TOPIC: The Global Transition to Mercury Free Lighting.

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The global movement away from fluorescent lamps and toward efficient, mercury-free LED (light-emitting diode) lighting is gaining momentum. Recent market data collected from over **70 countries** in **Africa**, **Latin America**, and the **Asia Pacific region** demonstrate the feasibility of rapidly phasing out mercury-based lighting while highlighting the **co-benefits of a global shift to LEDs**. In all cases, LEDs are more efficient than fluorescents and offer a fast return on investment. The fourth University of Cape Town's (UCT) Chemical Network discussion of 2023 focused on The Global Transition to Mercury Free Lighting. It was presented by **Steve Coyne**, managing director, Light Naturally, Australia; **Colin Taylor**, climate senior manager, Collaborative Labeling and Appliance Standards Program (CLASP) and policy implementation lead, Clean Lighting Coalition (CLiC), and **Michael Bender**, director, Mercury Policy Project and international co-coordinator, Zero Mercury Working Group (ZMWG).

To view the PowerPoint presentation and other resources for this discussion, click here.

KEY MESSAGES

The sectors that will benefit the most from a transition to LED lamps are **the environmental and health sectors**, the **industry and domestic sector**, and **the economic sectors**.

When a country does not adopt LED lamps, it runs **the risk of becoming a dumping ground of mercury and waste pollution**, posing a risk to human health and the economy. These countries do not respect the MINAMATA convention. A country can facilitate the production of LED lamps by providing **financial support and tax reductions to LED manufacturers and importers** and **building capacity among stakeholders involved in LED manufacturing**.

When it comes to policy instruments, respondents to question two proposed, that **bans are the most efficient for shifting the lighting market away from mercury-containing products**. About 13 countries observed a **shift from fluorescent to LED lighting in their local market**. Other respondents estimated that **there needs to be more awareness raising around the health risks of using mercury-containing lighting**, as well as the **benefits of LED lighting**.

Challenges are hindering the environmentally sound management of mercury-added lamps, due to the **lack of resources for safe disposal**. Alternative options for managing mercury waste are **banning mercury-added lamps, recycling mercury lamp waste** or **isolation of waste**.

Throughout this discussion, **awareness raising among the consumers** and the **producers** was mentioned, as both a **key factor in promoting the manufacture** and **usage of LED lamps in countries**, and **a challenge** in the safe environmental disposal of mercury-added lamps.

ABOUT THE PRESENTERS

Steve Coyne, managing director, Light Naturally, Australia. Steve is a physicist who has specialized in photometry, lighting, and daylighting. As director of Light Naturally, he provides independent expert advice to the courts of law, and the private sector as well as to governments, the United Nations, and other non-governmental organisations (NGOs). Steve's advice centres around the implementation of energy-efficient lighting regulations and initiatives in over 60 countries. He has been Australia's representative solid-state lighting expert on the Energy Efficient End-use Equipment program, within the International Energy Agency since 2009. Steve previously established and lectured in post-graduate lighting courses in Australia and Hong Kong. He has been chair of the Australian Council of Built Environment Design Professions, president of the Illuminating Engineering Society of Australia and New Zealand, and is currently vice-president of the Australian National Committee of the International Commission on Illumination (CIE).

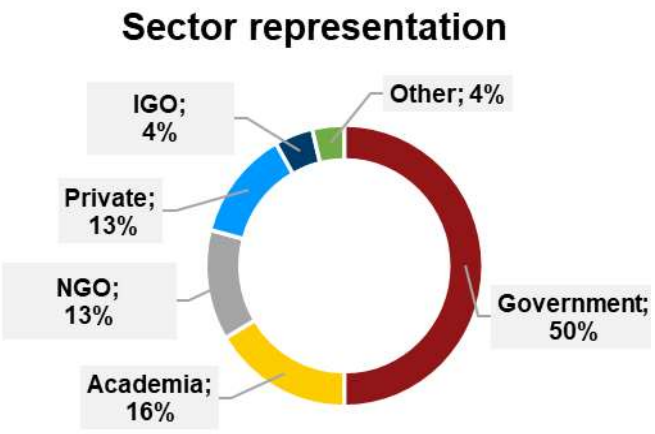
Colin Taylor leads policy implementation for CLiC and serves as CLASP's program manager in Brazil. In addition, he is a strategic advisor to CLASP's programs in China, Bangladesh, and South Africa. He has over 12 years of energy efficiency and finance experience, leading projects in several countries in Asia and the Americas. Before joining CLASP, Colin lived in Jamaica where he co-founded a consulting business focused on clean energy policies and projects in the Caribbean, the US, and China. His specific areas of expertise include energy modelling, financial mechanisms for energy efficiency investment, cooling products, appliance market transformation, and electricity sector regulation.

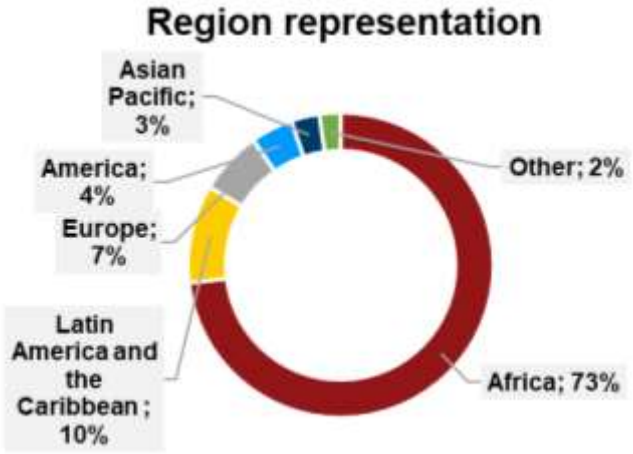
Michael Bender, director, Mercury Policy Project and international co-coordinator, Zero Mercury Working Group (ZMWG). The ZMWG is a coalition of over 110 NGOs from more than 55 countries. ZMWG promotes 'Zero' emissions, monitors the demand and supply of mercury and the effective implementation of the Minamata Convention. Michael has over thirty years of experience working on programs and policies to reduce mercury use, disposal, and exposure. He is co-lead of the United Nations Environmental Program (UNEP), Global Mercury Partnership and guides countries interested in developing strategies for managing and phasing out mercury-added products.

ATTENDANCE BREAKDOWN

 # ATTENDEES: 84
Female – 46%
Male – 54%

IGO* = Intergovernmental Organisations
NGO* = Non-governmental Organisations



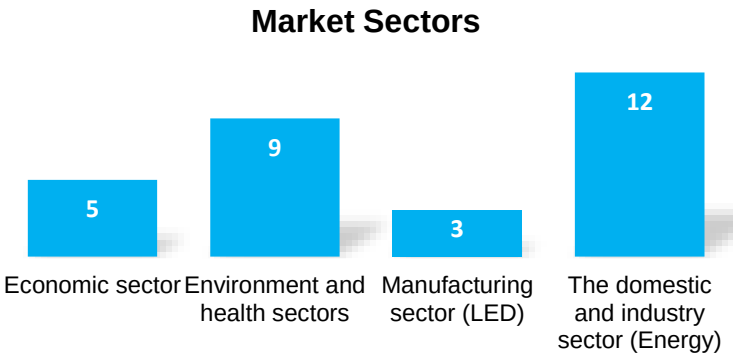


CONTRIBUTIONS FROM PARTICIPANTS IN THE DISCUSSION:

Disclaimer: The information in this digest represents the opinions of members participating from different stakeholder groups expressed during the discussion. The views expressed in this document do not necessarily represent the opinion or the stated policy of the Swedish Chemicals Agency (KemI) or DEH UCT, nor does citing trade names or commercial processes constitute endorsement.

The discussion was structured around three questions. The key discussion points raised by participants and organized by themes or countries (although not representatives) are presented under each question.

QUESTION 1: Which market sectors in a country would benefit from the accelerated transition from mercury-containing lamps to LED lamps? (Turning off the mercury tap!)



Throughout the discussion, informal polls were conducted to help encourage discussion among the participants. They do not provide any representative data but rather provide a snapshot of participants' views.

Poll 1: What do you believe could be the risk to your country if other countries ban mercury-containing lamps, but your country does not? N= 17

POLLUTION AND WASTE DUMPING OF:

- Banned or obsolete products
- Increase in mercury waste at end of the life cycle of these products.

RISK TO HEALTH DUE TO POLLUTION:

- Mercury pollution in the environment
- Exposure to hazardous chemical substances
- Lack of public health protection from mercury
- Negative health impacts of mercury gases
- Negative health effects

NOT RESPECTING THE PROVISION OF THE MINAMATA CONVENTION:

- Violation of human rights to a clean environment
- Smuggling and transboundary pollution of mercury
- Not adhering to the provisions of the Minamata Convention for which the country is a party

ECONOMIC RISKS:

- Disposal cost of mercury-containing products
- Cost of importing LED lamps

Poll 2: How could your country facilitate/incentivise local LED lamp assembly and manufacture? N = 17

FINANCIAL SUPPORT:

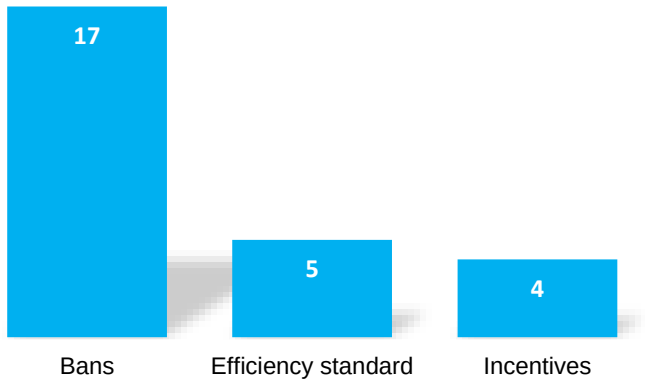
- Tax reductions and subsidies for LED lamp importation
- Create a funding scheme for the industrial sector, specifically manufacturing.
- Provide financial support to entrepreneurs seeking to assemble LED lamps locally
- Lower import taxes for LED lamp assembly and manufacture
- Tax breaks or moratoriums for its production
- Increase import taxation on mercury lamps

CAPACITY BUILDING:

- Increase collaboration between the government and the private sector
- Industry needs to take ownership and responsibility in manufacturing
- The government needs to create an enabling environment to fund activities in LED lamp manufacturing

QUESTION 2: What policy instruments, such as efficiency standards, bans, or incentives, do you believe are most appropriate for shifting the lighting market away from mercury-containing lighting products?

Policy Instruments rate



PARTICIPANT RESPONSES:

BANS:

- Bans on the importation and sale of mercury-containing lighting can bear immediate results
- Enforcing banning instrumental policy leads to immediate results
- The country that does not manufacture mercury-containing lamps should ban the import of mercury-containing lights

FOLLOWING EXAMPLE:

- A study of the impact of the measures taken must first be carried out before the regulations are drawn up
- Countries that have not transitioned to LED lighting should follow the example of countries who have already started the transition
- Promote alternatives to mercury-added lamps

Poll 3 : Have you observed a shift from fluorescent to LED lighting in your local market? n=15

OBSERVED SHIFT, n=13

- **SOUTH AFRICA** – The shift has been driven by the rising cost of electricity along with the drop in the price of LED lights and their energy efficiency
- **SIERRA LEONE** – There is a shift, but mercury-added lamps are still on the market
- **ZAMBIA** - A slight one, mostly due to the buyback scheme the Zambian government initiated

NO OBSERVED SHIFT, n=2

Poll 4: What more could be done in your country to accelerate the transition to mercury-free lighting? N=16

AWARENESS RAISING:

- Awareness training in the community of the impacts and toxicity of mercury-added lighting
- Implement a replacement program to change fluorescent lighting to LEDs
- Promoting LEDs for its energy efficiency benefits and impacts on pollution reduction
- Promote green procurement in government
- Stakeholder identification and sensitisation

BANS:

- Banning the sale of mercury lights
- Different ministries involved in the life cycle process of mercury-containing light should be involved
- Incentive policy for mercury-free users
- National technical committees to be activated

QUESTION 3: What are the main challenges of environmentally sound management and disposal of mercury-added lamps?

PARTICIPANT RESPONSES:

LACK OF RESOURCES TO MANAGE AND DISPOSE MERCURY ADDED LAMPS AS:

- Awareness-raising programs among the consumers and manufacturers
- Collection and disposal facilities and waste management facilities
- Knowledge and technology on how to best dispose of the lamps
- Lack of life cycle approach in this area
- No clear legal framework to guide proper disposal, no licenced disposal facilities in the country, and inadequate enforcement mechanisms to dispose of them soundly
- Stakeholder coordination

Poll 5: What options are available for the environmentally sound management and disposal of mercury-added lamps in your country? n=7

- Banning mercury-added lamps exportation
- Doing it under the supervision and control of related science, government agencies, and with relation to the Minamata Convention
- Encapsulation
- Enabling enforcement agencies
- Local recycling of mercury-containing lamps
- Isolating and storing
- Volume reduction before storage

Poll 6, Are drum top crushers a viable, cost-effective option for reducing the volume of mercury-added lamps, n=6

- Drum top crushers are a viable, cost-effective option, for reducing the volume of mercury-added lamps when all the requisite safeguards are in place, as well as at the final disposal facility. Otherwise, they will not be sustainable. There also needs to be awareness and regulatory campaigns for the general population on how to use them.

QUESTIONS (Q) FROM PARTICIPANTS AND ANSWERS (A) FROM PRESENTERS

Q: From an expert's perspective, **what are the challenges for developing countries** in completely replacing Mercury containing lamps with LEDs?

A: A Multipronged approach is required:

- **Undertake a Cost Benefit Analysis** (using local economic figures: asset price, electricity cost/subsidies) of changing from a mercury containing lamp to an LED:
  - **Identify options for maximising this cost benefit**, for example:
    - increasing import tariffs for mercury containing lamp and reducing for LED components and lamps
    - bulk procurement of LED lamps for government facilities thereby reducing unit price to the broader market
- **Border control** when ban of mercury containing lamps is implemented:
  - Implementing alerts (based on HS codes) in software systems used by customs for import control
  - Notifying Customs brokers and major importers
- **Market awareness** of the bans and promote suitability of compatible LED lamps
- **Implementing a performance standard** (including energy efficiency) for LED lamps so that quality of lighting service is maintained, and energy savings are gained with the transition away from mercury containing lamps
- **Fostering and stimulating LED lamp local assembly industry** Collaborate with regional and economic partner countries to harmonise standards and regulations. This can incentivise commercial opportunity for suppliers to enter this larger uniform regional market.

KEY RESOURCES

- Chemical Network Newsletter August Issue: The Global Transition to Mercury Free Lighting.
- Technical & Economic Assessment of Mercury-Free Lighting: Global Overview & Regional Profiles
- The United for Efficiency model regulation guidelines for lighting

Chemical Network: The Chemical Network is a non-partisan online forum established by the Division of Environmental Health (DEH) at the University of Cape Town's (UCT) School of Public Health. It was established as part of a knowledge management and sharing project supported by the Swedish Chemicals Authority (KemI).

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If you have any questions or require clarification on this initiative, please contact UCT at **chemicallistserver@gmail.com** If you are not already a member, join the Chemical Network at: **https://forms.office.com/r/Lk1tgAL6DF**