Reduce e-waste while providing jobs to those in need

Posted on May 8, 2019 on rotaryservice by Merrill Glustrom, member of the Rotary Club of Boulder, Colorado, USA and Treasurer of the Environmental Sustainability Rotarian Action Group (ESRAG)

The use of computer electronic products has grown substantially, changing the way we communicate, do business, and get information and entertainment. With such clear advantages, it's not surprising that computers have an important place in our lives. 47 million U.S. households own one computer, and 40 million additional households own two or more computers. However, this phenomenal success has created significant environmental challenges including:

- The average time Americans keep a computer before replacement is only 4.5 years.
- Americans generate over 2.37 million tons of e-waste each year.
- Each day in the United States, we get rid of 142,000 computers.
- 60% of computer waste, and 67% of monitor waste goes to landfills.
- E-waste represents 2% of America's trash in landfills, but equals 70% of overall toxic waste. *

The figures are of even greater concern because much of the e-waste that is recycled goes to countries with insufficient regulations, like to China, where the e-waste is not recycled properly or dumped as garbage.

In addition to filling landfills with plastic that will not degrade for tens of thousands of years, the dangers of discarded computers are also found in what's inside them. A typical PC with many circuit boards contains up to eight pounds of lead, along with lower levels of mercury, arsenic, cadmium, beryllium and other toxic chemicals.* There is also a fairly poisonous family of flame-retardant chemicals used in most electronics. In fact, about 70% of the toxic chemicals in landfills come from e-waste.

In response to these serious environmental problems, Eco-Cycle in Boulder has developed one of the most successful recycling programs in the country. CHaRM, the division of Eco-Cycle that recycles e-waste, opened in 2001 and was the first facility of its kind in the nation. Eco-Cycle takes extraordinary steps to make sure computers are recycled responsibly and has helped Boulder, Colorado, USA become one of the top three cities in per capita computer recycling in the nation.

Computer products dumped in a landfill

Bill Morris, a social entrepreneur, started Blue Star Recyclers as a non-profit six years ago in Colorado Springs. Blue Star has an innovative approach to e-waste recycling that adds the talents of adults on the autism spectrum to the recycling process, creating meaningful work for a neglected population. Blue Star hires adults on the autism spectrum to take apart old computer equipment for recycling. Most people on the autism spectrum are supported while in the K-12 system, but after they turn 21, services are radically reduced. Most are unemployed and financially dependent on social services.

Eco-Cycle, Boulder, Colorado

By hiring adults on the autism spectrum and those with other disabilities, Blue Star proved the following assumptions:

- Many adults with autism are highly skilled at the repetitive task of taking apart computer equipment. They have an attention to detail lacking in the general population.
- By performing competitively paid and necessary work in a positive environment, Blue Star's employees have found a way to contribute and be appreciated for their talents—something we all need for a meaningful life.
- Because they are paid, some of the cost for the support of autistic adults is removed from society.

Blue Star Employee

In 2015, Bill replicated the Blue Star model in Denver. In addition, Blue Star has begun refurbishing salvageable computers for resale for a nominal fee (depending on income) to those in poverty and provide school children who are eligible for free-and-reduced lunch with free computers so they can receive and complete their school assignments.

The Boulder Rotary Club has been instrumental in facilitating a partnership with Eco-Cycle and Blue Star. Leveraging our members' business expertise, connections, and resources, the club brought Blue Star to Boulder. Eco-Cycle agreed to house Blue Star Recyclers on their campus, and contracted with Blue Star to receive and take apart computers for recycling. The project has been highly successful and serves as a model for recycling in socially and environmentally sensitive ways.

Our goal now is to expand the concept to other communities around the country and internationally. Rotary clubs and computer recycling

We meet calendar months' 2nd & 4th Saturdays at the Auditorium at JC 25, Salt Lake, Kolkata 700098 at 5.00 PM
Printed by Dr Ankush Bansal, President, the Rotary Club of Salt Lake Metropolitan Kolkata ▪ Editor: Dr Aruna Tantia
For private circulation only ▪ Web site: www.rcslmk.org

facilities, advised by the Rotary Club of Boulder, Eco-Cycle, and Blue Star, can implement the Blue Star model for recycling e-waste by hiring employees on the autism spectrum. Please contact me if you would like to bring this concept to your community.

Blue Star Employees

When people broaden their vision, and work not only to achieve their own goals, but the broader goals of a sustainable and compassionate community, great things can happen. The concept works in any community that recycles computers, has a population on the autism spectrum.

A Rotary Club interested in championing the idea. It's all captured in our motto: "We turn e-waste into work!"

A low-carbon future must protect the world's forests
By Kirsten Hund on May 8, 2019 on World Bank
Co-author: Erik Reed

Aerial view of construction at a large scale mine
© Bannafarsai/shutterstock

The shift to a low-carbon future that includes clean technology such as solar panels, wind turbines, electric vehicles and batteries will require a lot of minerals. In fact, experts predict that between now and 2050 we will need more minerals than have been produced over the past 100 years. This mineral-intensive future has implications for our forests, vital to mitigate global warming. A climate-smart mining approach that protects the world's forests is essential to reduce carbon emissions and fight climate change. Currently about 1,500 large-scale mines in the world are in tropical forests and a further 1,800 are under development or currently non-operational. More than half of these large-scale forest mines are in low- or lower-middle-income countries. Forests provide an important carbon sink for mitigating climate change. According to the World Resources Institute, if tropical forests combined were a country, deforestation would rank third in carbon dioxide–equivalent emissions, behind China and the United States. Generically speaking, forest loss is driven by economic activity, mainly commercial and subsistence agriculture. Yet, mining plays an important, though less understood role, accounting for an estimated 7 percent of total forest loss. As the future of our planet hinges on tenths of degrees Celsius, 7 percent may well make the difference.

At a national level, mining is contributing to emissions from forest loss in numerous countries and is a dominant cause of deforestation in some. For example, in Suriname, mining is responsible for 73 percent of total deforestation, with the majority attributed to artisanal and small-scale mining (ASM) for gold.

With so much at stake, the World Bank has developed what we call a forest-smart approach to mining – ensuring that this increased need for metals and minerals will not be at the expense of forests. Thus a Climate-Smart Mining approach also needs to be Forest-Smart. Three new reports released today offer solutions to address this challenge.

So, what mining takes place in forests? Many different minerals are mined in forests, with gold, iron ore, and copper most commonly mined by large-scale operators in forests. Bauxite, titanium, and nickel are the most reliant on forest-based mines, as the ores that contain them are mostly found in forest areas. All these minerals are crucial components of low-carbon technologies as well as for cell-phones and computers.

An artisanal mine in Minkébé, Gabon. © Gustave Mbaza/WWF Gabon)

Importantly, it isn't principally the mine itself that causes deforestation. Our research shows that a mine is often surrounded by large-scale forest losses in areas outside the mining permit area, with notable spikes in deforestation when the mines are first established. This forest loss is largely the result of new roads, railways, ports and other infrastructure built to transport extracted minerals. In addition, the development of large-scale mines in previously uninhabited or inaccessible areas attracts people looking for new economic opportunities. The settlements they establish drive forest loss due to firewood demand, wildlife poaching, agriculture expansion and ASM activities.

To address this deforestation, a forest-smart approach to mining requires strong governance to manage the development and impacts of the mining sector, protect forests on a landscape level, and recognize and protect local community tenure and rights. It also requires responsible corporate behaviour, empowered communities, and engaged civil society stakeholders.

With this in mind, we analyzed almost 30 case studies of both artisanal and small-scale mines as well as large-scale mining operations to identify best practices that can improve forest outcomes and bad practices to be avoided. The result is a large number of practical examples and a set of 14 forest-smart mining principles.

Based on our case studies, no single site, operation, company, or country is wholly forest-smart. Yet, our case studies also demonstrate that a variety of countries are implementing forest-smart practices and applying strong policies. One key finding of our work is that political will and coordination between government entities and other stakeholders is crucial for forest-smart outcomes.

In Madagascar, the establishment of coordination platforms between managers of a national park and local authorities helped to develop effective strategies to manage illegal artisanal mining in the park and improve agricultural practices to reduce pressure on forest.

In Ghana, a mining company included community stakeholders as partners in planning, decision making, and implementation to achieve positive outcomes for forests and communities. This ongoing consultation led to communities receiving long-term stakes in the work through secure forest plots. used for sustainably managed small-scale commercial production.

In Zambia, a mining company partnered with the Forestry Department and the Department of National Parks and Wildlife to manage a large forest landscape, including the West Lunga National Park, together with local communities to protect the forest landscape and prevent further deforestation.

We meet 2nd and 4th Saturdays at the Auditorium at 9th floor, JC 25, Salt Lake, Kolkata 700098 at 5.00 PM
Printed by Dr Ankush Bansal, President, the Rotary Club of Salt Lake Metropolitan Kolkata ▪ Editor: Dr Aruna Tantia
For private circulation only ▪Web site: www.rcslmk.org

Our analysis identified priority countries for applying the forest-smart principles, using the criteria of high forest cover, high economic dependence on mining, a high density of mines in forest areas, and significant greenhouse gas emissions from forest degradation. Countries identified include Guinea, Ecuador, the Democratic Republic of Congo (DRC), Zambia, and Indonesia, countries where the World Bank is active in both forest conservation and mineral sector governance, and thus well positioned to help bring together experts, governments, companies and communities to implement forest-smart mining approaches. By working together, we can utilize the raw materials needed for clean-energy technologies and conserve forests at the same time – protecting the world's forests, reducing emissions and stepping up to the climate challenge.

Integrated urban flood risk management: Learning from the Japanese experience

By Jolanta Kryspin-Watson on April 24, 2019 in World Bank
Co-authors: Jia Wen Hoe

In the summer of 1742, two typhoons swept across Japan in quick succession, bringing torrents of heavy rain and flooding major rivers. Records from a young monk who witnessed the floods describe a muddy wave destroying levees and sweeping through villages. As levees and rivers collapsed, floodwaters rose in Edo, Japan's largest city and political capital, abating only days later, and resulting in fatalities of a reported 6,000 in the city.

While floods were not an uncommon occurrence in Japan, the Great Kanto Flood of 1742 was the worst flood in the country's early modern era, and the first flood disaster in its largest urban area. It highlighted the river engineering changes that had facilitated the growth of Edo, but also increased the city's vulnerability to floods.

Today, while the threat of flooding remains high for Edo's successor, Tokyo, Japan's capacity to manage urban flood risks has only strengthened. A notable characteristic of Japan's efforts to tackle urban floods is its integrated approach, bringing together diverse stakeholders and measures to manage flood risks. Japanese cities have developed and employed a dynamic suite of flood risk management measures, from regulations, plans, and strategies for basin-scale river improvement, advanced infrastructural solutions, to coordination and communication mechanisms.

Participants from 9 countries participated at the 2nd Technical Deep Dive (TDD) for Integrated Urban Flood Risk Management in Tokyo, Kobe and Osaka, Japan. Source: TDLC

The 2nd Technical Deep Dive (TDD) for Integrated Urban Flood Risk Management (IUFRM) explores Japan's experience in mitigating flood risks, which offers valuable lessons for countries facing similar urban flood challenges. Urban floods pose a serious threat to growing cities around the world. Recognizing the need to invest in the flood resilience of cities, the World Bank's investments in urban flood mitigation projects have increased steadily over the past decade. Supported by the Global Facility for Disaster Reduction and Recovery (GFDRR), the World Bank's Urban Floods Community of Practice (UFCOP) promotes an integrated approach to urban flood risk

management and aims to make knowledge on urban flood risk management accessible and applicable, and to facilitate the transfer of innovation, good practice and lessons.

Key lessons from Japan's experience in integrated flood risk management include the following:

- Risk assessment and communication: Approaches must be selected based on flood type and local characteristics, reflect different stakeholders' specific needs and objectives, and account for climate change uncertainty.
- Planning and prioritization: The national government plays an important role supporting local governments. City governments also have to broker consensus between stakeholders.
- Investment implementation: Wherever possible, measures should include multi-functional systems that provide other benefits in addition to managing flood risks. It is also necessary to design and implement clear governance mechanisms.
- Operations and Maintenance (O&M): Regular performance monitoring and evaluation of IUFRM measures; and regular inspection, maintenance, repair, and replacement work are required for sustainable O&M.

Organized in April 2016 and also hosted by Japan, the 1st TDD was structured around four themes: (1) the evolving approach in Japan; (2) planning to reduce flood risk; (3) integrating non-structural measures in flood risk management; (4) turning planning into investment in key structural measures.

This year's edition builds on the lessons learned and feedback from the 1st TDD, focusing on the following issues: (1) urban flood risk assessment and communication processes; (2) the planning and prioritization of flood risk reduction investments; (3) the implementation of these investments; and (4) how these investments are operated and maintained with a view to sustainability. A series of Knowledge Notes complementing the TDD's four topics will also soon be published.

Through its long history reflecting and learning from each urban flood disaster going back to the Great Kanto Flood of 1742, Japan has reevaluated its laws, plans, and measures. Japanese cities have over time improved their capacity to better cope with urban flood risks. The TDD and forthcoming Knowledge Notes provide a unique opportunity for collaborative learning from Japan's experience, enabling countries to develop a deeper understanding of urban flood risks and the integrated approach required to manage risks effectively. The 2nd TDD on IUFRM in Tokyo and Kobe from the 22nd to 26th April 2019, co-organized by UFCOP, the Tokyo Development Learning Center (TDLC), GFDRR, the World Bank Tokyo Disaster Risk Management (DRM) Hub and the Japanese Ministry of Land, Infrastructure, Transport, and Tourism (MLIT), and Kobe City, brings practitioners from around the world to learn from each other and international and Japanese experiences on IUFRM.

Meet the virus hunters

By Bill Gates, April 29, 2019

It's hard for me to overstate how brave people who willingly put themselves on the frontlines of outbreaks are—especially when you're up against an enemy we haven't seen before. Without any information about how a disease jumps from person to person, it's difficult to protect yourself. Your only option is to put on a biohazard suit and trust that it will keep you safe.

If you're a health worker in a situation like that, you're often faced with patients you can't help. We can't treat a disease until we know what it is, after all. That's where virus hunters come in.

Virus hunters are given a near-impossible task: find out where a mystery pathogen came from, how it's transmitted, and how to stop it. Although they're scientists and researchers by training, they also have to be detectives. A good virus hunter must look for clues and follow leads until they catch the bad guy. Think True Detective, but with microscopic pathogens instead of serial killers.

Virus hunters are doing amazing work all over the world to stop infectious diseases (including those caused by bacteria and other pathogens—the name is a bit misleading!). I want to introduce you to

We meet 2nd and 4th Saturdays at the Auditorium at 9th floor, JC 25, Salt Lake, Kolkata 700098 at 5.00 PM
Printed by Dr Ankush Bansal, President, the Rotary Club of Salt Lake Metropolitan Kolkata ▪ Editor: Dr Aruna Tantia
For private circulation only ▪ Web site: www.rcslmk.org

two examples that I find particularly inspiring: the doctor who tracked down one of the most infamous diseases in human history, and a team of rock star scientists that deploys to outbreak zones on a moment's notice.

The real-life Sherlock Holmes who helped discover Ebola

When I picture the quintessential virus hunter, one name comes to mind: Dr. Peter Piot. I've spent a lot of time with Peter over the years, and I never get tired of hearing him talk about the case that made him famous.

Peter was just 27 years old when the Belgian lab where he was working received a blood sample infected with a then-unknown disease. In 1976, most people thought infectious diseases were a thing of the past—but health officials were starting to worry about a new sickness in Zaire (today called the Democratic Republic of the Congo) that caused people to bleed until they died. Peter and a team of researchers around the world worked together to identify the mystery virus, which we now know as Ebola.

But identifying a virus on a microscope is only the first of many steps to stopping an outbreak. So, with no real idea of what he was up against, Peter headed to Zaire to hunt for patient zero. He and his colleagues drove from village to village in a Land Rover, collecting information about who was sick and where they had been before symptoms appeared.

Eventually, Peter spoke to a group of nuns who noticed that people seemed to get sick after they attended the funeral of someone who died from the disease. That tip led to a key revelation: Zairean mourners washed their dead. After they touched the bodies—which were often covered in blood—the mourners would eventually rub their eyes or put their fingers in their mouths. A week later, they'd get sick.

That understanding helped Peter and the other virus hunters understand that Ebola spreads through contact with a sick person's body fluids. Once we knew how the disease was transmitted, it was a lot easier to limit its spread and stop the outbreak before it reached a critical level.

Peter's experience with Ebola was just the beginning of a long career fighting infectious disease. He was one of the first microbiologists to study AIDS, and in 1995, he became the founding executive director of UNAIDS. During his 13-year tenure, he coordinated the global response to HIV/AIDS through the discovery of the first treatments for the disease and the peak of the pandemic. After a brief stint at the Imperial College London and as a fellow with our foundation, he became the director of the London School of Hygiene and Tropical Medicine where he still teaches today.

The Avengers of virus hunters

Peter isn't the only virus hunter in residence at the London School of Hygiene and Tropical Medicine, though. In partnership with Public Health England, the school also hosts the UK Public Health Rapid Support Team (or RST)—a heroic super-group of scientists who deploy to outbreak zones to help local governments stop infectious diseases.

In just a little more than two years since it was created, the RST has already assisted in controlling 11 outbreaks in seven countries. The team has deployed to scenarios ranging from a diphtheria outbreak at a Rohingya refugee camp in Bangladesh to a plague flareup (yes, that plague) in Madagascar.

Here's how the RST works: as soon it becomes clear that an outbreak is underway, the local government (or, in rare cases, the WHO) requests their help. Not every team member is needed for every outbreak—sometimes you need an epidemiologist and a data scientist but not a microbiologist—so the first step is to identify who needs to go. The chosen team then has 48 hours to get their visas squared away, pack up any special equipment, and get to the airport for their flight to the outbreak zone.

Once on the ground, they either build a mobile laboratory or set up their equipment to supplement what's already there. The team then gets to work supporting local health officials. The tools they have at their disposal are a lot more high-tech than the ones Peter used back in 1976 (including gene sequencing, which they use to decode the genetic makeup of viruses). This technology helps the RST work with local experts to target the origin of the outbreak and limit its spread.

A typical deployment lasts six weeks. If the outbreak is still ongoing at the end of that period, the current team heads home to London, and a new team takes their place. For example, the RST has been on the ground in the Democratic Republic of the Congo since the beginning of the latest Ebola epidemic there. When they're not in the field, the team spends their days researching how to better respond to outbreaks and helping countries improve their capacity to control disease emergencies.

I'm really glad that the United Kingdom invested in a team like this, the Rapid Support Team's work is an important part of a global coalition that makes all of us safer. We don't know when—or where—the next major disease outbreak will emerge. It could arrive next month, next decade, or next century. And in a world where you can fly nearly anywhere in less than a day, there are no guarantees the next epidemic will remain confined to the other side of the world from you. The ability to respond to a disease is crucial for protecting the world from the next pandemic, and I hope more countries follow the U.K.'s lead.

Upcoming club program: Voluntary blood donation by family of RCSLMK, friends and members of Rotaract Club of Salt Lake Metropolitan and ILS Dumdum on Sunday, May 12, 2019 at CA 49, Salt Lake from 9.00 AM onward.

Birthdays of Rotary members in May, 2019

Dr Rajesh Goel on May 13, 2019
Swapan Mukherjee, past Governor on May 21, 2019
Dr Sudha Chowdhary, president Elect on May 23, 2019
PP Banwarilal Ajitsaria on May 27, 2019

Wedding anniversaries of Rotary members in May, 2019

Spouse Bandana & past Governor Brajogopal Kundu on May 8, 2019
PP Dr Chitra Ray and spouse Dr Manitosh on May 10, 2019
Sp Prof Amita & past Governor Amitave Mookerjee on May 27, 2019

May is Maternal Youth Service Month

Scotland post-surgical deaths drop by a third, and checklists are to thank

A study indicated a 37% decrease since 2008, which it attributed to the implementation of a safety checklist.

The 19-item list - which was created by the World Health Organization - is supposed to encourage teamwork and communication during operations.

The death rate fell to 0.46 per 100 procedures between 2000 and 2014, analysis of 6.8m operations showed.

Dr Atul Gawande, who introduced the checklist and co-authored the study, published in the British Journal of Surgery, said: "Scotland's health system is to be congratulated for a multi-year effort that has produced some of the largest population-wide reductions in surgical deaths ever documented."

Prof Jason Leitch, NHS Scotland's national clinical director, added: "This is a significant study which highlights the reduction in surgical mortality over the last decade.

"While there are a number of factors that have contributed to this, it is clear from the research that the introduction of the WHO Surgical Safety Checklist in 2008 has played a key role." (BBC)

U N W I N D

If your wife laughs at your joke, it means you either have a good joke, or a good wife.

T A I L P I E C E

I offered my opponents a deal: "If they stop telling lies about me, I will stop telling the truth about them".
~Adlai Stevenson, campaign speech, 1952

We meet 2nd and 4th Saturdays at the Auditorium at 9th floor, JC 25, Salt Lake, Kolkata 700098 at 5.00 PM
Printed by Dr Ankush Bansal, President, the Rotary Club of Salt Lake Metropolitan Kolkata ▪ Editor: Dr Aruna Tantia
For private circulation only ▪Web site: www.rcslmk.org