Because the Amazonian ecosystem is very complex, more research is needed to develop a complete picture of how mercury behaves in this environment. In the short term, the focus is on diet. The local people derive much of their protein from fish, but fortunately for them, reducing exposure to mercury does not mean giving up this food source. There are more than 40 fish species in the river, each with varying amounts of mercury contamination. For instance, herbivorous or plant-eating fish contain very little mercury, while predatory fish contain the most and omnivorous fish fall in between. Similarly, people who predominantly eat herbivorous fish were found to have less mercury in their system than those who eat more predatory fish. A surprise finding was that the juveniles of some species contained more mercury than the adults.

The investigation into the cause of mercury contamination in the Amazon is one of many projects being funded under IDRC's "Ecosystem Approaches to Human Health" initiative. The goal is to improve human health by supporting trans-disciplinary research examining the structure and function of stressed ecosystems on which people depend for their lives and livelihoods. The knowledge gained can then be used to develop actions and policies that enhance ecosystem management. And that in turn will improve human health and well-being, while simultaneously maintaining or improving the health of ecosystems as a whole.

Insecticide dangers in Ecuador

Canadian and Latin American researchers have found that potato farmers in Ecuador's Carchi province suffer from decreased mental capacity as a result of heavy exposure to chemical insecticides. The scientists have documented how exposure affects the farmers' decision-making abilities, leading to lower productivity.

Carchi's 8000 commercial growers produce 40 percent of Ecuador's potato crop. Common here are mixed potato-and-dairy farms, which are among the country's heaviest pesticide consumers. An average of seven times during the crop growth period, farm workers wearing pesticide-filled backpacks fan out through the fields and spray the chemicals, using up to 43 active ingredients. Contributing to their health problems are direct skin contact with the pesticides, leaky sprayers and a lack of protective clothing. The researchers found a pesticide poisoning rate of 171 per 100 000 people, on a par with the highest rates recorded elsewhere in the developing world.

Donald Cole is a physician-researcher at McMaster University's Institute of Environment and Health, located in Hamilton, Ontario. He says, "Exposure to insecticides and fungicides has harmful effects—neurological and skin-related—on the health of Carchi's rural population, and health disorders undermine farmers' ability to make efficient farming decisions."

The study is part of a larger project jointly funded by the IDRC, the Rockefeller Foundation and other donors, with the aim of reducing pesticide use and related health problems among potato farmers in Carchi. Involving scientists from many research institutions, the project is led by researchers from McMaster University and the Peru-based International Potato Center.

Donald Cole recently gave a lecture tour of Canada to present the researchers' findings. Along with this, he had a further objective: to promote awareness and discussion of an ecosystem approach to human health, based on the premise that the health of human populations depends on healthy, sustainable ecosystems. ●—

For more information about these and other projects, visit the IDRC Web site (http://www.idrc.ca) and click on *Reports*, IDRC's e-zine on science from the developing world.

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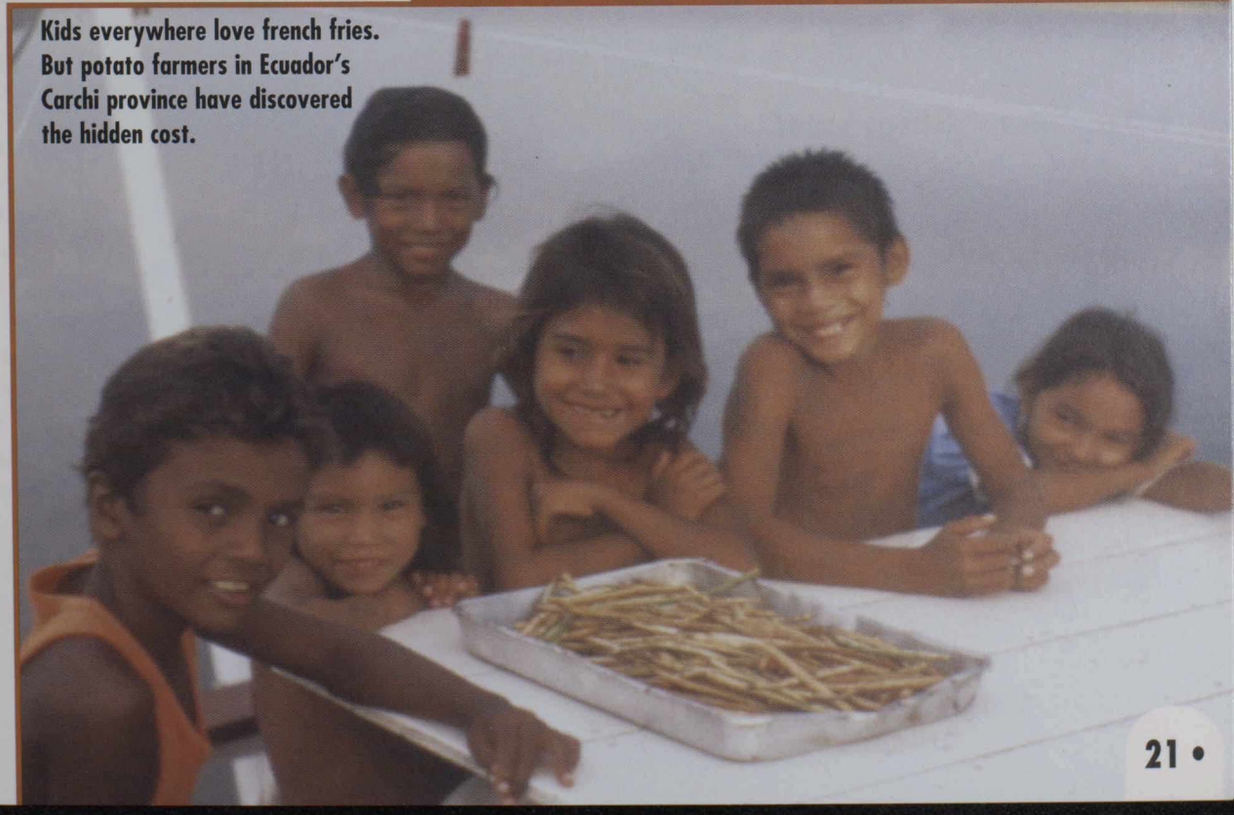

Kids everywhere love french fries. But potato farmers in Ecuador's Carchi province have discovered the hidden cost.