

## Household energy, health and development



Top (left) Figure 1 Indoor smoke pollution in rural Guatemala: Studies from Asia, Africa and the Americas show that pollution levels in homes burning biomass grossly exceed international air quality guidelines.

Top (right) Figure 2 Preparing ugali, Kitale, Kenya: In most countries it falls to women not only to cook but also to collect or buy, and to carry home, fuels for basic household needs.

Bottom (left) Figure 3 Steel works, Port Talbot, Wales: Most research and policy interest on air pollution has been focused on urban populations in developed countries.

Bottom (right) Figure 4 Zulu home, South Africa: It is poor women and their young children who suffer the greatest burden of exposure to smoke from biomass fuels.

Almost half of the world's population, between 2 and 3 billion people, still rely on simple biomass fuels (wood, animal dung, crop wastes) and coal for their everyday cooking and heating needs. Often burned indoors on simple, inefficient stoves, this leads to exposure of large

numbers of women and young children to very high levels of smoke pollution. Concern about air pollution has been mainly focused on urban areas of developed countries, yet the combination of high levels and the very large numbers of people exposed actually means that the



*Figure 5 Burden of smoke pollution: The majority of global air pollution exposure occurs indoors in developing countries, and most of that among the rural poor.*

greatest problem lies with the indoor environment of poor rural and urban homes in developing countries.

Evidence is growing<sup>1</sup> that this exposure increases the risk of acute respiratory infections (particularly pneumonia), chronic obstructive pulmonary disease and (with coal use) lung cancer. Other important conditions that may be linked to this exposure include tuberculosis, low birth weight, cataract and asthma. It is now estimated that indoor air pollution is responsible for nearly 2 million excess deaths per year in developing countries, and around 4% of the global burden of disease.

This fuel poverty is important for health and development in a number of other ways. The collection of wood and other fuels impacts on the local environment, is typically very time consuming, and exposes women (and often children) to injury through carrying heavy loads. Open fires are an important cause of burns in children. Caught in the trap of poverty, poor households are on the one hand unable to afford cleaner fuels and appliances, while on the other are held back in their prospects for economic development by such factors as poor health, loss of time, inadequate



*Figure 6 Imbawula stove, Eastern Cape highlands, South Africa: Even where modern fuels such as LPG and electricity are available many poor families in colder areas will fall back on traditional solid fuels and polluting stoves for warmth.*

lighting and the inability to use energy applications and appliances that can contribute to income generation.

Improving access of the poor to more efficient and cleaner means of burning traditional fuels, as well as promoting transition to modern fuels such as clean biofuels (for example, biogas), LPG and electricity is an important health, environment and development priority.

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<sup>1</sup> Bruce N, Perez-Padilla R, Albalak R. Indoor pollution in developing countries: a major environmental and public health challenge. *Bull WHO* 2000;78:1078–92.