14001 integration. E-Stewards differs from R2 in certain aspects, such as by prohibiting prison labor and certifying at the company level versus the facility level, but downstream due diligence is a very important component of both R2 and E-Stewards.

DAA Lisa Feldt moderated a roundtable of certified recyclers who are also active and compliant under California's Covered Electronic Waste program. Four speakers were part of the panel: Pat Furr of Computers for Classrooms, Bob Erie of E-World Recyclers, Larry King of SIMS Recycling Solutions and Dennis Kazarian of E-Recycling of California. The panel represented a variety of perspectives and experiences. Computers for Classrooms is a nonprofit organization that focuses on refurbishing old computers for use in local schools but generates funds to operate through recycling. E-World Recycling works closely with Original Equipment Manufacturers (OEMs) through contracts and has developed an online recycling system that connects OEMs and recyclers and helps OEMs document and report on their recycling obligations under state laws. E-Recycling of California developed from a business that originally focused on waste hauling; it now processes covered devices under California's program, including CRTs. SIMS Recycling Solutions is a subsidiary of SIMS Metals Management that was started in 2002 in Europe as a result of the WEEE Directive; it operates in multiple U.S. states and in countries around the world.

Several key points were made during the discussion. Recyclers agreed that certification has helped them increase their business and has made it easier to manage certain aspects of their operations such as their downstream vendors. However, some mentioned that it is an expensive process that may be more of a necessity to meet client requirements rather than a tool to increase profits. Recyclers also emphasized the interdependence of their businesses, since few recyclers in California or the United States perform all stages of processing for end-of-life electronics. Some expressed the viewpoint that California's recycling system is the most fair and efficient of all the U.S. states, although it was also pointed out that California puts the burden of paperwork on recyclers. Several challenges facing

recyclers were identified, including complying with different requirements across states, the issue of how to effectively handle large quantities of outdated devices that are often recycled to meet state requirements, and the universal problem of CRT glass recycling. All recyclers agreed that, in general, a large quantity of recyclable material is currently available.

Doug Smith of Sony presented on the company's global electronics takeback programs. Sony has a "Road to Zero" program under which it has established a long term goal of zero net impact on the environment. Activities under this program target the full electronics life cycle as well as Sony facilities' operations. For end-of-life electronics, Sony has a product Trade-In and Take-Back program that has a long term goal of collecting one pound of e-waste for every pound sold; 270 million pounds of e-waste have been collected to date. Under this program, customers can return both Sony-brand and non-Sony-brand items for free, get credit for those items, and apply that credit towards the purchase of new Sony items. Mr. Smith also presented a chart ranking state programs by pounds of e-waste collected per dollar spent by the customer at point of sale (the cost of each state's internalized fee was used for this comparison). This chart ranked California's visible fee system as the highest-performing. From Sony's perspective, a national approach to recycling that rewards green design and that encourages the integration of recycling into business models would be preferable to the current patchwork of state regulations.

Ed Butler of Nokia presented on that company's takeback programs as well. One of the main challenges the company faces with takeback is that only 9% of customers want to give back their cellphones. Lack of awareness on where to recycle is the main obstacle to increasing this percentage. While many devices that are considered "e-waste" can be costly to recycle, mobile phones can be resold for $10-$250. Even nonfunctioning phones are worth at least $1 due to their precious metals content. Cell phones are not covered by most U.S. state e-waste laws, but this may change as cell phones increase in size and tend towards functioning as mini-computers. Nokia has country-level takeback programs in many countries, sometimes engaging government officials and celebrities to raise the profile of cell phone recycling. Nokia has also used media to promote cell phone recycling and environmental awareness, such as the movie *Wild Ocean 3D,* which is presented by Nokia and includes a message from the company. Both Nokia and Sony are part of EPA's Sustainable Materials Management Challenge, in which participating manufacturers and retailers work to increase the number of electronics being collected, send 100 % of their used electronics to a recognized third-party certified recycler by the third year of participation, and publicly report this information.

On Thursday afternoon, the IEMN made two site visits to third-party-certified electronics recyclers in Hayward, CA: E-Recycling of California and Belmont Technology Remarketing. E-Recycling of California participates in California's payment system. Its Hayward facility breaks down CEWs and sends component materials on for further processing. The bulk of E-Recycling customers at the Hayward facility are landfill transfer stations. Belmont Technology Remarketing performs the primary functions of auditing, testing, and data erasure of IT equipment. Tested, working equipment is resold and non-working equipment is manually disassembled before shipping downstream. Companies like these, which perform different stages of end-of-life management, often work together for downstream management.

Day 5: Federal Activities and IEMN Next Steps

EPAT Minister Shen and Deputy Regional Administrator Alexis Strauss opened the day. Three IEMN members shared their experiences being part of the network and using the information shared through it. Dr. Shunichi Honda of MOE Japan mentioned that the network provides the only opportunity to learn about the advanced e-waste management system in Taiwan. Miranda Amachree of NESREA described how Nigeria has used information from this network to inform its recycling standards. Miguel Araujo described how the multi-regional format of the network inspired him to advance regional cooperation in Central America to build capacity to manage e-waste.

Speakers from EPA, the U.S. International Trade Commission and the Massachusetts Institute of Technology presented the latest status of several activities under the National Strategy for Electronics Stewardship. Featured efforts included work to improve the life cycle sustainability of electronics, training materials on the environmentally sound management of e-waste, two studies to improve information on trade flows of used electronics, updates to the EPEAT standard, and updates to the Cathode Ray Tube Rule.

Melissa Fiffer of USEPA presented the Responsible Appliance Disposal (RAD) program. Although appliances are not commonly considered "e-waste" in the United States, some EPA regulations are relevant to ensuring safe appliance disposal. EPA implemented the RAD partnership program in 2006 to engage key players earlier in the disposal chain and achieve greater environmental benefits through voluntary recovery of appliance foam. Currently, the RAD partnership includes over 50 retailers, utilities, and manufacturers, and state affiliates. This partnership has multiple benefits, including reduced emissions of ozone-depleting substances, greenhouse gases, and hazardous materials, as well as energy savings. For example, in 2011, RAD utility partners collected appliances over 20 years old and in doing so saved 3.2 billion kWh in electric grid demand as well as $424 million in customers' energy costs.

The IEMN discussed next steps. The group agreed that future meetings should be more discussion-oriented as opposed to location-specific. Participants suggested potential discussion topics for future meetings, including standards for environmentally sound management of e-waste, managing multiple sources of e-waste material, fee systems to fund e-waste recycling, environmentally sound management of secondhand goods, collection systems, technological innovations and challenges, downstream tracking of e-waste, green jobs, and incorporating the informal sector into safe recycling. IEMN participants also identified topics on which it could be valuable for the group to compile information. Potential topics included different types of collection systems, programs for battery and lamp recycling as they relate to e-waste, standards for environmentally sound management of e-waste, and economy-level regulatory frameworks and business models for e-waste management. The group agreed to work on identifying potential locations for next year's meeting, to be held in Asia in 2014, and to continue sharing updates through quarterly teleconferences.