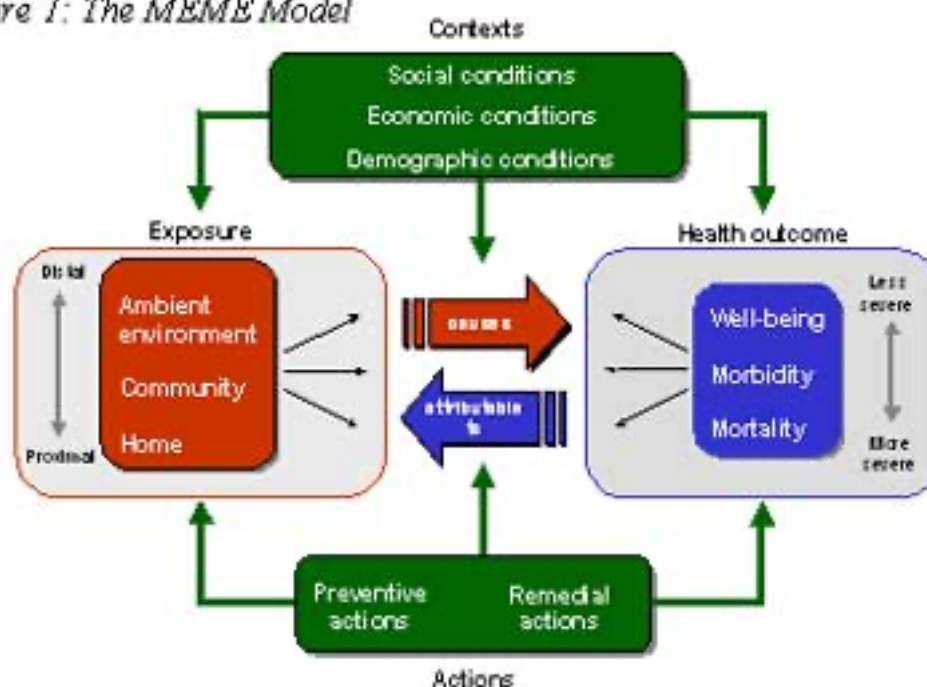


Concept of children's environmental health indicators

One way of providing information on the state of the environment and its potential effects on health is in the form of indicators. WHO, through a participatory process, has developed a framework of children's environmental health indicators.

The Multiple Exposures Multiple Effects (MEME) model (Figure 1) provides the conceptual and theoretical basis for the development, collection and use of children's environmental health indicators. This model emphasizes the complex relationships between environmental exposures and child health outcomes. Individual exposures can lead to many different health outcomes; specific health outcomes can be attributed to many different exposures. Both exposures and health outcomes – as well as the associations between them - are affected by contextual conditions, such as social, economic or demographic factors.

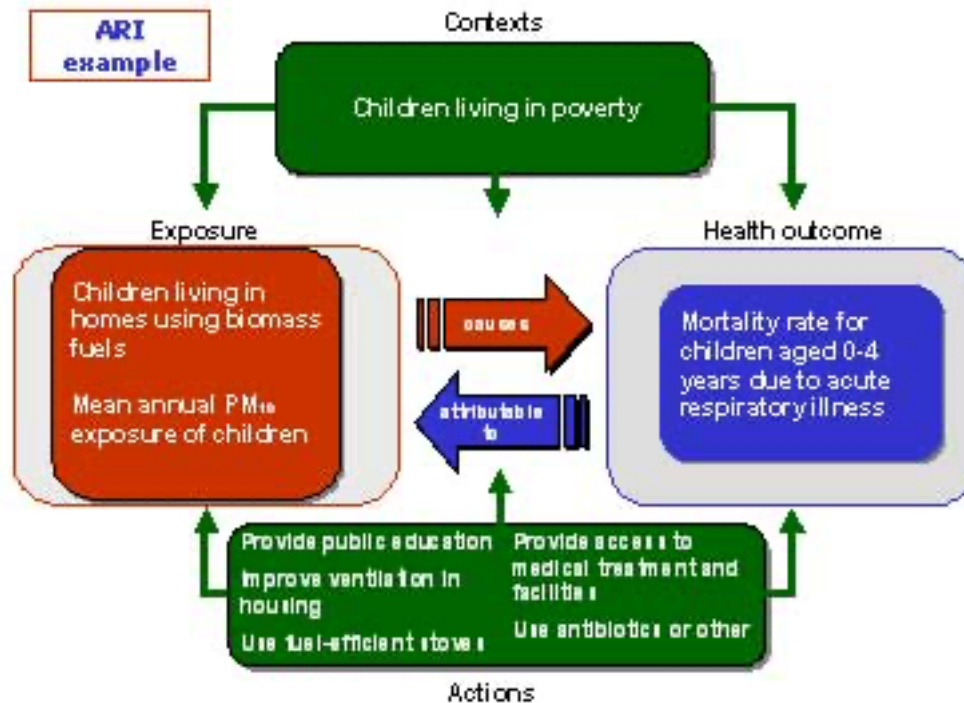
Figure 1: The MEME Model



Beyond identifying these underlying driving forces for children's environmental health problems, information on socioeconomic status is important for disaggregating exposure and health information to investigate environmental justice and to identify vulnerable groups. Actions can be targeted at reducing exposures or at reducing the severity of health outcomes.

The MEME model thus describes the four ingredients required for the monitoring of children's environmental health: exposure indicators, health outcome indicators, contextual indicators, and action indicators (Figure 2).

Figure 2



The MEME model is compatible with the widely used DPSEEA framework (Driving-forces- pressures- state-exposure-effect-action), with the MEME model representing both a simplification and an extension of the DPSEEA framework. In practice, it is often difficult to distinguish between the state and pressure components of the DPSEEA model. The MEME model combines the state, pressure and exposure components under the general heading of exposure, recognizing that indicators of exposure may be assessed more or less directly, with state or pressure components often serving as proxies for the actual exposure.

References

- [Briggs, D. \(1999\) Environmental Health: Framework and Methodologies. WHO, Geneva.](#)
- [Briggs, D. \(2003\) Indicators: Making a difference: Indicators to Improve Children's Environmental Health, WHO, Geneva](#)