

## **Sustainable Farming: A Political Geography**

by **Robert L. Paarlberg**

Farming is a threat to the natural environment in rich as well as poor countries, but the human stakes are now much higher in the developing world, where food needs are acute and growing rapidly. Roughly 700 million people in developing countries do not have access to sufficient food supplies to meet their needs for a healthy and productive life. Already because of population growth, the developing world is being asked to feed 88 million *additional* people every year, the equivalent of feeding a new Mexico every year. How can this production task be met if environmentally destructive farming practices continue?

In much of Africa, where crop yields will have to increase, the “mining” of soil nutrients is now helping to push average crop yields into decline. In much of South Asia, old irrigated lands are becoming saline and waterlogged and are going out of use almost as fast as new irrigated lands are coming into production. From Honduras to Java, soils are washing away on newly cleared sloping lands. In East Asia, South Asia, and Central America, the natural biological controls for crop pests are being poisoned with farm chemicals, even while the pests themselves are becoming more poison resistant.

Worsening this crisis today is a paralyzing technical debate between agriculturalists and environmentalists over what environmentally sustainable farming would actually look like. Production-oriented agriculturalists argue that environmental protection--especially protection of forests and topsoil--can be advanced through modern, input-intensive farming. Environmental advocates, by contrast, associate high-input farming with chemical pollution, a faster exhaustion of water supplies, and a dangerous loss of biodiversity. They feel it is better to hold onto traditional farming techniques suited to local ecologies and to the circumstances of ordinary resource-poor farmers.

These divergent technical preferences between agriculturalists and environmentalists have helped paralyze the international policy community. Bilateral and multilateral assistance organizations, not wishing to antagonize powerful environmental lobby groups, have become increasingly wary of sponsoring input-intensive, science-based farm modernization projects. This is one reason international assistance to farming and to farm research has recently faltered. Yet the number of people needing food in the developing world grows larger every year, while the quality of their farm resource base continues to degrade. How can this paralyzing policy deadlock be broken? Paying more attention to geography and to politics is one way to start. In some regions of the developing world the agriculturalists are right to argue for more use of purchased inputs, while in other regions less input use is needed, so the environmentalists are right. In some regions neither group will be entirely correct, since appropriate technical changes will not take place without more fundamental political and social change.

## **The Geography of Resource Abuse**

In Africa, agriculturalists tend to be right: use of purchased inputs will have to increase if food production is ever to increase at an acceptable cost to the rural environment. Fertilizer use in Africa today, at 12 kilograms per hectare, is only 1/4 the level of India and only 1/36 the level of Japan. Irrigation covers only 4 percent of cultivated area in Sub-Saharan Africa, compared with 26 percent in India and 44 percent in China. Africa's rural environment is at risk because too many farmers are trying to produce more simply by extending traditional low-input practices--such as shifting cultivation--into forest land, or onto drier and more fragile lands, or by shortening fallow times.

In Africa, and also in much of nonirrigated dry or upland Asia, the only way to boost production in pace with local food needs without having to cut more trees or plow up more land will be to move toward higher purchased input use and higher-yield farming. The experience of India is telling. By switching to highly responsive seeds, more fertilizer use, and expanded irrigation, India was able to double its total wheat production between 1964/65 and 1970/71. This not only helped India avoid a famine, it also helped protect the rural environment. If India had attempted to use traditional low-yield farming techniques to secure the same wheat production gain, it would have had to plow up an additional 36 million hectares of cropland, resulting in further deforestation, substantial habitat destruction, and soil erosion. Environmentalists who criticize India's green revolution should acknowledge the need to boost total production and weigh the environmental damage that would have taken place if this had been attempted without a switch to input-intensive farming.

On the other hand, the environmentalists' preference for reduced input use is fully justified in some of the more advanced Asian countries now undergoing rapid industrial development, such as Taiwan and Korea. An earlier switch to high-yield farming in these countries helped ease a first generation of rural environmental problems--soil erosion, tree cutting, and habitat destruction--but it has now become associated with a dangerous "second generation" of problems, including excess water and fertilizer use, inadequate nutrient and animal waste containment, loss of biodiversity, and excessive reliance on pesticides.

Agriculturalists argue that most of these are technical problems that need not permanently accompany a switch to high-yield farming. If given proper policy signals (tighter pollution regulations, more liberal trade policies, and input or credit subsidy reductions), input supply industries will innovate cleaner and safer products, and farmers will learn to profit by using inputs in smaller quantities and with greater precision. Just as these farmers originally learned to substitute larger quantities of purchased inputs for land, soon they will learn to replace input quantity with better quality and with improved management (for example, by switching from exclusive reliance on pesticides to integrated pest management).

This optimistic vision has merit, but too often it discounts political realities. Environmentally damaging input mismanagement has persisted in the rapidly industrializing countries of East Asia in part because farmers there (similar to well-organized farm lobbies in all mature industrial countries) tend to gain disproportionate political influence and then to use that influence to

demand subsidies and trade protection. The predictable result is a policy set (artificially high commodity prices, combined with artificially cheap inputs) that induces damaging input use habits. Similar to politically powerful farmers in Europe or North America, farmers in these rapidly industrializing countries also use their organized influence to escape accountability for the adverse effects (mostly off-farm) that result from their careless and excessive water and chemical use.

### **The Politics of Resource Abuse**

At a deeper level, resource abuse in farming often reflects power abuse. In East Asia, where farmers tend to be politically stronger within their sector than nonfarmers, much of the environmental damage they do reflects the subsidies they are able to command, and most of the suffering from that damage is felt by politically weaker nonfarmers (as when animal wastes pollute congested urban areas or when excessive irrigation and chemical use depletes or pollutes off-farm surface and ground water supplies). In Africa, by contrast, where farmers tend to be politically weaker than urban dwellers and vulnerable to the whims of centralized government ministries, the environmental damage they do grows out of this weakness. They use too few inputs rather than too many because their production tends to be overtaxed rather than subsidized. Lacking secure local control over the resource base, they tend to exploit and overuse good resources when given the chance, while skimping on investments in long-term protection. The environmental damage they do mostly takes place on the farm (overgrazing, loss of trees, soil nutrient depletion), so it harms farmers more than nonfarmers in yet another manifestation of the underlying power relationship at work.

These links between political power and environmental resource protection can be seen in a slightly more complex pattern in Latin America. This is a region where a politically weak rural majority, often without secure access to good land, farms alongside a politically privileged minority of commercial farmers. The result is a dualistic pattern of environmental resource abuse. Privileged commercial farmers on high-potential lands use government subsidies to overmechanize, overirrigate, and overspray, even while nearby peasant farmers, with insecure access even to low-potential lands, are mining soils, invading forest margins, and plowing hillsides in an environmentally damaging “hit-and-run” fashion.

Where first-generation and second-generation forms of environmental damage are taking place side by side, due to persistent rural social inequities and insecurities, technical solutions alone (either agriculturalist or environmentalist) will miss the point. The solution must include more fundamental rural social and political reform.

### **Conclusions**

The sustainable farming debate will remain deadlocked until it is recast in a region-specific and politically aware form that emphasizes the vastly different circumstances of farmers in different parts of Asia, Africa, and Latin America. If regional precision is maintained, paralyzing technical arguments between powerful agriculturalists and environmentalists can be minimized, and important reform imperatives that go beyond technical choice can be highlighted as well.

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