E-waste trade ban won't end environmental threat

22 March 2010

A proposal under debate in the U.S. Congress to ban the export of electronics waste would likely make a growing global environmental problem even worse, say authors of an article from the journal *Environmental Science and Technology* appearing online today.

The authors call into question conventional thinking that trade bans can prevent "backyard recycling" of electronics waste - primarily old and obsolete computers - in developing countries.

Primitive recycling processes used in these countries are dispersing materials and pollutants that are contaminating air, water and soil.

"Trade bans will become increasingly irrelevant in solving the problem," says Eric Williams, one of the authors of the article, which offers alternative ways to address the problem.

Williams is an assistant professor at Arizona State University with a joint appointment in the School of Sustainable Engineering and the Built Environment, a part of the Ira A. Fulton Schools of Engineering and the School of Sustainability.

Electronics waste - or e-waste - is often exported from the United States and other developed nations to regions in China, India, Thailand and less developed countries where recycling is done in a crude fashion.

To recover copper from e-waste, for instance, wires are pulled out, piled up and burned to remove insulation covering the copper. This emits dioxins and other pollutants.

Toxic cyanide and acids used to remove gold from circuit boards of junked computers also are released into the environment.

With the number of junked computers expected to triple in the next 15 years, the authors say, the problem will grow much worse if an effective remedy is not put in place in the near future.

The main approach to solving the backyard recycling problem has been to ban trade in e-waste. Some countries have officially banned e-waste imports, but in some cases, as in China, such legislation has pushed the trade to the black market.

Congress is debating House Resolution 2595, which would ban the export of e-waste from the United States.

"The underlying assumption of this bill and other trade bans is that most e-waste comes from outside developing nations, and that stopping trade with developed countries would cut off the supply of e-waste and stop backyard recycling," Williams says.

But authors of the Environmental Science and Technology article forecast that the developing world will generate more waste computers than the developed countries as soon as 2017, and that by 2025 the developing world will generate twice the amount of waste computers as what will come from developed nations.

"Rapid economic and population growth in developing countries is driving an increase in computer use in these parts of the world that is outpacing the implementation of modern and environment-friendly recycling systems," Williams says. " So without action, backyard recycling is certain to increase."

But he and his co-authors say even a complete global ban on trade in e-waste cannot solve the problem because it covers only a diminishing percentage of the overall supply of e-waste. They argue for direct action to reduce the harmful environmental impacts of backyard recycling.

One proposal is to pay backyard recyclers not to

recycle.

"The idea is to let people first repair and reuse equipment, and only intervene to remove materials and components that would be environmentally hazardous when e-waste would be recycled using crude methods," Williams says. "Such a system looks to be an inexpensive way to maintain jobs in recycling operations and maintain access to used computers while protecting the environment."

More information: The article can be found online at: dx.doi.org/10.1021/es903350q

Provided by Arizona State University