Environmental Science Seminar
Monday, February 12, 2007
Science I Room 102
4:10pm

Ethanol's Power Politics: Potential social and environmental outcomes

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Abstract

Ethanol production using corn grain has exploded in the Upper Midwest. This has caught many planners unawares. Issues such as the availability of grain, transportation infrastructure, effect on other uses of grain such as poultry and swine, and even the ability to meet export contracts are being questioned. Short term outcomes of the biofuels policies include rapidly expanding acreage of corn at the expense of soybean and conservation reserve land and added stress on the region's land and water resources.

Lost until recently in the whirlwind has been the potential impact of ethanol plants on natural resources, including water availability, water quality, biodiversity and farm structure. Each gallon of ethanol involves the loss of about 20 pounds of soil. Use of nitrogen fertilizer will increase as more land is put into corn, and if CRP is taken out of contract for more corn, loss of biodiversity will surely follow.

Ethanol production has the potential for economic and social upheavals as well. Overproduction of corn based on current high prices is causing land prices and input costs to rise, and because the government no longer puts a floor on prices through the LDP, many farmers incomes are actually declining. High land prices and other entry costs of farming are also keeping potential beginning farmers away and hastening absentee ownership, which already is over 50% in Iowa.

Perhaps the water issue has been the least of most planner's worries. Ethanol plants withdraw considerable water, around 4 gallons per gallon of ethanol produced. Several ethanol plants in Minnesota have been denied permits because of insufficient water availability and there have been siting issues in Missouri, Illinois and Kansas. Iowa will likely be producing over 5 billion gallons per year of ethanol within the decade, and there is concern that this withdrawal, placed on top of other expanding demands of urban environments, manufacturing and animal production, is not sustainable. Climate change could further exacerbate the shortage of water in the state. Insufficient information is available to determine what impact ethanol production will have. Iowa's water plan is over a decade old and has not taken ethanol plant withdrawals into account. It will be of benefit to the ethanol industry and rural development initiatives in general to get more clarity on the relationship between ethanol production, water consumption and impacts on water supplies. Otherwise, shortage of water could be the Achilles heel of corn-based and perhaps cellulose-based ethanol.

The path to a sustainable biofuels economy is one which most desire. It cannot be achieved with the present corn grain model. Can the cellulosic model arrive in time to keep ethanol on track?

See also:
http://www.iatp.org/iatp/publications.cfm?accountID=258&refID=89449