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# 1. Background

**M**ore than half the world's population relies on solid fuels, including biomass fuels (wood, dung, agricultural residues) and coal, to meet their basic energy needs. Cooking and heating with solid fuels on open fires or traditional stoves results in high levels of indoor air pollution (IAP). Globally, IAP is responsible for approximately 1.5 million deaths annually.<sup>1</sup> Estimates of the contribution of IAP to disease and death are also available on a country-by-country basis.<sup>2</sup>

A wide variety of interventions are available to reduce IAP levels, exposure and associated health effects. However, few studies have been undertaken to establish the effectiveness of these interventions at reducing pollution, improving health or resulting in social, economic or environmental benefits.

<sup>1</sup> World Health Organization. *Fuel for life: household energy and health*. Geneva, WHO, 2006.

<sup>2</sup> World Health Organization. *Indoor air pollution: national burden of disease estimates*. Geneva, WHO, 2007.

Evaluation is critical for generating the evidence needed to convince policy-makers and donors that household energy interventions can be successful in tackling one of the major threats to public health and in overcoming a major barrier to socio-economic development. Evaluation will also document experiences vital for deciding on the best intervention strategy in a given setting and for making sound policy recommendations.

## A way forward in Rome

In March 2004, the Partnership for Clean Indoor Air (PCIA) in collaboration with the Italian Ministry for the Environment and Territory convened a *Harmonized Health and Exposure Assessment Protocols Workshop* in Rome. Thirty participants from around the world shared and discussed existing evaluation methods with a view to developing a consolidated evaluation

resource. While participants agreed that it was not feasible to develop a harmonized protocol to suit the needs of all projects and settings, it was felt that a catalogue of methods could provide a range of evaluation options, while ensuring some comparability of the methods employed and results obtained. Based on the recommendations of the Rome workshop, the World Health Organization (WHO) prepared this catalogue of methods as a step towards:

- evaluating which interventions are effective in achieving intended impacts and how these can be implemented in a sustainable, acceptable way;
- sharing lessons learnt with implementers and other stakeholders to facilitate effective scaling up; and
- making the case with policy-makers and donors for large-scale investments in IAP reduction.

### A work in progress

Household energy projects and programmes around the world use a variety of methods to evaluate the quality of their interventions, and their impacts on IAP levels, health and well-being, family livelihoods and the environment. This catalogue of methods attempts to collect methods employed and evaluation experiences gathered during the recent past, yet it is by no means comprehensive. Moreover, existing methods are constantly being refined and new tools being developed. Therefore, this catalogue of methods should be seen as a work in progress – to be updated and improved upon as new knowledge and methods become available.

### Structure of the catalogue

Chapter 2 *About this catalogue* clarifies the purpose of the catalogue, and seeks to answer some of the questions readers are likely to have.

This catalogue considers seven thematic areas of evaluation, and Chapter 3 *Evaluation areas* provides an overview of each. It describes some of the challenges associated with each aspect of evaluation, and provides examples of questions to address and methods to use.

Chapter 4 *Choosing evaluation methods* is concerned with helping organizations choose appropriate evaluation methods according to their objectives, resources and the type of intervention being evaluated. Whilst promoting broad evaluation, it also highlights the resource implications of different aspects of evaluation. This chapter ends by presenting five example evaluation plans to indicate how different methods can be used together to provide a coherent focus for evaluation.

Chapter 5 *Planning and undertaking evaluation* provides some practical guidance including adapting and pilot-testing methods, study design, sample selection, fieldwork issues and data analysis.

Chapter 6 concludes by re-emphasizing the importance of evaluation and Chapter 7 lists sources of further information.

This catalogue is accompanied by a CD-ROM which contains method summaries, complete evaluation methods and further reading.