



Energy is a health issue



"Lighting a billion lives," India (TERI/Energy & Resources Institute)

Improving health through access to sustainable energy

Health can benefit from supporting the UN 'Sustainable Energy for All' initiative for: universal energy access, improved energy efficiencies and more use of renewable energy

Energy access and health

Nearly 3 billion people cook on rudimentary biomass and coal stoves — smoke exposures cause nearly 1/2 of pneumonia deaths in children under 5; 1/3 of deaths from chronic obstructive pulmonary disease, and nearly 1/5 of deaths of ischaemic heart disease. Advanced biomass stoves and fuels such as biogas, ethanol and liquefied petroleum gas, can reduce risks. WHO's *Global Household Energy Database*¹ (155 countries) tracks trends. WHO *Air quality guidelines (2005)* and *Guidelines for indoor air quality: household fuel combustion* (in press) define health-protecting standards and strategies.

Up to 58% of health facilities in some sub-Saharan African countries have no electricity — critical for emergency care, childbirth and other essential health procedures.² An expanded energy section in WHO's Service Availability and Readiness Assessment (SARA)³ is helping countries monitor energy access in health facilities. The information thus gleaned is supporting a new WHO global data-base on *Energy access in health facilities*, tracking this "silent barrier" to universal health services.

Energy efficiency and health

Energy-efficient public transport and cycle/pedestrian routes can help reduce urban air pollution emissions — preventing respiratory and cardiovascular disease. An estimated 3.3 million people a year die from outdoor air pollution globally — outpacing deaths from many other

major health risks.⁴ Urban investments in public transport also support safer travel and physical activity. This can help reduce the global burden of physical inactivity (~3.2 million deaths/yr)⁴ and traffic injury (~1.24 million deaths/yr).⁵ WHO's *Health in the green economy: transport sector* reviews the health and equity co-benefits of such investments.⁶

Inefficient home heating and cooling cause — excess hypothermia and heat-related illness, chronic and acute respiratory disease, and health inequities related to fuel/energy poverty. *Health in the green economy: housing sector* identifies health co-benefits from energy-efficiencies, including effective natural ventilation.⁶ Compact development of urban housing improves energy-efficient transport, electricity, water and sewage delivery — for greater access and health equity. WHO supports country-wide scale-up of its 'Catchment to consumer' Water Safety Plan (WSP) approach to risk management.

Energy-efficient offices and factories may help improve workers' thermal comfort and health — Climate-resilient buildings can support structural soundness and safety. Effective daylighting and natural ventilation can reduce respiratory risks from airborne pollutants and promote better mental health. Prioritized public transport for workers promotes safety and equity. Long-term studies in Shanghai and Copenhagen found cycle commuters had a significantly lower risk of premature death.⁶

Renewable energy and health

Renewable energy use in home design and land use planning — supports healthier lifestyles. WHO's *Health in the green economy* series illustrates how active and passive solar design related to heating/cooling, hot water, lighting and ventilation can support healthier homes. Green, “walkable” cities and neighbourhoods enable safer active travel (a renewable energy mode) – reducing air pollution, urban “heat island” effects; and climate-change health impacts, present and future. [Together, housing and road vehicle energy use comprise about 1/3 of annual CO₂ emissions (IEA, 2010)]. For the workforce, shifting to renewable energy may help reduce certain occupational health risks related to fossil fuel extraction and use, such as respiratory diseases from coal extraction and cancers from diesel exposure.⁶

On-site, renewable energy for health facilities — Modular Photovoltaic solar packages for lighting, communications and basic health applications may improve resilience of small, off-grid health facilities. Hospitals in developed and developing countries are improving their efficiency with clean, on-site energy solutions, involving solar PV as well as passive solar design, and better use of natural daylighting and ventilation. WHO is analyzing how these trends may enhance critical services for childbirth and emergency response, as well as infectious and noncommunicable disease interventions.

Collaborations at global and country level

Strengthened national monitoring mechanisms — WHO maintains global databases on *Outdoor air pollution* (covering over 1,100 cities)⁷, *Household energy and Indoor air pollution measurement* (250 communities).¹

Measuring health gains from sustainable development — WHO has developed tools for *Health impact assessment* to help policy-makers assess choices as well as indicators to monitor progress: *Health indicators of sustainable energy and sustainable cities*.⁶

‘Sustainable Energy For All’ (SE4All) initiatives — WHO is a core contributor to the *UN SE4All Global Tracking Framework* report; the Secretary General's *Report to the UN General Assembly on the SE4All Initiative*; and a founding partner in the *Global Alliance for Clean Cookstoves*.

More information:

Department of Public Health & Environment: <http://www.who.int/phe/en/>

References

1 http://www.who.int/indoorair/health_impacts/he_database/en/index.html

2 Ministry of Health, Uganda, Macro International Inc. Uganda Service Provision Assessment Survey 2007. Kampala, Uganda: Uganda: Ministry of Health, Macro International Inc.; 2008.

3 http://www.who.int/healthinfo/systems/sara_introduction/en/

4 Lim S, et al. A comparative risk assessment of burden of disease and injury attributable to 67 risk factors and risk factor clusters in 21 regions 1990-2010: a systematic analysis for the Global Burden of Disease Study 2010. *Lancet*, 2012, 380(9859):2224-2260. doi:10.1016/S0140-6736(12)61766-8

5 *Global status report on road safety 2013*. Geneva, World Health Organization, 2013.

6 http://www.who.int/hia/green_economy/en/

7 http://www.who.int/gho/phe/outdoor_air_pollution/exposure/en/index.html



Bus rapid transit in Curitiba, Brazil (©Lineair/Still Pictures)

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