Kerosene: still a burning issue in Africa

By

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Lifeline Energy is a non-profit social enterprise that provides on-demand access to education and information to vulnerable populations. Lifeline Energy designs, manufactures and distributes solar and wind-up media players and radios for classroom and group listening. It also provides clean energy LED lights to support night-time learning and women’s empowerment.

Lack of access to radio and reliance on poor quality batteries are other forms of energy poverty. Dependency on disposable batteries along with firewood, kerosene, charcoal and candles – energy sources of the poorest – all contribute to environmental degradation and poverty. Since 1999, 500,000 of our radios and media players have provided learning access to an estimated 20 million listeners, mainly in sub-Saharan Africa.

Kerosene use by the poor remains a perilous issue across the developing world. Renewable energy products and services are making in-roads, however, kerosene is still the primary light and cooking source for much of Africa, where Lifeline Energy mainly works.

Kerosene dousing dreams in sub-Saharan Africa

Like many girls in Africa, Rose’s dream is to become a teacher. The shy grade six student revises her homework at a rickety table in a tin shack in a Nairobi slum. A kerosene lamp fashioned from a can of bug spray called a koroboi in Swahili, allows Rose to study for just 15 minutes a night. The light is inefficient and dim. The fumes are noxious; the smoke ‘scratches’ her eyes.

In the morning she ‘spits up black’. She hates kerosene not only because it stinks and makes her feel tired and ill, but because six years ago her younger brother tipped over a koroboi, catching the house on fire killing her mother, father and brother. To 13-year-old Rose, kerosene is the smell of death.

Unfortunately, stories like this are all too common in Africa. Exposure to kerosene retards economic progress, poisons children, causes deadly fires, horrific burns and injuries, and death. This fuel is silently destroying the lives and livelihoods of countless women and children across Africa.

With nearly 900 million people in sub-Saharan Africa, more than 80% have no access to electricity. Much of the population straddles the equator where it gets dark at night and light in the morning around 6:30 each day. In addition, many African houses are
rough hewn from mud or aluminium and poorly ventilated. Seeing inside is difficult even in daytime. People don’t use them at night for fear of the dark, snakes, or being attacked. Of the options available for lighting – kerosene, candles, firewood and batteries – kerosene is the most common. And because it’s for household use, it’s a woman’s fuel – and woman and children bear the brunt of energy poverty.

Nyeri, a 32 year-old former teacher from Kenya’s Great Rift Valley barely survived the fire that started when a koroboi’s flame caught her skirt. She was eight months pregnant. Living in a rural area, it took hours for her to be transported to a hospital, which was ill-equipped to deal with life-threatening burns. In agonizing pain, Nyeri prematurely gave birth to a boy. Having no way to nurse the baby because burns covered half of her body, the baby died. Badly disfigured, when she was well enough to return home her husband divorced her, kept custody of her children and banished her to her parent’s faraway homestead. When Nyeri’s parents passed away she was plunged into destitution and now depends on hand-outs to survive.

**Masquerading as a benign fuel**

There are an estimated 1.4 billion people globally who live without reliable access to electricity, and an additional 1.2 billion who live with intermittent electricity. If you’re reading this, then electricity is likely the flip of a switch. The life threatening and profoundly challenging energy issues that the poor deal with every day have until recently been consigned to the periphery. Wikipedia portrays kerosene as a” diverse and relatively harmless fuel, used mostly to power jet-engine aircraft and rockets.” Although it briefly glosses over the fact that “at one time” it was widely used in lamps and lanterns, it woefully fails to illustrate the scale of its use in developing countries. It is sold to you and me in a sealed bottle with “caution” and “highly flammable liquid” on the label. Oil companies and African governments do little to educate consumers on how to use it safely or warn of its perils.

It’s sold informally in market stalls and is bought and stored in disused Coke, water or liquor bottles. Women even buy it in flimsy plastic bags.

In South Africa, based on surveys and hospital records, between 1996 and 2001, it was estimated that 80,000 children ingested kerosene per year and 40,000 children developed chemical pneumonia from drinking it. It’s further estimated that 4,000 children died. This number has been reduced given South Africa’s aggressive electricity drive over the past 10 years. That said, what about the rest of sub-Saharan Africa that has nowhere near South Africa’s current 70% electrification, the highest rate on the continent. The numbers could truly be staggering, but no one knows. No one is counting.
Celestine, a 12-year-old girl in Rwanda told me that she swallowed kerosene a few years ago believing it to be clean water, something she’d never before seen. Further, she said that she worries what internal harm was caused by the incident.

What I didn’t know at the time was that kerosene could leave her with lifelong heart problems and respiratory ailments. She is lucky to be alive. Kerosene is a low-viscosity hydrocarbon – which means that Celestine could have choked to death on the fluid or suffocated from the fumes emanating from her belly. According to the American Association of Poison Control Centers, drinking kerosene can cause chemical pneumonitis, which requires several days or weeks on a respirator in a hospital and can become a lifelong, debilitating condition. African mothers have told me that they give their children milk to drink, if they have some.

Spilling it on the skin can be equally as hazardous. Women have proudly told me that they rub kerosene on their children’s heads to rid them of lice.

Controlled kerosene fires recently undertaken by South Africa’s Paraffin Association revealed that it takes just two minutes for temperatures to reach 1000 degrees C and eight minutes for a corrugated tin shack to burn completely. For shacks close together, it’s easy to understand why a fire spreads quickly. What chance do emergency services have, even if they are available?

With all the horrific outcomes caused by kerosene perhaps the most heart-breaking are burn injuries. In South Africa alone, an estimated 15,000 children survive serious burn injuries every year. This figure does not include the many fatalities or anyone over the age of 12. Such statistics, however, are hard to come by even in South Africa. If data were collected over the whole of Africa, this number would surely be staggering.

Burns are the worst type of injuries in terms of trauma because they are both excruciatingly painful and deforming. Severe burns cause major harm to motor skills and development. At present South Africa is the only African country that can deal with large numbers of burn injuries. Chris Hani Baragwaneth Hospital in Soweto, houses Africa’s most comprehensive burn unit with just 26-beds. According to the hospital, most children admitted to the burn unit are under the age of nine.

The Johannesburg’s Institute for Social and Health Sciences, claim injuries cost an estimated $US1 million in that city alone. Burn victims usually require multiple surgeries. Add medical care to the cost of emergency services, loss of time, loss of assets and loss of a house by people who have no insurance, the true cost of kerosene use can never be calculated.

Hundreds of thousands of families have stories to tell like those of Rose and Nyeri who have suffered heart-breaking loss due to kerosene. They suffer in silence under the radar screen and no one is tracking them. These stories should no longer be ignored or just accepted as unfortunate. They should be seen as an outrage to the dignity of the human person.

Energy poverty and the gender bias

Since 1999 I’ve headed a non-profit social enterprise called Lifeline Energy. Over the past five years while in the field in various African countries, I have spoken with
hundreds of poor and vulnerable women and children about their household energy use and expenditure. What was reinforced with every group is that all technologies and the energies used to power them have a gender bias. There are exceptions, but largely men are in charge of household security and buy batteries for their flashlights. I knew from years of distributing Lifeline’s solar and wind-up radios that men also buy batteries for radios and tend to control listening access.

In sub-Saharan Africa, kerosene (or paraffin as it’s also known) is mostly a ‘woman’s fuel’. In rural areas a woman walks many miles to buy kerosene at the market. In urban settlements or slums, she buys it in as little as 10c increments or by the tablespoon - all that she may be able to afford. Because of women’s work inside the home, they are constantly exposed to kerosene and its toxic fumes.

The result is that more than 1.6 million of the world’s poor die each year from the effects of indoor air pollution, according to the World Health Organization (WHO). This is caused from both cooking and lighting. This photo I took in Rwanda illustrates that if kerosene from a tin can lamp can blacken a wall, it is doing the same to lungs.

All forms of non-renewable energy – kerosene, batteries, candles, charcoal and firewood – constrain economic development. When added to cell phone charging, fuels for lighting and cooking, energy can consume up to 60% of household incomes in sub-Saharan Africa. Women are subjected to a grinding cycle of abject poverty, one that is impossible to escape from if you’re spending big amounts on non-renewables.

While visiting rural homes I watched a mother nursing a baby next to a kerosene lamp. She didn’t realise that breathing it is the equivalent of smoking two packs of cigarettes, or that two-thirds of all lung cancer victims in developing countries are non-smoking women according to WHO. One would think with its devastating consequences, kerosene related illnesses, burns and deaths would be tracked and monitored similar to HIV/AIDS, malaria and TB; however, this is not the case. Well-known illnesses receive donor funding in poor countries whereas energy related illnesses are relegated to a footnote and fall into the non-communicable disease (NCD) category.

Safe kerosene education receives woefully inadequate attention from governments or the oil companies that sell it. Comprehensive multi-media campaigns in local languages are needed to encourage women to take advantage of alternatives where they do exist and to teach users ways to limit the health risks and exposure where possible. School programmes should feature energy safety as a mandatory part of the curriculum.

Education advances are severely hampered by the way students must do their homework at night. Kerosene burns the eyes and throat, making it impossible to study for more than a few minutes. A record number of children are entering or returning to school in sub-Saharan Africa, yet an unintended consequence is that
children are potentially harming their eyes and lungs, and even risking fires and burns, in an effort to earn good grades.

**Thrusting clean energy to the top of the international agenda**

The health and economic consequences of prolonged exposure to kerosene are so grave that they infringe upon the basic human rights of women and children who have no other viable energy alternatives. It is recognized in Article 25 (1) of the Universal Declaration of Human Rights that “Everyone has a right to a standard of living adequate for the health and well-being of himself and his family.” Access to clean water has been singled out as a key factor that will determine the success of the Millennium Development Goals, which doesn’t even mention the word ‘energy’. The United Nations General Assembly has passed a resolution declaring water and sanitation a basic human right, but not access to clean energy.

To propel access to clean energy to the forefront of the international agenda, I believe that it must be declared a basic human right. Declaring access to energy a human right reorganizes the lens through which the issue is viewed. It becomes not merely a goal or agenda item, but a substantial imperative to which every individual is entitled.

The UN has declared 2012 as the International Year of Sustainable Energy for All. By launching UN–Energy, the UN states it is committed to ensuring universal access to modern energy services by 2030. It also aims to bring energy access innovation together with the correct policy to reach a global scale, developing and deploying new and appropriate solutions. These are important steps in the right direction and many ground-breaking initiatives are underway. Progress on grid and mini-grid electrification projects has commenced, but they often take years to become operational with huge financial investments required.

Solutions already exist. Barriers to the effective delivery of modern energy services must be eliminated. Solar LED lights and supporting energy services, as well as energy-efficient cook stoves have already been developed for these markets. However, often steep duties, as much as 40%, and taxes or VAT varying between 12% in Botswana to 19.35% in Cameroon, making them unaffordable to the poorest. With appropriate government oversight, reform of subsidies and duties, and equal gender participation in entrepreneurial initiatives transitioning from kerosene to renewable energy will create safer environments and economic opportunities.

Kerosene and energy access are pressing human rights issues that governments and the international community are obligated to act upon with expediency to end the ongoing struggle of women and children forced to use kerosene. There are many problems in the world that are extremely complex and difficult to solve. This is not one of them. With the right products, appropriate distribution and access to finance for the poor, the use of kerosene and the energy poverty that it perpetuates can become a thing of the past.
Profile:
Kristine Pearson is the founding CEO of the award-winning Lifeline Energy, a position she has held since 1999. An international social enterprise based in London and Cape Town, Lifeline Energy provides technology solutions for off-grid learning. Pearson gives voice to women and girls by speaking about and advocating for pressing energy poverty and education issues at UN, World Economic Forum and other global conferences. Previously, Pearson held an executive with a South African banking group and was a consultant specializing in the development of women in business.

Pearson is a Schwab Fellow of the World Economic Forum and served on the Forum’s Council for Disaster Mitigation and New Energy Architecture. Pearson was named by TIME magazine in 2007 as a Hero of the Environment. She serves on the Women’s Leadership Board of Harvard’s Kennedy School of Government, is a lifetime fellow of the World Technology Network and received the 2005 James C. Morgan Global Humanitarian Award affiliated with the Tech Museum of Innovation in California. A graduate of the University of California, Pearson has attended Executive Education at Harvard University and the Global Social Benefit Incubator at Santa Clara University. She has travelled to more than 90 countries, 25 in Africa.