Clean Electronics Pollution Prevention Partnership (CEP3) Scoping Study Overview

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Background to CEP3

- Initiative of North American Pollution Prevention Partnership (NAP3) in cooperation with CEC
- NAP3 includes Pollution Prevention Roundtables from 3 countries
  - Mexico
  - US
  - Canada

Purpose of Clean Electronics Pollution Prevention Partnership

- Challenge and otherwise encourage companies manufacturing and importing electrical and electronic equipment (EEE) into North America to reduce and/or eliminate use of 6 specific toxic materials
  - Lead
  - Mercury
  - Cadmium
  - Hexavalent chrome
  - Polybrominated biphenyls (PBBs)
  - Some poly brominated diphenyl ethers (PBDEs)

Materials Targeted for Reduction and/or Elimination in CEP3

- Lead
- Mercury
- Cadmium
- Hexavalent chrome
- Polybrominated biphenyls (PBBs)
- Some poly brominated diphenyl ethers (PBDEs)

CEP3 Targeted Toxic Materials List

- Same as those in RoHS (Restriction of Hazardous Substances) Directive
- European Union (EU) Directive
- Takes effect 1st July, 2006
- Companion to WEEE (Waste Electrical and Electronic Equipment) Directive
  - End of life focus
- RoHS has Design for Environment focus

Vision of CEP3

- CEP3 would be voluntary version of RoHS
  - Help increase compliance with RoHS Directive standards
- NAP3 (3 Roundtables) and CEC provide administrative, marketing, technical, management and reporting support
- Guidance from CEP3 Steering Committee

Scoping Study

- Kelleher Environmental engaged to carry out a Scoping Study for a 3 year workplan for CEP3
  - Describe how the EEE industry works (North America and globally)
  - Suggest options for CEP3 implementation
  - Develop a budget and workplan for CEP3

Scoping Study Schedule and Input

- Draft Report August, 2005
- Comments incorporated into 27th February, 2006 Scoping Study document
- Plan to discuss the program and get input today

Background to CEP3 Concept Development

- NAP3 (North American Pollution Prevention Partnership) established 2002
  - Advance environmental protection and stewardship through pollution prevention and clean production initiatives
- Tackle program for one industry sector in 3 countries
  - Electronics sector chosen

Background to CEP3 Concept Development

- NAP3 drafted initial framework for CEP3 in Spring 2004
- Initiative presented to reps of US electronics industry in Baltimore, Maryland Spring, 2004
- November, 2004 NAP3 consulted Mexican electronic industry representatives
- CEP3 concept changed based on industry feedback
- Spring, 2005 CEP3 concept accepted and approved by CEC

CEP3 Vision Statement

- Encourage pollution prevention in information technology (IT) equipment, telecommunications equipment, consumer electronic equipment and other related component manufacturing groups through a number of mechanisms

Products Involved

- Computers
- Laptops
- Printers
- Televisions
- Audio Visual Equipment (speakers, sound systems, etc.)
- Telephones
- Cell-phones
- MP3 Players
- Electronic components

CEP3 Challenges

- Electronics sector very varied
- Most manufacturing takes place off shore
  - Light products not manufactured in North America; mostly in Asia
  - Televisions manufactured closer to home market because of weight
- Traditional P2 approaches not easy to implement
  - Very little local manufacturing to work with
  - P2 approach needs to focus on supply chain

CEP3 Challenges

- Leading brand owners (OEMs) already heavily involved in meeting RoHS Directive by July, 2006
  - Significant resistance to being involved in “yet another” program
- Large OEMs have all the recognition they want or need
  - Do not see benefit of being involved in CEP3
  - Do not like the Challenge concept
  - Changes made to original scope of CEP3 to address some OEM issues

Scoping Study Approach

- Describe how the industry is structured
- Identify where realistic contribution could be made
- Suggest practical and useful CEP3 role

EEE Industry Structure

- Manufacturers and Assemblers
  - Large multi-nationals (HP, Sony, IBM, Toshiba, etc.)
  - Component manufacturers (Intel)
  - Assemblers
  - Small, locally based companies
  - White box assemblers (use branded components)

EEE Industry in Mexico

- ICT sector employed 164,000 in 1998
- Manufacturing employed 47,00 in 2000
- 650 companies
- 75% engaged in manufacture of telecom equipment, computers, parts and components
- World reputation for television manufacturing

EEE Industry in Mexico

- Mexico's "Silicon Valley" in Guadalajara
  - 320 companies account for 70% of computer production and 95% of telecom manufacturing
  - Training programs at universities
  - Centre for Spanish language software
  - Focal point for Latin American IT industry
- Tijuana, Puebla and Monterrey also major manufacturing bases
- Mexico well known for television manufacture
  - Large Chinese TV manufacturers setting up in Mexico to get access to North American market

EEE Industry in US

- US exported $155 billion IT and high tech goods in 2003
  - Japan top destination
  - Canada second
- Chipmakers and semi-conductors a significant portion of domestic business
  - Semi-conductor employment 284,000
- Software a large part of business: not a focus for CEP3
- Most manufacturing off shore

EEE Industry in Canada

- Highly specialized in communication products and software
- Some specialization in electrical component supply to industrial sector
- IT and high tech sectors small in Canada
- Manufacturing minimal in Canada
- Less than 40,000 manufacturing employees

Cellphones

- Four Significant Companies:
  - Motorola (US)
  - Nokia (Finland)
  - Samsung (South Korea)
  - LG Phillips (Holland)
- All have manufacturing in Mexico
- Battery is largest weight of cellphone, and accounts for most of hazardous material

Current Efforts Which Impact on Pollution Prevention in EEE Sector

- Legislated P2
- Voluntary Agreements
- Procurement Specifications

Legislated P2

- RoHS Directive: products sold in Europe after 1st July 2006 can not contain:
  - Lead
  - Cadmium
  - Mercury
  - Hexavalent Chrome
  - Polybrominated Bi-Phenyls (PBBs)
  - Polybrominated diphenyl ethers (PBDEs)
- State of California SB20/20
  - Similar to RoHS by January, 2007
  - Not as strict on brominated flame retardants
- Similar legislation being considered elsewhere

Voluntary Agreements
Federal Electronics Challenge (FEC)

- US Federal Government purchases $60 billion electronic equipment and services annually
- FEC encourages US federal facilities to:
  - Purchase greener electronic products
  - Reduce impacts of electronic products during use
  - Manage obsolete electronics in an environmentally safe way
- Initial MOU signed Nov, 2004
- Currently 61 FEC partners

Procurement Specifications

- US Government committed through FEC
- Canadian government commitment to green procurement October 2004
  - Office of Greening Government Operations
  - 40 commodity groups
- Two green procurement specifications on computers to date
  - EcoLogo in Canada
  - EPEAT in US

Industry Initiatives

- Procurement specifications
- Supply chain management
- Design for Environment as a marketing advantage
- Meet legislated restrictions
- Voluntary efforts by industry associations
- Training by industry associations

Industry Efforts To Meet RoHS

- Large companies aware of RoHS issue for many years
- Understood that sooner or later they would have to comply
- Have been re-engineering processes and products to eliminate RoHS materials

Industry Efforts to Meet RoHS Requirements

- Sony
  - Fully RoHS compliant by Jan 1st, 2006
  - Allow 6 months to address unexpected
- HP
  - 50% of products compliant by 2005
  - Remaining 50% by 2006

Technical Challenges

- Sony Play Station issue
  - Raised awareness of cadmium and vulnerability to supply chain
- Set a goal of eliminating lead solder by March, 2005
- Most applications have replaced lead with tin, silver or copper

Lead Free Solder Poses Challenges

- Heat resistance limits of components may be exceeded
- Tin whiskering
- Change in sound properties of audio components
- 50% more scrap than lead solder
- Lead in CRT glass being eliminated with move to LCD screens

Associations and Educational Institutions

- US
  - EIA, NEMA and IPC
  - NIST MEP Program
  - Underwriters Lab
- Canada
  - Electro Federation of Canada
  - Canadian Importers and Exporters
  - ITAC and EPSC
- Mexico
  - CANIETI
  - CANACINTRA
  - AIM

Setting the Context for CEP3

- EEE industry is huge, and global
- Products have very short life, and need proper management at end of life
- Product design changes constantly
- Best way to bring about P2 is by designing cleaner and greener electronic products
- Supply chain and procurement specs are the only way to bring about effective P2

Considerations in Design of CEP3

- Manufacturing is off-shore
- Promotion of P2 will impact on environmental quality of countries who manufacture EEE
  - North American environment will only be impacted at end of life
- CEP3 program needs an “end of life” component
  - Lack of infrastructure throughout 3 NA countries to properly manage end of life electronics

CEP3 Program Design Considerations

- Green procurement is best way to influence manufacturing through the design chain
- Should we work towards a common set of green procurement principles?

How To Involve Large Companies

- Large OEMs have already indicated lack of interest
- Might be more interested if they thought it would avoid future regulation
- Most useful role would be in sharing best practices on how they became RoHS compliant

Four Elements to CEP3

- Green Procurement
- RoHS Directive
- Design for Environment
- End of Life Management

Green Procurement

- Two Green Procurement standards in development
  - EcoLogo and EPEAT
- Encourage government purchasers to specify green computers
- Capacity building and training program for purchasing staff
  - Procurement and purchasing staff speak their own (unique) language
  - Need training and outreach so that they understand what is important, and why green procurement is being encouraged

RoHS Directive Training

- RoHS or SB20/20 are not just Europe and California issues
- Global issue because of
  - World markets and
  - OEMs source components from everywhere and companies of all sizes (large and small)
- Impacts will eventually trickle down through the supply chain
- Small companies need to understand that sooner or later it will impact their business
- OEMS have a role in sharing best practices at a generic level

RoHS Directive Training

- Large companies are already aware of RoHS
  - See if large OEMs will share best practices
- Lots of training has been underway
  - Underwriters Laboratory
  - AHAM and other industry associations
- Target small and medium enterprises (SMEs)
  - Industry associations can not always access SMEs
- Develop Information Dissemination partners with access to SMEs
  - Industry associations
  - Community colleges
  - NIST/MEP in US

Design for Environment

- Best P2 approach is to eliminate hazardous components from electronics completely
  - RoHS is tackling most of this
- Educate product designers
  - Young product designers need more awareness of DfE
  - More Spanish text books needed
- Add to curriculum of design centres

End of Life Management of Electronics

- Short lifespan
- Amount of e-waste mounting at a huge rate
- Governments around the world tackling through EPR (extended producer responsibility) legislation
- EPR legislation typically focussed on residential waste stream
- Commercial waste stream needs to be more aware to dispose properly
- Add EoL commitment and education to those involved in other elements of CEP3

Potential Partners and Funding

- Large Institutional Buyers of IT Equipment
- Retailers and Consumer Associations
- Industry Associations
- Educational Facilities
- Governments in 3 NA countries
- Foundations

CEP3 Workplan

- Full time Project Manager to get program started
- Website, Brand, Logo
- Best Practices Information
- Engagement and outreach to SMEs
- Training programs
- Parties to CEC provide some seed funding
- Project manager to solicit matching funding from various sources (government and foundation)

Next Steps

- Discuss at 28th March meeting