

ABSTRACT BOOKLET

No Paraffin! Campaign



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BACKGROUND AND MOTIVATION

Illuminating paraffin is the primary cooking fuel for approximately 3.6% of South African households (600 156 \approx 2 million people), with concentrations in impoverished communities. This fuel is often burnt in poorly made stoves that are prone to malfunctions and associated with fires, burns and poisonings. However, the fuel continues to be used as it is widely available in neighbourhood outlets, is easily decanted and perceived as affordable, and thus often the only available option for many. The paraffin problem is especially manifest in urban informal settlements that are the site of glaring socio-economic inequalities, manifest through limited access to safe energy services, inferior home structures and high levels of household congestion.

AIMS

The Campaign is aimed at bringing together key stakeholders (experts, NGOs, business, and policymakers) to forge consensus around the rationale and overall goal of an inclusive national energy transition, i.e. one that centres the needs of the *energy-poor*. The three-part webinar series will evaluate information and evidence needed for the national policies and strategies to inform the energy transition; explore the strategies that may be implemented to deal with economic, workforce and other consequences of the transition; indicate specific policy support that may be required to manage the transition from paraffin; and foster the building of what is intended to develop into broad-based civil society-science-policy advocacy. Organised by the Academy of Science of South Africa (ASSAf), the University of South Africa (UNISA) Institute for Social and Health Sciences (ISHS), the South African Medical Research Council (SAMRC) and North West University (NWU), the series of webinars aim to bring together scholars, policymakers, NGOs, and business to deliberate on greater equity in energy.

WEBINARS ORGANISING COMMITTEE

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Science and Society: What and Who is Needed for the 2030 Energy Agenda

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Abstract

South Africa has been experiencing a formal energy crisis since 2008 precipitated by insufficient electricity generating capacity from its main supplier Eskom. The consequences of the strain on the power facilities in the country are enormous and too many to mention but include economic harm, infrastructure damage and increased emissions licence exceedances. This generating crisis, which was essentially in the formal sector, has highlighted a more general primary energy problem in the country. Currently in South Africa more than 30% of households rely on solid fuel combustion for their primary energy needs. This is driven by few factors such as: (1) no access to electricity; (2) affordability of electricity and a primary energy carrier; and (3) energy habits that do not traditionally include electricity. Lower income settlements and rural communities use a range of fuels for combustion purposes. These fuels include wood, coal, paraffin and animal dung. Wood and coal combustion meet multiple energy requirements, namely cooking and heating. In many cases in South Africa the efficiency of the solid fuel combustion devices are poor resulting in poor combustion efficiency and high emissions. The emissions and subsequent exposure of household inhabitants to high concentrations of Particulate matter is a large health risk for poorer communities. The future energy mix in South Africa needs to acknowledge the large proportion of the population that still relies on solid fuel combustion in the domestic setting and should plan for a viable transition of these energy practices to sustainable and usable alternative energy source. This paper will quantify the risk to communities from solid fuel combustion emissions and explore a transition pathway that will lead to clean sustainable energy provision for all South African households.

No Paraffin! Campaign: Aim and Expectations

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Abstract

Illuminating paraffin or kerosene is the main cooking fuel for about two million South Africans. This highly flammable and toxic fuel is typically used in poorly constructed stoves that have been reported as prone to malfunction and associated with accidental conflagrations, burn injury and household air pollution. The fuel however continues to be used as it is perceived as affordable, easily decanted and used, and widely available. It



is anticipated that in light of COVID-19, increased and enforced home congestion during lockdowns would further aggravate the exposure of home-bound families to unsafe energy, especially during the upcoming winter months. Based on an accumulation of evidence on paraffin's deleterious health and socioeconomic impact, a No Paraffin! Campaign is being launched to enable an expedited substitution with safer and cost-effective energy, especially in the lowest socioeconomic spectrum, i.e. energy impoverished communities. The Campaign is being introduced by a Roundtable Series which has the following objectives, to: (i) review the state of evidence of the impact of paraffin; (ii) reflect on the evidence and experiences of the effectiveness and cost effectiveness of emerging energy alternatives; (iii) clarify the multisectoral roles to be played towards an inclusive South African energy platform; and (iv) initiate and build upon the partnerships that may be required to nationally prioritise and action the replacement of paraffin with safer household energy.

Keywords: paraffin, kerosene, injury, energy poverty, energy campaign

Paraffin Consumption, Usage Patterns and Needs in South Africa: Past to Present

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Abstract

The usage of illuminating paraffin (IP) was a way of survival for the average black Africans in townships and informal dwelling communities since most households were not electrified especially in the peri urban and rural areas. The IP was popular simply because it was sold in bulk which made it convenient for poor vulnerable end-users, and it was readily available within these areas. Studies conducted by the Paraffin Safety Association of Southern Africa (PASASA) in the late 90s revealed that there were misconceptions on paraffin usage among communities which led to fatalities and injuries that were related to ingestions and shack fires amongst others challenges. These types of challenges were estimated at a cost of 1.7 billion Rands to the government between 1997 and 1999 with regards to emergency responses and rehabilitation of burn survivors at the time. Some of the primary causes of these disasters were due to poorly manufactured sub-standard appliance that were exploding after 30 minutes or more of usage. In addition, the fuel containers for cold-drink or milk bottles that were not labelled without safety caps led to high ingestions problems. The studies further revealed that during these times more than 6 thousand children died due to paraffin poisoning.

Paraffin Burns, Health and Social Impacts

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Abstract

Paraffin (kerosene) is the main fuel for at least 600 000 South African households, mostly energy-poor residents of dense informal settlements. The use of this fuel is fraught with danger and is frequently associated with conflagrations, burn injuries, poisoning and fatalities. This is due to the high flammability and toxic nature of the fuel, the poorly constructed and leaky appliances it is used in, and the congested and constrained living conditions where the fuel is most commonly used. In South Africa, reports indicate that about 100 000 people may suffer burns each year, with about 2 500 fatalities. A significant proportion of the reported burns are indicated to be due to paraffin incidents. In addition, paediatric poisoning occurs in about 3.6% of paraffin-using households. There is evidence that prolonged exposure to paraffin fumes impairs lung function and increases susceptibility to infectious illnesses (e.g. TB, asthma, cancer and possibly Covid-19). Also, studies indicate that simple paraffin lamps emit black carbon that is a major cause of climate change. The devastating health and social impacts of paraffin entrenches deprivation in poor communities through loss of properties, expensive treatment and long-term care for disabilities. The provision of safer and cleaner energy in the affected communities is an important step in the promotion of health, wellbeing and peace.

Keywords: paraffin, energy-poor, burns, health, social impacts

Paraffin, a Burning Issue for the Economically Vulnerable that is Burning a Hole in the Countries Fiscus

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Abstract

The price of life in South Africa is cheap. The official price of illuminating paraffin was R7.10 in January 2021 at the petrol pumps. With the purchase price to consumers varying depending on availability, mark ups and convenience can cost up to R25 per litre. It has been reported that each year the direct cost of R490 million is spent on caring for those with paraffin burns. Sadly, this is not the full picture. "The cost of a thing is the amount of life, which is required to be exchanged for it, immediately or in the long run." Both direct and indirect costs must be considered to obtain the accurate cost of paraffin in the context of treating burns. Direct cost refers to system resources that are consumed during the patient's care. Direct cost can be further subdivided into fixed costs and variable costs. Fixed cost are constant expenses such as the cost of hospital buildings and maintenance and staff salaries. Variable cost are consumables such as wound dressings, medications and theatre time. The estimated total direct cost of treating a single patient with a 20% body surface area with deep dermal thickness burn is estimated to be between R103,000 and R154,000 per year in 2011. The indirect or hidden cost is the amount not considered or calculated, yet someone is paying for it albeit the patient, their family and friends or society. Indirect cost consists of loss of productivity and subsequent loss of earnings due to premature mortality and or incapacity subsequent to the injury, prolonged care in hospital for deformities, emotional trauma and diversion of family financial resources for transport as an example. The cost of treating burns undeniably is far more than the mere price of the product at R7.10, far more than the direct cost of R154 000; it can literally cost the patient's life and the families livelihood. Paraffin is cheap, life is not.



India's journey towards universal electrification & clean cooking

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The Sustainable Development Goal 7 calls for universal access to sustainable energy by 2030. In 2019, India achieved near universal electrification and near complete LPG access by all, a clear 10 years ahead, with only a few hundred households without electricity connection. Around half a billion people have gained access to electricity and clean cooking access in India during the last one decade. Given India's geographical size and diversity of terrain, these can be considered a remarkable achievement. This presentation analyses the evolution of the process of rural electrification in India including distributed renewable energy and mini-grids and the factors that facilitated the household electricity access and LPG for cooking to achieve the milestones with almost complete elimination of the use of paraffin for lighting and cooking. Finally, the presentation also shares some lessons and what further needs to be done to strengthen the rural electricity and LPG distribution sector in India.

Policy Imperatives, System Dynamics and Challenges to Household Energy Transition

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Abstract

Households living in energy poverty rely on polluting energy carriers and technologies that are often inefficient, unreliable, unaffordable, unhealthy and risky. Despite knowledge of the harm to planetary and human health and wellbeing caused by energy poverty, achieving universal access to modern energy services has proved to be challenging. Even today, progress with transitioning households to modern and cleaner energy services remains uneven across the world. In this talk, I will present some of the key interlinkages between access to modern energy services and wider sustainable development goals and discuss some of the challenges and solutions to transitioning households to cleaner fuels and technologies.

Lessons from HIV for the No Paraffin Campaign

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Abstract

South Africa and indeed Africa faces multiple health challenges that also intersect with common structural issues such as race, gender and poverty. Social mobilisation can be effective in addressing specific issues eg evidence based advocacy has been critical for enhancing and advancing the global and country level response to HIV. This presentation will deconstruct key facets of an evidence-based HIV advocacy effort to try and draw



parallels or insights on what may be of relevance for the “no paraffin” campaign and include: the critical importance of a nuanced and granular understanding of the issue at a local level; the centrality of scientific evidence; the role of political leadership and unity of purpose between leadership and partners; available options and alternatives; and the importance of mutual interdependence and solidarity and the value-add and ownership of the desired change.

Socio-economic Considerations to Domestic Fuel Switching

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Abstract

Whilst a useful and accessible fuel, paraffin has long been associated with death, disaster and devastation to lives and livelihoods. Multiple organisations have focussed their attention to addressing energy poverty issues from a technological or behavioural change perspective, but the scourge continues. Couple this with inadequate housing and no or unreliable access to alternatives like electricity, households are prone to the recurrence of these paraffin-related incidents and get caught in the poverty trap. In the past decade, however, clean and abundant power using the sun’s free rays has rapidly become available worldwide. Solar photovoltaics are already helping to boost our South African economy on a utility-scale which has also driven down associated costs as technology improves and it becomes more mainstream. These phenomena have made solar photovoltaic power more affordable to commercial operations and households or community groups alike. Advances in battery storage technology allows for dispatchable power as it is needed. Even when the sun is down and night has fallen. Advancing urban planning to provide community-based power solutions could support their well-being, access to markets for their goods and services, as well as education, training, communications. Let alone reducing pressure on health & emergency services that repeatedly are called to “heal” the aftermath of fossil-fuelled energy usage.

Lessons Learned from the Struggle to Reduce Lead Exposure in South Africa

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Abstract

Lead is a versatile, yet highly toxic substance. Multiple sources of exposure to lead exist in South Africa, leading to widespread environmental contamination and lead exposure over the past several decades. Apart from the serious health consequences, especially for children, lead exposure has been implicated in social problems such as poor school performance, aggression or violent behaviour and the persistence of poverty and inequality. The SAMRC programme of research on lead exposure was initiated on a small scale in the 1980s, revealing over time the range of people and places at highest risk. A protracted struggle ensued to ensure that the evidence generated was translated into policies and programmes that benefit communities, with many mistakes made and lessons learned along the way. This presentation will outline the key successes of the campaign, alongside strategies and processes that may be usefully applied in similar campaigns in the future. The presentation will also focus on the personal capacities and “soft skills” that may contribute to a strong foundation for research translation successes.

