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Mind the (energy efficiency) gap!

By Aurelia Figueroa,
*German Development Institute /
Deutsches Institut für Entwicklungspolitik (DIE)*

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Mind the (energy efficiency) gap!

Bonn, 15 December 2014. Climate change will not wait for governments to assemble the requisite institutional willpower to spur the resource and technological capacities that can ameliorate its effects. While the COP 20 in Lima has provided a more encouraging outlook than past conferences, responsibility must also be assumed *extra muros* of the negotiating grounds. While an ambitious global climate agreement would be an undoubtedly meaningful input, it must in any case be implemented in the last mile by the individual, making behaviour change a *sine qua non* for a broader transition.

In order to support such micro-level progress, policies and programmes should be designed with behavioural insights. Behaviour as a public policy tool is an emerging topic in development policy and the subject of the recently released World Bank 2015 World Development Report "*Mind, Society, and Behavior*". The report is based on three premises regarding human thinking: It is automatic, social, and uses mental models. Each aspect entails departures from economically rational behaviour in ways that current economic models and policy frameworks do not take into account.

In energy efficiency, for example, it may mean that people habitually buy incandescent bulbs (automatic thinking) or that they may be persuaded to buy more efficient appliances to contribute to public goods such as environmental protection (social thinking). The study of the intersection of behaviour and energy consumption is largely limited to the OECD Member country context. Recent research at the German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE) highlights the role of behaviour change in developing and emerging economies to realise energy efficiency and just as importantly, contribute to industry competitiveness and household welfare.

Decision makers in the household and the workplace make countless choices and carry out repeated behaviours and habits each day which contribute to or imperil climate action. These may often seem mundane: Not replacing traditional light bulbs with highly efficient LED models, leaving work stations running over night, or operating machinery at sub-optimal levels. Yet, over time these add up to significant energy demand and related emissions.

In the industrial sector which accounts for roughly one third of global final energy consumption, behaviour change can be a no or low cost option to increase energy efficiency while realising efficiency gains and total factor productivity growth. While a

global climate agreement remains in the anteroom, buying more efficient turbines may seem a capricious investment. Yet no and low cost behavioural change programmes are justifiable in the near term and should be an essential aspect of energy efficiency support and training programmes.

In the residential sector, energy budgets often account for a significant portion of household expenditures, especially in contexts of poverty. Among households with electricity connections, the least common denominator of household appliances is frequently a light bulb. Its ubiquity has significant implications for global energy demand. The IEA estimates that lighting accounts for 19% of annual global electricity demand – equivalent to the power generated by all gas-fired power plants worldwide and emissions equal to 70% of world passenger vehicle emissions.

Informal consumption of electricity, such as that occurring in informal settlements or in a context of non-technical losses may add a further incentive to invest in efficient lighting technologies. Recent DIE research has revealed that power surges on the grid serving the informal settlement of Kibera in Nairobi cause incandescent bulbs to burst. At an average of four monthly, the payback period for compact fluorescent lamp (CFL) light bulbs is reduced to just over a month – even in a context of electricity flat rate or non-payment. This has resulted in an innovative durability and behaviour driven approach to energy efficiency which balances both green and social pursuits, as it contributes to energy demand reduction and household welfare.

The importance and ubiquity of lighting is coming into focus in 2015, which the United Nations has proclaimed the International Year of Light. To realise progress in energy efficient technologies for lighting, efforts must be made to understand the behavioural workings which may stand in the way of uptake. This can assist not only uptake but the understanding of potential pitfalls such as the rebound effect, whereby changes in behaviour (such as increased energy consumption) can offset the benefits of technology upgrading, for example.

Important decisions will be made in Paris about the future of the climate. Similarly, decision makers at the micro level make countless choices each day which in totality amount to significant impacts. In 2015, the International Year of Light, we should seek to illuminate the dark corners of the human mind and account for them in shaping paths of transition.