

The Role of GIS in Agricultural Policy Research

Christina M. Canart

Geography, University of Regina, Regina, SK, canart1c@uregina.ca

Abstract

This paper explores the role of geographical information systems in the analysis of agricultural policy and programs. The research provides examples of integrating GIS into agricultural research of those programs developed within the federal government's Agricultural Policy Framework (APF); specifically, that of the "Environment" pillar. The use of GIS provides a unique opportunity for government representatives to implement and monitor individual programs within the policy framework. During the implementation stage of government programming, the use of GIS plays a key role in cost-effectively targeting producers that meet program requirements. In terms of program monitoring, GIS provides an opportunity for government to monitor participant uptake rates and analyze the spatial diffusion of programs as it relates to the distribution of provincial and regional government bodies.

Background and Relevance

Increasing attention to the potential harm of agricultural practices on the environment has resulted in an increase in government programming focusing on environmental sustainability. The comprehensive Agricultural Policy Framework designates one avenue of programming specific to that of maintaining environmental sustainability. This pillar, the Environment pillar, was developed in order to help the agriculture sector attain environmental sustainability in the areas of soil, water, air and biodiversity. These programs encourage producers to uptake environmentally friendly practices to minimize the imprint of agriculture on the environment, at the same time allowing the producer to remain profitable. With these programs already in place, attention has shifted towards developing methods to manage these programs. As an agricultural geographer with an interest in GIS, my paper focuses on developing methods to integrate GIS into my policy and program related research. This research aims to increase dialogue and provide an array of methods in which government officials may increase the success rates for individual program implementation and outcome.

Results

The paper presents a number of examples where GIS may be advantageous for agricultural program implementation and monitoring by government officials. One of the examples provided within the paper is the direct targeting of agricultural producers that qualify for riparian conservation programs. The Manitoba government currently provides a Riparian Tax Credit aimed to encourage farm operators that manage land surrounding riparian areas to establish a 100 foot buffer adjacent to rivers and streams, in order to create a healthy riparian zone. By using GIS software to create a database for producer characteristics (*e.g.*, contact information, land titles, land use) and employing a variety of spatial analysis tools (*e.g.*, creating buffer zones based on the required

criteria of the individual program), the software allows the researcher to target those producers that meet the requirement of the Riparian Tax Credit program, at the same time producing the contact information required for promotion of the program. This in turn may decrease the costs associated with program promotion and increase the number of program participants.

Conclusions

The paper presents a number of examples where GIS may be advantageous for agricultural program implementation and monitoring by government officials. The paper explores the prospect of integrating GIS into agricultural policy research, an avenue which may effectively address policy implementation constraints faced by government officials. The presentation aims to increase the discourse of applying GIS in a variety of research avenues. Integrating GIS into agricultural policy research not only provides a unique opportunity for agricultural geographers, but also a cost-effective method of policy and program monitoring and implementation by government officials.