

UNDERSTANDING THE LINKS BETWEEN AGRICULTURE AND HEALTH

Overview

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LINKING AGRICULTURE AND HEALTH FOR POVERTY REDUCTION

Good health and productive agriculture are both essential in the fight against poverty. In a rapidly changing world, agriculture faces many challenges, both old (natural resource constraints, extreme weather conditions, and agricultural pests) and new (globalization, environmental degradation, problems of maintaining production in conflict situations). At the same time, new global health threats emerge, such as HIV/AIDS, SARS, and avian influenza, while old ones persist. Not only do malaria, tuberculosis, diarrheal diseases, respiratory infection, and malnutrition continue to take a heavy toll, but the health sector is faced with increasing problems of chronic disease, drug and insecticide resistance, and a diminishing arsenal of effective interventions. And as the world becomes more integrated, so do the agricultural and health problems the world faces.

The interactions between agriculture and health are two-way: agriculture affects health, and health affects agriculture. The process of agricultural production and the outputs it generates can contribute to both good and poor health, among producers as well as the wider population. Agriculture is fundamental for good health through the production of the world's food, fiber and materials for shelter, and in some systems, medicinal plants. Yet agriculture is associated with many of the world's major health problems, including undernutrition, malaria, HIV/AIDS, foodborne diseases, diet-related chronic diseases, and a range of occupational health hazards. Agriculture can contribute to both the spread and alleviation of these health conditions.

In the other direction, the occurrence of these health conditions has tremendous implications for agriculture. In the general population, the prevalence of malnutrition and disease influences market demand for agricultural products. In the agricultural population, workers in poor health are less able to work, a situation that cuts productivity and income, perpetuates a downward spiral into ill health and poverty, and further jeopardizes food security and economic development for the wider population.

The time is ripe for the agricultural and health sectors to work more closely together to develop innovative solutions to help solve their own problems—and each other's—and contribute to the overarching goal of addressing poverty. The two-way linkages between

agriculture and health pose an opportunity for the two sectors to work together to transform the vicious cycle of negative health-agriculture feedbacks into a more virtuous cycle of self-reinforcing primary prevention of health and agricultural problems.

A CONCEPTUAL FRAMEWORK OF THE LINKAGES BETWEEN AGRICULTURE AND HEALTH

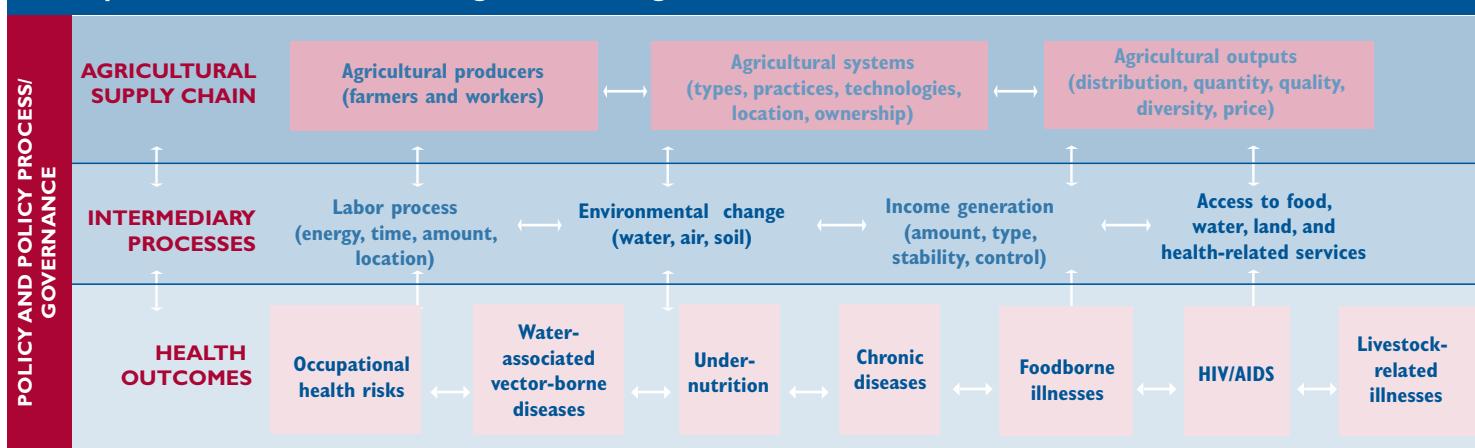
Agriculture and health interact through people, the natural environment, and food and other outputs: poor agricultural producers and their families are particularly vulnerable to malnutrition and disease; agricultural systems interact with the environment, in turn affecting human health; and agriculture produces foods, fibers, and plants with medicinal properties essential for human life, health, and culture. These components—agricultural producers, systems, and outputs—interact with one another and present pivotal “nodes” where greater synergies with good health could be achieved.

The figure shows a framework for linkages between agriculture and health. Across the top are the core nodes in the agricultural supply chain: agricultural producers, agricultural systems, and agricultural outputs. At the bottom are some of the most important health problems affecting the poor in developing countries: undernutrition, malaria and other water-associated vector-borne diseases, HIV/AIDS, foodborne diseases, diet-related chronic diseases, and a range of occupational health hazards. In the middle are the most critical intermediary processes linking agriculture and health in both directions: the labor process, environmental change, income generation, and access to food, water, land, and health-related services. As shown on the left side of the figure, these interactions are all influenced by policies, policy processes, and governance.

Node 1: Agricultural Producers

Agriculture Affects Health. Being an agricultural producer is a determinant of health, in large part through intermediary processes related to income and labor. Agriculture affects the income earned by people who make their living from the land. The amount, type, stability, and control of producers' income influence their ability to purchase and access food, water, land, and health-related services. The labor supplied by agricultural producers affects energy expenditure and time available for child care, food preparation, and other nutri-

Conceptual Framework of the Linkages between Agriculture and Health



tion-related activities. Labor also exposes producers to a range of occupational health hazards, including accidents, diseases, and poisoning. Finally, employment opportunities influence migration and the search for alternative income sources, with implications for the spread of and exposure to disease, such as HIV/AIDS.

Health Affects Agriculture. If malnutrition and poor health are prevalent among agricultural producers, agriculture is negatively affected. Illness among members of households involved with agriculture imposes significant health costs, leads to absenteeism, reduces the ability of households to earn income, and results in losses in the local and national economy. The problem is graphically illustrated by the case of HIV/AIDS. Studies show clearly that communities with the disease experience cash and labor shortages and tend to switch crop types, reducing crop area and livestock use and thus reducing productivity. HIV/AIDS is also associated with loss of farm-specific knowledge and reduced institutional capacity in the agricultural sector.

Node 2: Agricultural Systems

Agriculture Affects Health. Agricultural systems vary enormously in the types of products produced, the methods used, their location, and the system of ownership. Agricultural systems thus affect health in a variety of ways, often through interaction with agricultural producers and outputs.

The influence of agricultural systems is most noteworthy via the intermediary process of environmental changes in water, soil, and air. Examples include the environmental and human health effects of livestock production and aquaculture and the human health impacts of agriculture-related climate change. A notable case is the link between irrigated agricultural systems and water-associated vector-borne diseases (such as malaria). Irrigation alters the environment by creating conditions suitable for parasitic vectors, which then spread disease among producers and the wider population. This example shows the importance of assessing the impacts of the full range of linkages in a coordinated manner. Vector-borne disease among producers has feedback effects on productivity, but the adoption of irrigation can also boost incomes, thus increasing the ability of producers to purchase preventive or curative health-related services. It also boosts agricultural outputs, with subsequent implications for food security and nutrition among the wider population.

Health Affects Agriculture. Health can affect agricultural systems by affecting the health of producers. Poor health reduces producers' ability to innovate, experiment with different farming practices, and capitalize on farm-specific knowledge. Ill health is a major reason why young people leave rural areas, depriving farm activities of needed innovators. Healthier producers, in contrast, are more productive and able to partake in—and drive—the development of agricultural systems.

Node 3: Agricultural Outputs

Agriculture Affects Health. Agricultural outputs affect the health of the population at large. Agriculture produces food in different quantities, at different levels of diversity, of variable quality and price, and subject to differing methods of distribution. These all affect nutrition—undernutrition and overnutrition—along with foodborne illnesses.

With regard to undernutrition, high quantities of agricultural outputs can increase food availability and lower prices, thus affecting access to food. The quality and diversity of food outputs influence access to micronutrients and dietary diversity. Whether food is distributed for household, local, or export consumption affects undernutrition through a combination of the intermediary processes of access to food, income generation, and the labor process. Agricultural outputs are also linked with overnutrition and diet-related chronic diseases. Significant increases in the production of vegetable oils, sweeteners, and other foods have altered quantity and prices, thus influencing access to these foods.

THE PROMISE OF CLOSER INTEGRATION BETWEEN AGRICULTURE AND HEALTH

The briefs in this series aim to communicate what is known about the linkages between agriculture and health in science and policy, thereby stimulating interest in and dialogue on agriculture and health. With a focus on the poor in developing countries, the briefs deal with the relationship between agricultural producers, systems, and outputs and the world's leading causes of death and disease. They examine the various trade-offs involved and set out some of the approaches needed to create improved synergies between the agricultural and health sectors.

Currently, the health and agricultural sectors remain disjointed: health considerations play little part in decisions farmers make about production, or agricultural ministries make about policy. Likewise, the health sector often fails to reach out to the agricultural sector. The division undermines efforts to improve the livelihoods of agricultural producers and gives short shrift to agriculture's role in solving many of the world's most serious health problems.

Yet, as the briefs show, the linkages between agriculture and health present an opportunity for the two sectors to work together to find solutions to each other's problems. There is real potential for effective agricultural interventions—backed up by good policy—to promote health, and for the health sector to take actions leading to greater agricultural productivity and demand for agricultural outputs, thus increasing national and local capacity to promote good health. ■

For further reading see “**Agriculture and Health Linkages: Towards Improved Co-ordination**,” a workshop held at IFPRI, Washington, DC, June 23–24, 2005, <<http://www.ifpri.org/events/seminars/2005/20050623AgHealth.htm>>; J. Lebel, **Health: An Ecosystem Approach** (Ottawa: International Development Research Centre, 2003); M. Lipton and E. De Kadt, **Agriculture-Health Linkages** (Geneva: World Health Organization, 1988); and K. Lock, “**Integrating Public Health with European Food and Agricultural Policy**,” **Eurohealth Special Issue 10, no. 1** (2004).

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