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SUSTAINABLE DEVELOPMENT, A COLLABORATIVE PROCESS: LESSONS FROM A RURAL COUNTY'S DEVELOPMENT PROJECT

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ABSTRACT

SUSTAINABLE DEVELOPMENT, A COLLABORATIVE PROCESS: LESSONS FROM A RURAL COUNTY'S DEVELOPMENT PROJECT

By

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Drawing on the model of Collaborative Management for sustainable development proposed by Michael Redclift (1987), the strengths and weeknesses of a composting demonstration project in a rural county in Michigan are examined. Research data was collected through in-person interviews with key figures involved at various levels of the project and through a review of documents, primarily Michigan's Right to Farm files. The Ionia case study, while demonstrating the tensions between outsiders' managerial goals and insiders' knowledge and the benefits of incorporating local knowledge in the planning stage of development, also illustrates the difficulty of organizing a planning group in which all of the diverse interests are adequately represented. These findings suggest that only through a process that involves those most affected by change and is sensitive to the local environmental, economic,and social concerns can truly sustainable development take place.

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INTRODUCTION

Piers Blaikie began a recent presentation with these words, "'Sustainability' has been an enduring concept. It offers something for almost everyone and its broadest definition in the sense of 'keep going' and 'give strength to' is difficult to disagree with" (1994). A definition of Sustainability such as 'keep going' is too amorphous to be of any practical value. A workable definition of sustainability needs to describe *what* ought to be kept going, *why*, and *by and for whom*.

In the literature on sustainability, I have identified three different uses of the concept "sustainability." *What* is being sustained is the differentiating factor between the various usages. First, sustainability may be used in a purely environmental sense, to describe a state in which an ecosystem or resource such as soil is being preserved. Second, sustainability is used to describe a state in which the dual goals of economic development and environmental protection are sought. Finally it is used to describe the integration of economic viability with environmental protection and community quality of life in development decisions.

Currently in Michigan, projects are underway to meet these three developmental objectives in an initiative to increase the livestock industry (Connor 1987). In my view, projects are most viable when they include a social

component. If development is to be sustainable it must include local participant's knowledge of their environmental, economic, and social concerns. Drawing on the work of Michael Redclift, who breaks with traditional forms of Third World development in which experts manage projects according to their own wisdom, I will examine the successes and failures of a rural Michigan agricultural development project that sought to involve local people.

In this paper, I will use the definition of sustainability that incorporates a social component to analyze the experiences of a rural county in Western Michigan involved in the state's livestock expansion initiative. In this county, a small committee of local people representing various agricultural interests was assembled to find alternative waste management strategies. I will begin with some background information on Michigan's Livestock Initiative telling how Ionia county became involved and next describe in greater detail the three different uses of sustainability and the limitations of each usage. I then present an overview of my methods and a description of the county in which the project took place, followed by my analysis of the project's accomplishments from a sustainable development standpoint. In the conclusion, I will outline some of the problems in achieving collaborative outcomes in our society.

BACKGROUND

Stimulated by the state's animal industries, the Michigan legislature appropriated more than $70 million to expand the state's livestock industry in 1993-

94. Currently agriculture is second to the auto industry as a major contributor to the state's economy, adding approximately $14 billion each year. Livestock and animal specialty farms comprised over 40 percent of the total farms in Michigan in 1987. These 21, 213 farms accounted for approximately 4.3 million acres of land in Michigan, including 2.4 million acres of harvested cropland. Dairying was the largest livestock type of farming followed by beef cattle, hogs, horses and poultry (Connor et. al., 1987).

Key figures in Michigan's agriculture agencies – Michigan State University's Cooperative Extension Service (CES) and Agricultural Experiment Station (AES), the Soil Conservation Service (SCS), and the Michigan Department of Agriculture (MDA) – estimate that through the efforts of the livestock expansion initiative, agriculture could boost its contribution by $1 billion and create up to 22,000 new jobs. While these economic incentives of expansion are easily understood, they are not so easily achieved, because the expansion of the livestock industry will not only bring millions of dollars into the state's economy, but will also bring tons of manure into the state's barns. For example, one dairy cow will produce 21.9 tons of manure a year. Just imagine the pile that would accumulate if Michigan were to add only 50,000 dairy cows.

Recognizing the potential problems livestock expansion might bring (i.e., manure storage, odor, and land application problems), a Manure Management Task Force was appointed by the heads of Michigan's key agricultural agencies to develop manure management alternatives for the livestock industry which would

insure that animal production be conducted within state environmental constraints, continue to benefit the state's economy, help maintain the economic health and viability of livestock farms, and address the potential conflicts between livestock producers and urban new-comers to rural areas (TF 1)[1] . To help achieve these goals, the task force's Program Planning and Implementation Committee solicited proposals from local areas in the state interested in developing a manure management demonstration project that might provide manure management alternatives for producers throughout the state. A request for proposals was sent to all Cooperative Extension Service offices, Soil Conservation Service offices, and Soil and Water Conservation District offices. The documents suggested that those interested areas identify a "coalition of local support" to assist with the planning and implementation of the project (Loudon memo 1992).

In October 1992, Ionia County was awarded the grant for a proposed project focusing primarily on composting as an alternative manure management strategy. The county's proposal was developed over several months by a committee recruited by county CES and SCS personnel that included livestock producers, an agricultural supplier, and community leaders including a city manager, the county drain commissioner, and a county commissioner. In addition to learning about the technical aspects of the composting process and the value

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[1]To preserve the anonymity of the people we interviewed, I have coded their citations as "TF" for task force member, "LP" for local planning committee member,and "NP" for a person nominated by a local planner. Within each category the persons have been numbered in no particular order to differentiate between them.

of compost as a fertilizer, the local planning committee identified specific concerns in their community; such as finding an alternative disposal method for city leaves and yard waste, creating an affordable alternative manure handling system, finding a more efficient method for transporting manure greater distances, and addressing concerns of farmers living in close proximity to non-farming neighbors.

The Ionia planning group project was lead by the state's Program Planning and Implementation Committee to specify three main areas of concern that their manure management plan had to address: the economic viability of the system, the environmental impact of the system, and the social responsibility of the system. These concerns were formally addressed in their grant proposal and also informally conveyed in our interviews with each member. Thus, although they did not use the terminology of sustainability, the expressed concerns reflect the same three elements that have become the foundations of key sociological definitions of sustainable development. In the next section, I will summarize three different sociological perspectives on sustainable development; concluding with Michael Redclift's approach to collaborative development which will be the basis for my assessment of the manure management demonstration project in Ionia. My own analysis suggests that the planning and implementation committee's statewide mission undercuts the "knowledge" of local planning committees which relates to the Managerial/Collaborative issues in Redclift's scheme. The definition of the Ionia effort as a demonstration project for the statewide implementation established a development agenda beyond the scope of local needs and capacities.

PERSPECTIVES ON SUSTAINABLE DEVELOPMENT

The concept of sustainability has received substantial attention in the last decade. The term "sustainability" is used by government policy makers, international aid agencies, the popular media, and academics. The concept is central to many current natural resources debates, and it is widely used in development rhetoric. It has become an "attractive political banner, possibly attaining the prominence of multiple-use or environmentalism" (Gale & Cordray 1994). "Sustainability is invariably used to describe a goal which, superficially at least, is indisputably desirable" (Dixon & Falon 1989).

Within the sociological literature, I have found three distinct uses of the term sustainability. While each one makes a useful contribution to improving the planned use of natural resources, each one also has key limitations which I will briefly note. In one category of definitions, 'Sustainable' is used in reference to a purely physical concept for a single resource or an ecosystem. Literature using sustainability as a physical concept usually seeks to define physical limits to resource exploitation, or the maximum sustainable yield (MSY). The goal in these situations is the management of a renewable resource by regulating the rate of exploitation so that the system can maintain itself in the face of external shock (Conway 1987). Used in this context, however, it ignores economic forces and social impacts (e.g., social responses to changes in the resource base, technology changes, consumer demand changes), and it does not reflect how environments are continually transformed by economic growth and by environmental users.

A second approach to sustainability describes a state in which resources are being conserved while production and profits are being maintained. Frequently, however, the goals of economic growth and environmental preservation are seen as conflicting. Much of the 'sustainable agriculture' literature falls into this production-oriented category focussing on problems of environmental contamination and human health problems due to pesticides and plant fertilizers, soil erosion and the degradation of the soil, and low farm incomes resulting from depressed commodity prices in the face of high production costs (Lockeretz 1991). In a 1988 brochure, the USDA stated that its low input sustainable agriculture (LISA) program "helps keep farmers profitable by improving management skills and reducing the need for chemicals and other purchased inputs. It helps sustain natural resources by reducing soil erosion and groundwater pollution and by protecting wildlife."

Unfortunately this literature also neglects the social dimension of sustainability. Patricia Allen and Carolyn Sachs have recognized the neglect of social concerns in the literature on agricultural sustainability. "In general,. . . predominant efforts in sustainable agriculture ignore its human factor or constitute its human issues too exclusively. . . . Social problems and priorities . . . are usually not included in sustainability definitions" (1993).

A third approach to sustainability, uses the term to define a state of social, environmental, and economic well-being. Sociologists and researchers such as Keeney and Blaikie have called for the incorporation of social systems analysis in

studies of sustainability. Keeney includes a social component in his definition saying that sustainable agriculture includes "agricultural systems that are environmentally sound, profitable, and productive and that maintain the social fabric of the rural community" (1989). Blaikie goes a step beyond merely defining sustainability. He proposes a political economic framework through which a "very old theme" may be viewed from a "new perspective " (1994). This new perspective combines tools of social and natural science, accommodates various scales and levels of analysis including local level analysis, and it links national policies to local practices in a critical way.

In his book, *Sustainable Development*, Michael Redclift uses a political economic framework to critique the global development relationships between First World capitalists and Third World indigenous people. He calls for the incorporation of local or indigenous knowledge of ecological preservation in the formal structure of environmental planning in developing countries. Redclift argues that the current form of environmental managerialism ignores or devalues the experiences of the very people who are closest to the problems. Managerialism dictates to the indigenous people not only the space within which they may operate and the ends they must achieve, but also the technology they may use to reach those ends.

Such a system interferes with the culturally rooted strategies devised over time by local actors to reduce risk and preserve their livelihoods. Throughout their history indigenous people have gained an intricate understanding of the diversity and productivity potential of their local ecosystem; and they have developed simple

technologies with which they can exploit the local resources at a level that maintains their livelihoods and social systems even in the face of major ecological disturbances. Redclift points out that First World developers' exploitation of resources degrades the local environment and in so doing destroys the ability of local people to maintain livelihoods based on their traditional methods. Hence, this development is unsustainable because it puts the environment and local social and economic systems at risk. Therefore, Redclift argues that for sustainable development to become a reality, it is necessary for local knowledge to be given priority.

> "Epistemological questions, such as how people understand their relationships with their environment, are essential to a more sustainable development. They are not merely a desirable consideration in better planning, but. . . are the very stuff of which environmental management could be made" (1987).

To design development practices that are more compatible with local communities, we need to understand how local people organize their knowledge of their environment and their social systems. In figure 1, Redclift illustrates the redirection required to move to a more "collaborative view of environmental management which takes its cues from the environmental users rather than the outside experts." It seeks to reverse the process through which 'we' do all the managing, while 'they' live within the space, and with the tools, that we provide.

Environmental 'Managerialism'[2]

Environmental Planners	Environmental Users
Land-use planning	defines their space
Technology appraisal	defines 'their production system
Structural policies	defines 'their' market/ state links

Collaborative Environmental Management

Environmental Users	Environmental Planners
Geographical and cultural boundaries	defines land-use planning
Indigenous knowledge and ecological adaptation	defines technology appraisal
Household livelihood requirements	defines structural policies

Figure 1 The Redirection of Environmental Management

Like Allen, Blaikie, Keeney and Redclift, I will argue that the concept of sustainability must include a social component. And like Redclift I will go beyond analyzing the impact of economic and environmental development policies on local communities to incorporating local knowledge in the development plans. I will

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[2] Adapted from Redclift, M. 1987. *Sustainable Development.* London: Methuen & Co. p. 158.

argue that local participation should begin with the very first step of deciding on areas for development based on local needs and identifying the problems of the proposed development schemes; and it should include prioritizing, agenda setting and implementing alternative solutions. Finally, I will argue that those helping to set the agenda for development must represent a wide range of different local stakeholders –for the purpose of this paper, stakeholders are defined as those with an interest or a stake in the outcome of decision making processes; in the case of Ionia, this includes non-farm residents and representatives of different sizes and types of livestock production operations.

The old ways of top down decision making will no longer work. Collaborative management strategies are, therefore, necessary. However, collaborative strategies may confront challenges in areas in which populations and knowledge are more diverse, and less tied to the environment. In my conclusion, I will outline some of the problems in achieving collaborative outcomes in our society.

METHODS

My research developed in the context of a larger project examining the social impacts of the livestock initiative's plan to expand animal agriculture in the state in which I was a research assistant. My case study focuses on a rural county of Western Michigan in which a planning committee of local residents proposed a project to address local manure management concerns in response to

a statewide request for alternative manure management strategies.

As part of the case study of the Ionia Demonstration Project, a strategy was developed by the senior researcher to interview several members of the state level Manure Management Task Force's Program Planning and Implementation Committee from whom we learned about the context in which the task force was conceived and the state wide request for alternative management strategies was born, all twelve members of the local planning committee, and several key people in the county nominated by members of the local committee including local producers currently participating in the project as well as producers interested in composting. Future research will include interviews with non-farming rural residents.

Prior to interviewing Human Subjects approval was granted from the University committee. Most interviews were conducted by two interviewers at the home or office of the interviewee and lasted approximately two hours. Handwritten notes were taken as those being interviewed answered nine open-ended questions. This interview format allowed for tangents to be explored and follow up questions to be asked. Before each interview began the interviewees were assured of the their confidentiality and freedom to not answer a question with which they felt uncomfortable (as of yet, no one has refused to respond to a question).

The strategy developed by the senior researcher also included a review of documents and particularly Right To Farm (RTF) files as a way of becoming more

familiar with the nature of manure management problems around the state.[3] We read the complaint files for Ionia and Ottawa counties. This was done to gain a better understanding of the points of contention in the county we would be studying. Ottawa was chosen because of the number and type of problems it is facing as a result of urban sprawl exceed those of the smaller Ionia communities. Ottawa county is quickly becoming suburbanized as people from Grand Rapids move away from the city. "When development occurs in a rural area, new residents sometimes take offense at the noise, odors, and dust that necessarily accompany farming" (H.B. 4054). In addition to giving me a basic understanding of problems related to manure such as odor, flies, spillage on roads, and ground and surface water contamination, the files also gave me a basic understanding of different manure handling systems and the problems associated with each.

CASE OF IONIA

"They want to expand, but they have all that damn manure out there limiting the possibilities of expansion."

FD, 1994

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[3] The RTF was established in 1981 to provide protection for Michigan farmers from public or private nuisance suits if the farmer conformed to the generally accepted agriculture practices or if the farm existed before any nearby (within one mile) development and would not have been a nuisance before that development occurred. (H.B. 4054). If a nuisance complaint is made, MDA officials visit the farm and the complainant to verify the complaint. Written records are kept on all visits made since 1990.

An understanding of the basic underpinnings of the Ionia County demonstration project, and some key changes that have occurred that departed from the local planning committee's expectations provide a necessary foundation for understanding the project's accomplishments from October, 1992 when it was funded, to the present, and frame my evaluation of its achievements and shortcomings. Before presenting the chronology of events that took place in the project, I will give a brief description of Ionia County, highlighting key characteristics that influenced the development of the demonstration project.

Setting

Ionia County is located in Western Michigan midway between and approximately 35 miles away from Grand Rapids and Lansing. Although set between two urban centers, it is predominantly a rural county with a population of 57,024. According to the 1990 census about 24,500 of the non-institutionalized people consider themselves rural non-farm residents (Ionia pre-proposal 1992). All of the Ionia residents with whom we spoke considered or identified themselves to be rural people, rather than either urban or suburban.

According to Ionia's city manager, agriculture is the number one industry in the county. However, a dairy producer with whom we spoke placed agricultural development behind industrial development and job creation in terms of its importance in the county (LP 8). Regardless of its position, agriculture is a very significant part of Ionia's economic base; and livestock production is an important

and large part of this agriculture industry. Over 50 percent of the county's total acreage is in cropland (Plan for Planning 1994).

For producers and some other residents, there is a looming fear that the future of agriculture in the county is on shaky ground. "Because of its proximity to the large metropolitan areas Ionia County is expected to grow" (Ionia pre-proposal 1992). This is supported by the most recent census data which shows that between 1980 and 1990 Ionia's urban population increased by 1.8 percent and the rural population increased by 14 percent. These numbers are very similar to the percent increases for the previous decade. "These percent changes indicate a growing trend toward greater rural inhabitants and consequently an increased infringement upon rural resources" (Plan for Planning 1994).

Another emerging trend in Ionia is the increase in new housing located outside of the cities and villages (Plan for Planning 1994). The population is gradually dispersing to more rural areas. An older dairy farmer laments that good agricultural land is being sold off for houses. This is echoed in the words of the city manager, " [There is] still a lot of farmers and farmland in the county although it's breaking up." One of the problems associated with urban people moving to the country is their lack of understanding of farming practices (NP 1). As one local agency staffer noted, another problem is their different definition of normal smells. "Urban and rural were totally separated, but now the buffer zones are getting thinner and all of a sudden the odors, the noise, the sights are not normal" (LP 3). In the words of one Ionia dairy farmer, "Let's get right down to the point. I

personally believe that most of these people don't care if you're out there polluting the land. They care if the stuff stinks" (NP 4).

The lack of county-wide zoning ordinances contributes to the frustration felt by some farmers who see good agricultural land being parcelled off in three to five acre lots and being sold to families from Grand Rapids. The general sentiment as explained by others with whom we spoke is that people in Ionia just do not want to be told what to do or how to farm (LP's 4 & 8; NP 1). Only two of the townships in Ionia have passed zoning laws. Others have tried but have failed. "People come here to take a stand" responded a county commissioner when asked why zoning is so hotly contested in Ionia (LP 4). The county is currently working on a plan for development which includes land use planning, but its prospects for success are uncertain.

Chronology of events

In the fall of 1992, the State level task force solicited proposals from local areas interested in developing a manure management demonstration project. In Ionia, the local CES and SCS agents organized a committee of in county members they thought would be interested in planning a manure management demonstration project. The local planning committee identified four main issues that manure management should address in their county: the protection of soils and water from nutrient contamination, an alternative disposal method for city leaves and yard waste in response to the impending ban on landfilling these materials, a more

efficient means of transporting manure, and the reduction of odor. And of course the solution to these problems had to be economical in order to be considered by producers.

The committee came up with composting. Composting is a method of transferring manure into a stable soil-like material which provides nutrients, organic matter and other soil improving qualities while, unlike manure, being virtually odorless (Rynk 1994). Composting manure greatly reduces its volume, moisture and odors; thus making it easier to store if immediate land application is not possible, more easy to transport to fields in need of nutrients, and potentially more marketable than raw manure.

Composting also addresses concerns about soil and water contamination. The composting process changes the form of the nutrients in the manure thus reducing the risk of nitrogen leaching and allowing for phosphorous to be moved away from areas of high soil concentration. "During the compost process, nitrogen is bound in the organic form resulting in less leaching of nitrates into groundwater" (Ionia pre-proposal 1992). Composting also has economic benefits. It provides more cost saving manure disposal than methods such as lagoon or slurry storage which are not only costly to build but also require expensive machinery for land application. Cost savings can also be realized with the purchase of fewer commercial fertilizers. Using compost will not completely eliminate the need for commercial fertilizers, but as one dairyman with whom we spoke put it, "One hundred cows and their offspring produce $10,000 worth of fertilizer" (LP 9). That

saves a lot on chemicals. Also weed seeds and bacteria that may have been present in the raw manure are killed in the composting process by temperature reaching above 150 degrees Fahrenheit, thus reducing the need for herbicides and pesticides.

Other benefits of composting are more difficult to measure in dollars, the improvement in soil tilth and fertility for example. There are also economic advantages to reducing pollution, runoff, and odors as well as providing better transportation options. These practices can be seen as cost savings with regard to increased protection against nitrate contamination of water wells, neighbor acceptance, and greater demand for the product.

In addition, a cost savings for municipalities can be realized with lower disposal costs for leaves which soon will be banned from landfills. Or in the case of Ionia, it will reduce the pollution by providing a disposal method other than depositing the leaves in the flood plain of the Grand River and letting the spring showers wash their problems down stream.

Thus, composting met the criteria for an alternative manure management system that the local planning committee established. It promised to provide an economical manure handling system that would address concerns about environmental contamination, odor, transportation, and it helped solve the city's leaf disposal problem, as well.

The local committee planned on finding two sites for their compost project. One was to be located at a poultry operation which was large enough to run a

composting program of its own. The other site was to be located at a local dairy farm. This site was anticipated as a cooperative effort between a group of area farmers and the city of Ionia. The association of farmers would bring their manure to the common site in return for a share in the final product. The city would provide the carbon source in the form of leaves and yard wastes. The expectations of the planning committee can best be summarized by one of its members who said, "I've always, from the very beginning looked at this as a way for two separate entities to come together to enhance a relationship that has not always been easy to enhance" (LP 4).

In October, 1992 the Task force awarded Ionia County the grant and with local support hired a project coordinator to oversee the management of the project. It is important to note that the CES agent who organized the local planning committee and had been responsible for writing the majority of the grant proposal left the county approximately 6 months after the project was funded. The incoming project coordinator had no previous ties to Ionia county. He was not a local person though he had valuable experience with composting technology that is widely respected by local planning committee members. This change in leadership has surely affected the operation of the project, although in ways that cannot be known precisely. As one committee member put it, "The project would look different in general. It would be progressing to a reasonable end. You can 'what if' forever and ever" (LP 3). However, placing an outsider in the coordinator's position of a local demonstration project increases the potential for conflict between

local knowledge and the "managerial" goals of the state.

Project Planning Phase

7-28-92:	Initial proposal submitted to task force
9-23-92:	Final proposal presented to task force
10-28-92:	Local planning committee informed that demonstration project will be located in Ionia

Project Implementation Phase

12-06-92:	Begin search for project coordinator
3-08-93:	Hire project coordinator
5-01-93:	Landfill becomes first demonstration site
5-15-93:	CES agent involved in planning leaves Ionia (approximate date)
Present:	Ongoing Ionia project activity simultaneous with efforts to extend composting technology statewide

Figure 2 CHRONOLOGY OF PROJECT EVENTS

In the project's implementation phase, problems were confronted in establishing a collective of local producers and subsequently the deterioration of the city's commitment to deliver leaves to the project. Therefore, plans shifted to utilize an area landfill as the host site for the project and to encourage individual producers to participate by composting their own manure on their own farm. "It is turning out way different than the committee imagined it was going to" (LP 11). Of the three main expectations expressed by the committee, namely learning the techniques of composting, establishing an association of producers to set up a

cooperative site, and building a mutually beneficial relationship between the cities and the agriculturalists, the project has only been successful in achieving one. They have learned about the process of composting and different methods and tools to be used in its production.

To date the project managers[4] have experimented with composting in different seasons, including winter which they were told would not work by the Luebke's of Austria (LP 2); – they discovered that the process requires more labor and takes longer in the winter but manure will compost – using different carbon sources, leaves, straw, sawdust, and culled pine trees for example; turning the piles using different machinery[5] or not turning the piles at all; preventing nitrogen leaching through the use of fleece blankets[6], tarp covers, and no covering at all; using different surfaces such as a pad[7] constructed of crushed concrete, a

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[4] A core group of four men emerged to oversee the daily management of the project. This group includes the project coordinator, two SCS staff members and a MSU graduate student.

[5] Compost must be mixed or turned to prevent the windrows from becoming anaerobic – a situation that causes a fermenting type of odor. Turning can be done by hand, as with a pitchfork, or by machine. Front end loaders can be used or special machines built for the sole purpose of turning a pile can be purchased. Various models exist – some straddle the windrow others run along side of it, and some are self propelled – and range in price from $15,000 to $150,000.

[6] Fleece blankets are a non-woven geotextile which is U-V resistant and repels water, yet it allows for the exchange of gases. A 150 yard blanket costs $350.

[7] If the land does not meet certain criteria (e.g., slope of 2-6%, depth of water table greater than 2 ft., slight risk of permeability) the *On Farm Composting Handbook* recommends a pad or special surface be constructed to prevent nitrate leaching. Pads may be paved surfaces or surfaces constructed of 6 inches of compacted gravel or sand. Costs vary greatly depending on size and type of surface.

naturally sloping field a flat field; and adding sand or clay to simulate different bedding methods farmers might use and their effect on composting. The project managers also set up test plots to compare the affect of raw manure, compost and chemical fertilizers on corn yields. The results from the first year are inconclusive. In experimenting with these different scenarios, they hoped to address farmers concerns and find solutions which would be applicable throughout the state.

Although the project has succeeded in learning about various techniques involved in the composting process, it was not successful in establishing a common site where an association of farmers would work together. It seems as if in the local planning meetings people perceived each others' goals very differently. Some were under the impression that a producer on the planning committee would provide the site. This, however, did not happen, and the committee had a difficult time finding another site possibly because producers were worried that the owner of the site would have to be permitted as a solid waste facility by the DNR in order to accept the city leaves (LP's 4 & 8; NP 1) An extension agent explained that one of the farmers' fears is that if the DNR was going to be poking around their farm inspecting the compost operation, sooner or later they would find something else that was being done wrong (NP 1).

Not only was fear of the DNR an explanation but, fear of spreading diseases and increased labor were also reasons given to explain the problem of finding a site (LP's 4, 5 & 8). One committee member hypothesized that maybe there was no cooperation there to begin with. Another noted that farmers are independent

people who like to do things their own way. This explanation will be looked at further in the analysis section of the paper.

When the committee failed to find an area producer to host a common site, the project coordinator went to the owner of the county landfill. He heard that they were interested in doing some composting on their own because of the pending yard waste ban (NP 3). An agreement was struck in which the project coordinator would organize the whole enterprise and the landfill would cover the expenses for the pad and necessary equipment. Manure and straw pack were brought in by two area dairy farmers and the city of Belding provided leaves when needed.

Although using the landfill as a site was not initially supported – some people called it a "fatal and tragic mistake" (LP 2) – it has turned out to be a mutually beneficial relationship for the local project and the landfill owner. The landfill sees the project as having helped them out by investing the time and energy to organize and oversee the daily management of the windrows. The landfill also sees this as a way of helping their customers once the ban on yard wastes goes into effect by providing them with a place to bring their leaves (NP 3). Furthermore the landfill uses much of the finished product as top soil in their cell capping process.

The project benefits by having a relatively remote site, far away from areas where new county residents might move. Also by having the landfill pay for the necessary equipment the project was able to save money. Moreover, the landfill was willing to share the turner with other sites in the area interested in composting.

The local SCS agent summarized the landfill owner as "active, cooperative and willing to go the extra mile."

The city of Ionia, on the other hand, was not willing to "go the extra mile." It backed out of its cooperative arrangement with the project as a supplier of leaves for a carbon source. Members of the committee gave three reasons for the lack of cooperation. First, the site where the composting was being done was too far away to be economically feasible for the city. The city manager explained that the city trucks were so small that they would have to make 500 runs out to the landfill which is 15 miles away from the city and that was not economically feasible. He tried to lay the blame on the project for placing the sites so far away. Another committee member blamed the problem on the city people's lack of cooperation, "Realistically they can't go everywhere in the county, but they could go 7 miles out for an experiment, but they won't try it. If they just took one truck out it wouldn't kill them" (LP 11).

Another commonly given explanation for the lack of city cooperation deals with money. The bottom line is that every one wanted to be paid for their part of the process. The city wanted to be paid for hauling the leaves to the site and the farmers wanted to be paid for taking the leaves (LP's 4 & 5). Finally, a few committee members pointed out that there is no incentive for the city to cooperate. At the present time they have a very low cost disposal method. Neither the DNR nor the drain commissioner is preventing them from dumping the leaves in the flood plain, so until they are either forced to comply or are paid to provide the

leaves why should they incur more cost for waste disposal by participating in the project? A county commissioner on the planning committee offered this response, "Both [project and city] should have worked with each other. I don't believe in 'I'll scratch your back, if you scratch mine.' When the money dries up what then? The leaves and manure are not going to dry up."

ANALYSIS

In this section, I will evaluate the accomplishments of the Manure Management Demonstration Project from the standpoint of sustainability as posited by Redclift, and I will explain what has made some of the project's goals difficult to achieve. Finally, in the conclusion, I will outline some of the problems with transferring the Redclift model to a Michigan community.

To review, Redclift (1987) argued for the inclusion of local knowledge about the environment and technology in the environmental decision making process. The inclusion of indigenous practices in the decision making process insures that development plans are compatible with the local community's economic and social systems. Development plans that factor in environmental, economic and social components fit the definition of sustainability that Keeney (1989) described.

Using Redclift's model I will illuminate some of the strengths and weaknesses of Ionia's approach to collaborative management. The project did incorporate local knowledge into the decision making processes. It was through the collaborative effort of a committee comprised of twelve people representing

different community interests that an alternative manure management method was found that would address growing local concerns about environmental contamination from nutrient loading, increased conflict between urban and rural neighbors regarding odor, the need for the municipalities to find an alternative yard waste disposal method and the concern of farmers that an alternative manure system be economically feasible. In the selection and implementation of a composting program, all of these concerns were addressed.

However, the establishment of a cooperative site at which an association of farmers pooled their resources never materialized. Two committee members shed light on one probable reason. One mused that maybe there was no cooperation there to begin with; and the other stated that farmers are independent sorts of people who like to do things their own way (LP 4& 5). Why didn't the planning committee anticipate the lack of cooperation on the part of local producers? I believe it is because they lacked adequate producer representation on the planning committee.

The committee was composed of twelve members only three of whom were producers. Of these three one was a former president of the local Farm Bureau. Another runs a dairy and was considering the feasibility of composting on his farm. The third producer owns a very large egg farm which is already producing a hybrid compost drying the majority of their manure. Because of the size of his operation and its ability to run its own composting operation, he may not have been very sensitive to the attitudes and concerns of smaller producers. These

three men do not adequately represent the diversity of livestock producers in Ionia County. Hence, they can not represent the diversity of local knowledge concerning manure management in Ionia county. Therefore, it should not be surprising that the committee misinterpreted the willingness of local producers to participate in the project.

The needs and concerns of swine farmers, for example, are different from those of turkey, veal or beef farmers. Likewise, the concerns of small farmers are different from those of larger producers. Therefore, the committee should have included a more representative selection of local producers or at least a way to represent their concerns. Had they done so they might have recognized the lack of interest in a cooperative site, or they might have found another way of forming a collective, such as having a small group of producers share the cost of buying a turner and managing their own compost individually.

Ionia's local planning committee was weak in two other areas. First, the members of the committee while representing a variety of local concerns and interests did not represent all of the concerns in the county. The interests of non-farming residents, especially the concerns of urban people who recently moved to the rural community were not represented. This is unfortunate in a county like Ionia which is beginning to see an influx of people from Grand Rapids and Lansing. Because very few Ionia townships have zoning ordinances a variety of people with different stakes in the expansion of the livestock industry end up living in close proximity to one another. It would be especially important in rural areas

experiencing an influx of urban people to include a wide range of non-farming perspectives in their planning groups.

Finally, the Ionia planning committee did not participate in the implementation of the plan. A key to effective stakeholder processes is involvement in the implementation phase of development plans. At the time of our interviews, early in the summer, planning committee members informed us that they had not met for a few months. The last meeting was basically to fill them in on what had been happening with the project.

This situation may have arisen as a consequence of the state level task force hiring an outsider to serve as project coordinator and making him the liaison between the task force and the local committee. The coordinator's close ties to the state level committee were displayed in a number of field days he organized to communicate the initial findings of the project. Present at two of the field days I attended were University faculty and graduate students and representatives of MDA, CES, AES, and SCS. No producers, local or otherwise, were present. Yet, it was at these meetings that the participation of the local planning committee was lauded. One committee member said, "we're taken out and paraded around as needed" (LP 4).

There are two reasons why it is unfortunate that the planning committee has taken a passive role during the implementation phase. First, because the development process is dynamic, the needs may change. Active continuous participation by stakeholders would insure that new problems be addressed in a

manner that the group agrees is the best for all. Secondly, actively involving the local planning committee throughout the entirety of the project should make it easier to continue what was started when the university withdraws its people and its money.

CONCLUSION

Old methods of top down decision making or "Environmental Managerialism" as Redclift names it can not create sustainable plans. This is so, because each locale has certain unique characteristics. Thus, it will have it's own challenges and concerns about the environment, local economy, and community about which outsiders will either be unaware or may chose to ignore in order to promote their own development agendas. Truly sustainable plans must involve local people in all areas of decision making from the identification of local concerns to the implementation of the plan. Redclift called such a model "Collaborative Management."

The case study of Ionia, while demonstrating the tensions between outsiders' managerial goals and insiders' knowledge and the benefits of incorporating local knowledge in the planning stage of development processes, also illuminates some of the complications confronted in the implementation of collaborative management in our own society. The local population in Ionia has far more diverse interests than might be characteristic in a setting such as Redclift outlines. Thus, it is very difficult to organize a planning group in which all of the

diverse area interests are adequately represented. The final difficulty in implementing Redclift's model comes in the final stage of the Ionia demonstration project – the transfer of the results throughout the state. This is where the state level task force may fall back into conventional patterns of top down decision making – Managerialism as Redclift calls it. It would be easiest for the state task force to print generic pamphlets on the technical aspects of composting and the benefits accrued by individual Ionia producers who implemented this alternative system. Such an outcome would ignore both the needs and abilities of other communities to identify local problems and create their own alternative strategies.

The technical aspects of composting might be almost identical no matter where it is used (LP 7), the recommended length and width of a windrow, the temperature and CO_2 levels indicating the need to turn the windrows, how much and what kind of carbon to add. These things may not change, but the human response will vary. The technical components might be standardized but the impact on people can not be.

Therefore, in order for the demonstration project to reach its most ambitious goal of transferring what has been learned throughout the state, it is imperative that the methods through which their project developed be the first technique recommended for state-wide adoption. Only through a processes that involves those most affected by change and is sensitive to the local environmental, economic, and social concerns can truly sustainable development take place.

BIBLIOGRAPHY

BIBLIOGRAPHY

Allen, Patricia and Carolyn Sachs. 1993. "Sustainable Agriculture in the United States: Engagements, Silences, and Possibilities for Transformation. "*Food for the Future*, New York: John Wiley & Sons, Inc., p. 139-167.

Blaikie, Piers. 1994. "The Political Ecology of Sustainability." a draft summary paper prepared for the Political Ecology Workshop, April.

Bush, John et al. 1992. "Composting Animal Manure and Facility Design to Address Disposal and Environmental Problems." Manure Demonstration Grant Proposal submitted to the Manure Management Demonstration Project, September.

Connor, Larry et al. 1991. *Utilizing Michigan's Animal Manure Resources.* The Michigan Manure Management Task Force, September, p. 1-14.

Conway, G. 1985. "Agro-ecosystem analysis." *Agricultural Administration.* 20, 31-55.

Dixon, John and Louise Fallon. 1989. "The Concept of Sustainability: Origins, Extensions, and Usefulness for Policy." *Society and Natural Resources.* v. 2, pp. 73-84.

FD. 1994. personal interview. February.

Gale, Richard and Sheila Cordray. 1994. "Making Sense of Sustainability." *Rural Sociology.* 59 (2) pp. 311 -332.

House Bill 4054 as passed by the House Second analysis April 7, 1981.

Huron, Sanilac and Tuscola Cooperating Agencies and Projects. 1992. "Thumb Manure Management Demonstration Project." grant proposal submitted to the Manure Management Demonstration Project.

Ionia County Manure Management Planning Committee. 1992. "Composting Animal Manure to Address Disposal and Environmental Problems." Manure Demonstration Grant Pre-Proposal.

Keeney, Dennis. 1989. "Toward a Sustainable Agriculture: Need for clarification of concepts and terminology." *American Journal of Alternative Agriculture*. v.4: 3&4 p. 101-105.

Lockeretz, William. 1991. "Defining a sustainable future: basic issues in agriculture." in G. Johnson and J. Bonnen (eds.), *Social Science Agricultural Agendas and Strategies* (Part III). East Lnasing, MI: Michigan State University Press.

Loudon, Ted L and Robert D. von Bernuth. 1993. "Animal Manure Management Strategies for Michigan." Research Proposal to the USDA Cooperative State Research Service.

Michigan Agriculture Commission (MAC). 1992. "Generally Accepted Agricultural and Management Practices for Manure Management and Utilization."

Michigan Department of Agriculture (MDA). 1992. "Right to Farm Environmental Complaint Response Program."

Ottawa Soil and Water Conservation District. 1992. "Animal Manure Use Solutions For Ottawa County." grant proposal submitted to the Manure Management Demonstration Project.

Planning & Zoning Center. 1994. "Ionia County Plan for Planning." Draft.

Redclift, Michael. 1987. *Sustainable Development.* London: Methuen & Co.

Rynk, Robert. 1987. "Almost Mainstream? – A Progress Report on Dairy Manure Composting." Pre-edited Draft developed for the Third International Dairy Housing Conference, Sponsor: American Society of Agricultural Engineers.

Rynk, Robert, editor. 1992. *On-Farm Composting Handbook.* Ithaca, NY: Northeast Regional Agricultural Engineering Service.