Engineering X

Founded by the Royal Academy of Engineering and Lloyd's Register Foundation

Communication and advocacy: a learning resource

Sam Barker, LR Foundation Impact Review, 2022

Royal Academy of Engineering

LR Foundation

COMMUNICATION AND ADVOCACY

Thematic learning resource

THE CHALLENGE

Open burning of waste, estimated to be responsible for around 11% of global carbon emissions, accelerates climate change and contributes to serious respiratory, dermatological, and developmental health issues. It is largely a symptom of inadequate waste management systems, leaving many communities with no option but to burn their waste. Other drivers include low awareness of health risks and perceived benefits such as pest control or resource recovery. The practice deepens existing inequalities and disproportionately harms the most vulnerable, including informal waste workers, women, children, and people living in or near dumpsites. Despite these impacts, waste management is often deprioritised in national, municipal, and city budgets and received only an estimated 0.41% of overseas development finance between 2003 and 2021.

In 2022, Engineering X launched the first global grant scheme dedicated to addressing the open burning of waste. The projects successfully raised awareness, collected and shared critical data and information, delivered initiatives that generated tangible community-level impact and brought national and international stakeholders together.

Waste Advisors

THE GRANT PROJECTS

Don't Burn but Earn: Waste Management in The Capital City of Pakistan

Project lead: Sustainable Development Policy Institute

A Multimedia Awareness Campaign for Open Burning Impact in Abuja, Nigeria – Project Lafiya

Project lead: Zenafri

Living in Gehenna

Project lead: Waste Advisers

Upscaling Awareness and Waste Characterisation in Remote Bedouin Communities of Jordan

Project lead: Applied Science University

Evidence and impacts of open burning of cables in Brazil

Project lead: São Paulo State University

THE THEME

Communication and advocacy play an important role in ending the open burning of waste and can help address some of the drivers such as the lack of awareness. Often, communities do not realise that the smoke produced from burning waste, especially plastics, releases highly toxic pollutants such as dioxins and furans, which can lead to respiratory illnesses, cancer, developmental, reproductive, and neurological problems. Raising awareness can also have a positive impact on other drivers such as policy and behaviour change. Strengthening awareness on environmental sustainability builds the knowledge and skills needed to adopt sustainable practices, strengthen collaboration among stakeholders, and empower citizens to pressure their leaders to drive meaningful change. Under the theme communication and advocacy, the projects developed a range of communication materials and employed various advocacy approaches to raise awareness about the issue and its impacts on human health and the environment.

Practical Action

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PROJECT LEARNINGS AND INSIGHTS

Engaging traditional media, while a challenge, is key to raise awareness of open burning. Different environmental issues get more media attention at different times of the year. For example, in Pakistan, in the winter, the media focuses on smog and air pollution and during flooding seasons, there's more coverage of waste management problems. A project team operating in Islamabad leveraged seasonal news cycles to spotlight open burning and its adverse effects. Effective communication and advocacy require **access to media platforms and the support of those who shape public discourse** such as journalists. Building credible relationships with journalists often takes years, but the project team was able to draw on its existing network to strengthen its communications work. The team spent many years working on environmental issues, during which they developed strong, trustworthy relationships with journalists who value independent and professional expertise. **Exposure and training for journalists is essential.** For example, organising visits for journalists to waste management centres to see first-hand how waste is managed, including processes such as biogas generation and the creation of carbon credits. Experiences like these can equip and motivate journalists to report more accurately, confidently and effectively. The project also developed materials to help religious leaders share information about the health and environmental impacts of burning waste, allowing them to reach wider audiences through their sermons.

Practical Action

Whenever you are in a community that lacks basic waste management, the smell of burning waste is pervasive and smouldering heaps of rubbish are everywhere. Yet until the Engineering X grants came along this was a completely neglected issue, hiding in plain sight and a massively neglected issue. What this funding allowed us to do is directly talk about this with policymakers and use the cessation of open burning as another powerful lever to roll out formal waste management.

- Mike Webster, Systemiq

Community engagement is also a vital component of effective communication and advocacy, particularly for those who are most vulnerable, such as informal waste workers. These workers are frequently exposed to highly hazardous materials, often without access to personal protective equipment. They face significant economic

Dandora Dumpsite, 2023

instability, lack legal recognition or protection, and typically work in unsafe, unregulated conditions that leave them susceptible to exploitation. Waste pickers are often cautious and trust is a challenge. In Nigeria many do not speak English, so **communication can be a barrier** but a project team in Abuja found it **key to work with a trusted member of the community who had an established relationship with the team.** Through such support, the team was able to reach waste pickers who were initially hesitant to engage. Peer influence proved highly effective in building trust and encouraging broader participation.

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The project team produced a short film that followed the daily life of an informal waste picker. They organised community screenings and invited the waste pickers who participated in the film, as well as their families, friends, and others involved in informal waste work. During the screenings, the team also delivered a short presentation that **reframed the narrative around waste management**, highlighting that organic waste can be composted rather than mixed and burned and explaining how this shift could bring tangible benefits to the workers and their communities. Another project working in Malawi also created a documentary to widely communicate the dangers of the open burning of waste to both human health and the environment. The project team found that **education and awareness are essential for changing attitudes and are most effective when delivered through a variety of media channels.**

Rural contexts offer a different set of challenges because unique cultural contexts shape how communities interact with their environment and manage waste. For example, a project in a remote area of Jordan working with Bedouin communities found it essential to integrate cultural understanding, environmental realities, and governance capacity when designing a participatory, non-conventional awareness campaign. **Any solution must acknowledge the social fabric of the community and work within it**, rather than imposing measures that are disconnected from daily life.

Similarly, the context in which open burning takes place can require navigating a complex socio-economic context shaped by informal and illegal practices, which demands sensitive communication and long-term trust-building strategies. **Flexibility and adaptability are therefore essential for effective communication and advocacy.** For example, a project in São Paulo, Brazil focused on the open burning of electrical cables, found that organising awareness-raising events and training sessions was a challenge. In this context, direct engagement with waste pickers, autonomous collectors, or scrapyard owners was often unfeasible and potentially unsafe, as many perceived interviews or training invitations as traps that could expose them to legal repercussions. As a result, the project team shifted their approach from direct engagement to educational outreach activities in public schools through a university extension course.

KEY LEARNINGS

- Media platforms and journalists play a critical role in shaping public discourse. Equipping journalists with targeted training on specific issues strengthens the quality of reporting and can create lasting, positive impacts on public understanding and policy debates.
- Working with a trusted member of the community can be key when communication is a barrier.
- Education and awareness are essential for changing attitudes and are most effective when delivered through a variety of media channels.
- Cultural context can shape how communities interact with their environment and manage waste so solutions must acknowledge the social fabric of the community and work within it.
- Open burning can occur in complex socio-economic contexts shaped by informal and illegal practices where flexibility and adaptability are essential for effective communication and advocacy.

SOURCES:

Learn more about the grant projects and their impact:

ASPU: Project website

FUNDUNESP: The scenario of copper smelting in Brazil: evidence and impacts of open-air burning of cables for copper wire extraction.

WA: Assessing the composition of unprocessed municipal solid waste at Mzedi dumpsite

Zenafri: Dive into the gripping story of "Lafiya," a film that lays bare the stark reality of life at Nigeria's waste dumps

Engineering X is a growing collaboration founded by the Royal Academy of Engineering and Lloyd's Register Foundation.

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