

PolicyPennings by Daryll E. Ray & Harwood D. Schaffer

Published agricultural production expenses fall short of actual costs

California is in the midst of a multi-year drought that has reduced the snowpack and rains that fill the reservoirs and irrigation canals that provide water for the cities of the state as well as agricultural production. The result is lower allocations and higher prices for all water users including agriculture.

Some farmers have responded to higher water costs by planting higher value crops like almonds even though they take even more water than the crops they replace. Farmers in some areas have participated in a voluntary program to idle some of their land in exchange for a payment from municipal water systems. Many farmers who can have responded to the shortfall in their irrigation water allocation by increasing their pumping of groundwater to water their crops.

The heavier use of groundwater has resulted in the need to drill ever-deeper wells as the water level in the aquifer drops below pump levels. According to a recent NASA press release, the ground level in California's Central Valley is dropping as the water beneath the land is being pumped out (<http://tinyurl.com/p4atgtx>). In some areas the land is sinking as fast as 2 inches a month. "The increased subsidence rates have the potential to damage local, state, and federal infrastructure, including aqueducts, bridges, roads, and flood control structures. Long-term subsidence has already destroyed thousands of public and private groundwater well casings in the San Joaquin Valley. Over time, subsidence can permanently reduce the underground aquifer's water storage capacity," writes NASA.

As they pump water from the ground, farmers bear the full cost of drilling their wells, installing the pumps, paying for the power to run the pumps, and the cost of drilling ever-deeper wells. They do not, however, bear the cost their non-farm neighbors experience when they, too, have to drill deeper wells, and as residents of California, they only bear a small portion of the costs needed to repair or replace critical public infrastructure.

Economists call those costs that result from a firm's activities, but are not billed to the firm, negative externalities. It is also true, for instance, that if only one farm uses groundwater to irrigate its fields the impact on ground subsidence is probably not measurable. But, when a large number of users in a confined area engage in drawing significant amounts of water from their wells, the results are real, measurable and impose costs on others.

Recently we wrote two columns discussing the lawsuit by the Des Moines Water Works seeking to force several counties to obtain National Pollution Elimination System permits as a means to reduce the

nitrate being discharged from farm tiles in drainage districts for which they serve as trustees (www.ag-policy.org/weekcol/782.html, numbers 782 and 783). The DMWW contends that the nitrates that are being discharged from field tiles impose additional costs on its customers. But the externalized costs of the nitrate discharge from field tiles don't end in Des Moines, Iowa but continue to be borne by various entities all the way to the Gulf of Mexico with its growing dead zone.

The controversial "Waters of the US" (2014 columns 718-721) regulation by the Environmental Protection Agency seeks to identify waterways that have the potential to contribute to downstream pollution of navigable waterways, so that fair rules can be made to reduce externalities produced by upstream users.

We understand it when farmers fight against regulations that put limits on their use of their land. Farmers, on the other hand, need to understand that when they externalize some of the costs that result from their activities, eventually someone is going to complain with a lawsuit or new regulations.

For any one farmer to try and reduce the nitrates being discharged from their tiles, the attempt to implement the chosen strategy may result in higher production costs than their neighbors who choose to do nothing. Though none of us like externally imposed rules, one of the roles of government regulations is to make sure that all market participants face the same expectations in reducing externalities like nitrates.

Nitrates from Iowa field tiles and land subsidence caused by groundwater pumping in California are not the only externalities that result from current farming practices. The list certainly includes the depletion of the Oglala aquifer, phosphorus discharge into Lake Erie and the Chesapeake Bay, antibiotic resistant bacteria in ground beef, and pesticide residues on food.

To be sure, agriculture is not the only human activity—natural gas fracking, chemical manufacturing, automobile production, retailing, and even the non-industrial watering of urban lawns—that externalizes some of the costs of various activities.

The solution in each case involves common sense actions combined with a common sense set of rules. Rather than responding with indignation when someone challenges us about a cost we are externalizing on others, we need to tackle the problem by changing our behavior so that when a regulation comes along we are ahead of the curve.

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