

# Reducing smoke, improving child health

Indoor air pollution kills huge numbers of children in Bangladesh. How is Concern tackling it?



Because cooking is done so close to the family's main living area, a large percentage of under-fives have serious respiratory symptoms.

The issue of Indoor Air Pollution has been officially incorporated into the activities of Concern Worldwide's Health Programme since it was included in the organisational Health Policy of March 2002. The health programme is broadly divided into three inter-related and inter-dependent components, namely nutrition, reproductive and child health and environmental health.

Environmental Health, in addition to indoor air pollution, incorporates the technical components of water, excreta disposal, liquid and solid waste management (including drainage), hygiene promotion, shelter and site planning and vector control. These components have been chosen in order to make a significant contribution to reducing the current disease burden in targeted countries.

Since the appointment of Concern's first Environmental Health Adviser in 1999, field workers have been able to call on technical support on each of the aspects outlined above. Indoor Air Pollution is now being tackled in a small but growing number of the 30 countries Concern currently operates in. Bangladesh (whose activities are described more fully below) and Liberia have actively engaged in this area since 2004, with Haiti currently looking at the issue and Tanzania recently including a research element for inclusion in a new five-year water and environmental-health programme.

## Ensuring child survival in Bangladesh

Concern Bangladesh began implementing a Child Survival Programme in October 2000. Initially focusing on the municipalities of Saidpur and Parbatipur of Rajshahi Division in northern Bangladesh, the programme focused on the key health interventions of immunisation, Vitamin A, IMCI (Integrated Management of Childhood Illness) — including acute respiratory infections (ARIs), diarrhoea, malnutrition and maternal and newborn care with a view to reducing maternal and child mortality among urban residents. The programme is conducted in partnership with the respective municipalities.

Following an environmental-health technical-support visit in October 2003 the programme began to look at indoor air pollution as a potential intervention area. This was prompted by the findings of a WELL (Water and Environmental Health at London and Loughborough) study in 2002 that stated that diarrhoeal disease associated with inadequate water supply, sanitation and hygiene practices — and ARIs associated with overcrowding and indoor air pollution, represent 30 per cent of all deaths in Bangladesh.

## Doing the research

A recently completed baseline study explored the magnitude of the impact of indoor air pollution on the health of children in a poor, urban community in Bangladesh.

Researchers carried out a cross-sectional baseline survey with 625 households, measuring the indoor-air-quality in 65 households, all of which had children younger than five. They also collected anthropometric information on

444 children under 5 — and 282 children were medically examined for possible respiratory problems.

All the households in the project area use biomass-burning stoves. The fuel is predominantly wood (47 per cent) but also includes rice-husk briquettes (18 per cent), dung cakes (13 per cent), bamboo (11 per cent) and others (11 per cent). Data showed that 32 per cent of households cooked in the living room, 13 per cent used a veranda (close to the door of the living room) while 55 per cent had outdoor kitchens.

Because the cooking area is so close to the living area, however, even in the non-cooking period the particulate matter (PM 2.5) concentration indoors is at least twice the USEPA 24-hour average limit (65 micrograms per metre<sup>3</sup>). The prevalence of coughs (43 per cent) and other respiratory symptoms are very common among children under five. Lack of awareness, inefficient design of stoves and poor ventilation contribute to the high levels of indoor air pollutants.

This research has convinced Concern Bangladesh that they can do useful work on reducing exposure to indoor air pollution, which will contribute to improving child health. It will also provide valuable learning to guide future interventions for other developing countries. Concern Bangladesh acknowledges the financial support of the United States Agency for International Development (USAID) and technical support from Winrock International and Dr. Mohammad Alauddin.

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