In addition, program designers should review the literature for accounts of experience with similar programs, and they should verify the contexts and assumptions behind the causal pathways in the theory of change they are outlining. In the case of the cement floors project in Mexico described in box 2.1, for example, the literature would provide valuable information on how parasites are transmitted and how parasite infestation leads to childhood diarrhea.

Box 2.1: Theory of Change

From Cement Floors to Happiness in Mexico

In their evaluation of the Piso Firme or "firm floor" project, Cattaneo et al. (2009) examined the impact of housing improvement on health and welfare. Both the project and the evaluation were motivated by a clear theory of change.

The objective of the Piso Firme project is to improve the living standards, especially the health, of vulnerable groups living in densely populated, low-income areas of Mexico. The program was first started in the northern State of Coahuila and was based on a situational assessment conducted by Governor Enrique Martínez y Martínez's campaign team.

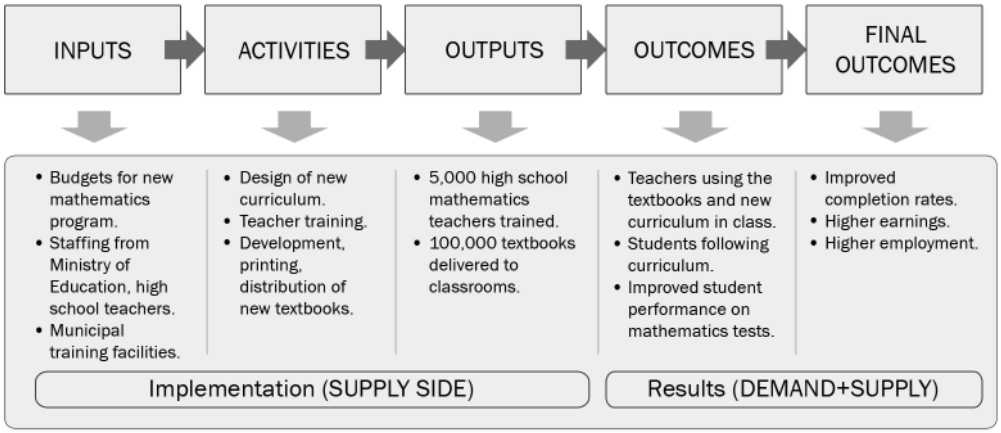
The program's results chain is clear. Eligible neighborhoods are surveyed door-to-door, and households are offered up to 50 square meters of cement. The government purchases and delivers the cement, and the households and community volunteers supply the labor to install the floor. The output is the construction of a cement floor, which can be completed in about a day. The expected outcomes of the improved home environment include cleanliness, health, and happiness.

The rationale for this results chain is that dirt floors are a vector for parasites because they are harder to keep clean. Parasites live and breed in feces and can be ingested by humans when they are tracked into the home by animals or children or on shoes. Evidence shows that young children who live in houses with dirt floors are more likely to be infected with intestinal parasites, which can cause diarrhea and malnutrition, often leading to impaired cognitive development or even death. Cement floors interrupt the transmission of parasitic infestations. They also allow better temperature control and are more aesthetically pleasing.

Those expected outcomes informed the research questions addressed in the evaluation by Cattaneo and his colleagues. They hypothesized that replacing dirt floors with cement floors would reduce the incidence of diarrhea, malnutrition, and micronutrient deficiency. Doing that should in turn result in improved cognitive development in young children. The researchers also anticipated and tested for improvements in adult welfare, as measured by people's increased satisfaction with their housing situation and lower rates of depression and perceived stress.

Source: Catteneo et al. 2009.

Figure 2.2 Results Chain for a High School Mathematics Program



Source: Authors, drawing from multiple sources.

new methods and textbooks in their classrooms and their application of the new tests. The medium-term outcomes are improvements in student performance on the standardized mathematics tests. Final outcomes are increased high school completion rates and higher employment rates and earnings for graduates.

Results chains are useful for all projects, regardless of whether or not they will include an impact evaluation, because they allow policy makers and program managers to make program goals explicit, thus helping them to understand the causal logic and sequence of events behind a program. Results chains also facilitate discussions around monitoring and evaluation by making evident what information needs to be monitored and what outcome changes need to be included when the project is evaluated.

To compare alternative program approaches, results chains can be aggregated into results trees that represent all the viable options considered during program design or program restructuring. These results trees represent policy and operational alternatives for reaching specific objectives; they can be used in thinking through which program options could be tested and evaluated. For example, if the goal is to improve financial literacy, one may investigate options such as an advertising campaign versus classroom instruction for adults.