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**Natural Resource Linkages to
Agricultural and Rural Development**

by
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There are many definitional problems inherent in this paper topic, indeed in the conference itself. Perhaps these difficulties with the vocabulary of development are precursors to more substantive problems of policy design and action. To avoid slipping into the mire myself, I will specify my own glossary.

1. Economic development -- these directed actions designed to alter economic circumstances of people. Success is measured in per capita incomes gross national or state product, market share, income share or some other monetary indicator of economic change.

2. Community development -- focused change where indicators of improvement include more than economic variables. Feelings of well-being among community members, however that community is defined, might involve a more responsive government, greater opportunity for political access, a sense of having some impact on community change, improved services, or improved economic circumstances.

3. Rural development -- community development in non-metropolitan areas designed to enhance the options for people living there.

4. Agricultural development -- community development resulting from changes within agriculture, defined to include all activities from production to retail sales. Community of interest is not limited to rural areas; "improvements" involve more than traditional economic variables.

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This paper focuses on the natural resource connection to development, emphasizing but not limited to the roles of natural resources in agriculture. Further, there is emphasis on policy -- those public actions which affect the rights and obligations of participants in the community of interest.

Roles of Natural Resources in Development

Natural resources, both renewable and non-renewable, generate value that can be the basis for development. They are the raw materials in products and services for which people are willing to pay. Some of those services may involve direct consumption of the resource (eg. fish or fuel wood) though most income-generating demand for natural resources is a derived demand through various products which generate utility. A forest has timber to be harvested and processed to produce human shelter. The housing industry is considered a key indicator of economic health in the US. Soil, water and nutrients are essential resource inputs in food production. The list of examples is endless.

The supply of a non-renewable natural resource essentially represents wealth that may be converted to a flow of income as demanded. Such resources as surface water and air are always flow resources generating value as they are "captured" flowing by.

Natural resources also have important value on site (10, p. 1-24). These on site services of natural resources are often over-looked in economic development policies designed to squeeze income from a resource stock. Policy questions in the natural resource connection to development involve more than the rate of conversion of stock to flow. Resources left intact generate direct services that contribute substantially to the economic health of the community. The lake and forest ecosystem of the North Central region, for example, represent long lists of services valued by people though not easily converted to monetary measure. These and other ecosystem are significant economic assets for the community, assets that may deteriorate and therefore depreciate in value in the absence of reinvestment (17).

Policy Setting

Various actions by governments at every level influence the form and flow of natural resource services. To the extent these services may be owned by individuals through ownership rights granted and reinforced by a public authority, private actions responding to perceived market conditions determine contribution of resources to rural and agricultural development. A farmer buys and sells land, drills for and pumps water, buys soil nutrients in response to perceived return to those expenditures in producing goods and services that can be sold. Land is the productive asset, requiring reinvestment to avoid deterioration. The business decision is how much reinvestment to avoid given that some land may be retired and other land purchased.

The governmental powers to tax, regulate, acquire and manage may be directed toward affecting natural resource use. Deliberate government actions will affect the types of services and good produced, their distribution, and rate of production. Any set of decisions, by government or entrepreneur, to invest in natural resources or convert stock to flow implies a tradeoff between current and future users of those resources. Actions by federal, state and local governments respond to demands or preferences of the voters and taxpayers involved. In some instances, public action is designed to ensure availability of a natural resource service that is not easily offered by a private resource owner. Various public programs encourage farmers to invest more in soil conservation than they might otherwise. Wilderness areas and wildlife habitat are directly produced by government. In other cases, government actions are designed to protect the rights of individuals and groups against over-use by a few. Land use zoning prohibits land use mixes that destroy certain land services. Government regulations limit fish catch and water polluting actions, both of which may deplete the common property resources of a fishery and the waste assimilative capacity of a flowing stream.

Some public actions that affect the economic value of natural resources are not designed to do so. Certain provisions of the income tax code may encourage land

depreciation, or depletion of ground water. Income support programs for farmers have often led to higher rates of soil erosion as an unintended by-product of food policy (13).

The Current Issues -- Natural Resources and Development

Within the general context suggested above, certain distinct though inter-related issues emerge. These issues involve how natural resources will affect agricultural and rural development, the rate at which stocks of resources are converted to income, policy instruments employed to influence both form and flow of resources in development, and the consequences for rural people.

1. Scarcity/Adequacy of Resources. The one consistent conclusion one can draw about the urgency or relevance of natural resource scarcity is that the experts disagree. I am unlikely to resolve that disagreement here. Virtually all resources are scarce, or course, in the sense that there are absolute limits. There is also the important distinction between physical and economic supplies, the latter reflecting willingness to offer quantities of a resource service at a range of prices. Adequacy of any resource input is a function of what buyers are willing to pay for that resource compared with the price expectations of the supplier. A situation of relative scarcity exists when the price of the resource in question rises faster than prices of other goods and services, assuming an open and reasonably responsive market economy. In their pathbreaking 1962 treatise on natural resource scarcity, Barnett and Morse concluded that only in the case of forestry, have real prices of extractive natural resource based commodities increased relative to real prices of non-extractive commodities (1). They had also examined data for agriculture, minerals, and fisheries.

There are various economic responses to evidence of resource scarcity that tend to mitigate the impact. Producers substitute renewable or manufactured inputs for the resource in question. Apparent shortage of fossil fuels has led to production of alternative renewable sources of energy -- gasahol, methane, solar collectors. New production, extraction, or recycling technologies may extend the physical supplies. A

primary attraction of conservation tillage is that it requires less fossil fuel, making it a cheaper technology for some crops on some soils. It is the rising relative price of the resource that creates the incentive for adjustment.

Doering has compared relative prices of selected farm inputs to help analyze scarcity of the most energy-intensive inputs. Using 1950 prices as the base, he observed price changes that encouraged substitution of fertilizers, gasoline, and farm machinery for both land and labor during the 50's and 60's. That situation changed in the 70's as price of energy increased dramatically, encouraging farmers to use more labor and less energy. But even through 1980, price paid for gasoline has increased less than price for land, labor, and machinery (5). Contrary evidence of increasing scarcity of selected non-renewable minerals was observed by Slade (19).

There is little evidence of impending scarcity to support aggressive efforts to preserve either the quantity or quality of farm land. Even though land continues to exit agriculture for more profitable enterprises and erosion continues to wash productivity downstream, cheaper non-land substitutes have facilitated increasing levels of food and fiber production (4).

The "experts" in this matter of resource scarcity have engaged in extended debate on the "so what" implications of data on historic and projected patterns of resource use. After a well documented and thorough review of projected resource supplies and demands, Landsberg concluded, "There is no reason to expect any widespread scarcity that would raise the real cost of resources enough to hamper continued economic growth in the United States." (12, p. 236) In 1977 President Carter directed his Council on Environmental Quality to prepare an assessment of future population, resources and environment and offer policy conclusions. The "Global 2000" report painted a bleak picture of resource scarcity in the next two decades, concentrated mostly in least developed countries, but with worldwide implications. It predicted that oil and gas, fixed in physical supply, would flow to those nations best able to pay, causing severe shortage

and political instability in some areas. Population would approach 30 billion by 2100, the estimated total carrying capacity of the entire globe. Forests would be depleted as demand exceeds replacement. Agricultural soils and the environment in general would deteriorate to threatening levels through continuing inattention (21).

Lester Brown of the Worldwatch Institute has presented similarly pessimistic predictions of the human race in the 21st century. He has focused primarily on growing scarcity of food producing nutrients and water, with the subsequent narrowing of the balance between food supply and demand (3). He suggests the kinds of technical and institutional changes necessary to accommodate the future (2).

The central feature of the "no sweat" position on future natural resource scarcity is the resource market as a mechanism for anticipating and adjusting to the early signals of shortage. In their counter-document "Global 2000 Revised" Herman Kahn and Julian Simon predict declining scarcity, and a future world "...less crowded, less polluted, more stable ecologically and less vulnerable to resource supply disruption than the world we live in now." (9) The mitigation tendencies described by Barnett and Morse are the basic underpinning of the optimists point of view.

The dramatically different conclusions of the two groups of experts reviewing basically the same data result partly from differing assumptions about population growth, available stocks, technology and responsiveness of existing economic and political institutions if allowed to function without government interference. These are questions of science and uncertainty about which scholars often differ. But more fundamentally, and most relevant for the theme of this conference, the experts have deep and profound disagreement on the issue of risk-bearing. Kahn and Simon, writing for the politically conservative Heritage Foundation, have argued that individuals as consumers, producers and citizens should have the right to make their own decisions on bearing the risk of future food shortage. The market provides an inter-temporal allocator, reflecting pending scarcity and giving people something to do about it. Brown and the staff of CEQ

during the Carter years are examples of those who feel that risks of scarcity are too high to be left with the market. They argue that aggressive public policies and action must intercede in private transactions or society will work itself into an irreversible "dead zone", one rational decision after another.

Since policy actions taken today to conserve natural resources for future users may retain inefficient technology in the interest of protecting that technology for the future, conservation costs people. Policies to force or encourage soil conservation may discourage further substitution of capital for land, thus forcing today's farmers and consumers may need that soil. Simon would argue that government agencies have no particular advantage in predicting future needs for resources. Buyers and users of the resource are better equipped and have a far stronger incentive to avoid scarcity by making rational substitutions when appropriate. The counter-arguments, and one which I find compelling, is that the social consequence of underestimating future demands for non-renewable resources would be far more severe than the consequence of overestimating. Society has a collective stake in the decision that is far greater than the sum of individual impacts by those making market choices. Government's role is to be more cautious than individuals might be. "Recognition of the potential for substitution for exhaustible resources is not the same as certain knowledge of the availability of such substitutes. In the presence of uncertainty, prudence requires explicit consideration of the consequences of exhaustion." (20, p. 227)

What is the relevance of all this for the linkage between natural resources and rural and agricultural development? Agriculture, of which food production is a prominent part, is still the primary source of livelihood in non-metropolitan America. The rate of depletion of non-renewables -- water, land and minerals -- will have important consequences on the location and structure of agriculture and therefore the vitality of rural areas. Soil conservation, however accomplished, is a prudent response to uncertainty. We cannot afford the possibility of too little soil for future production

needs. Further substitutions of capital for land should be encouraged so long as pending scarcity of phosphate, potash, fresh water and other soil substitutes is accurately reflected in prices. Masking the declining stocks with un-realistic taxes and income subsidies for farmers would be unfortunate, at best. Continued development of production, processing and distribution technologies is essential to facilitate further substitution of renewables for non-renewables, or at least more plentiful resources for those that are scarce.

Careful use of natural resources in agriculture and other production activities is important, almost too important to be left entirely with the farmers and other business people making the crucial decisions. In my judgment, the farmer's right to permit soil erosion is ripe for recall. The short run costs in sedimentation and pollution are important; long term loss of productivity even more so. We have relied too long on the voluntary "money on the stump" approach to soil conservation policy. Further, water allocation based on "first come, first served" in the west, riparian location in the east, and "reasonable use" for ground water will not provide adequate signals of imminent depletion. If it weren't for rising energy costs of pumping ground water, farmers in the high plains of Nebraska might have missed the fact that the Ogallala aquifer is being rapidly depleted.

Soil and other resource conservation efforts by government must be concentrated on those areas where the present and future economic consequence of conservation is greatest. This will have long-term effect of further concentrating less productive resources.

2. Regional Economic Conflict and Natural Resources. Natural resources are key to regional (multi-state) economic differences that determine the general character as well as competitive advantage of these regions. Regional development policies are being articulated (if not implemented) based in large part on natural resource endowment. Garreau's perceptive "nine nations" are largely resource defined (7). Obvious examples of

areas with strong natural resource identities are the timber producing region of the Pacific Northwest, the Great Lakes region and/or the Grain Belt, the Parch Belt of the southwest characterized by lots of sunshine but little water and of course the northeast frost belt. Economic opportunities are largely a function of these natural resource differences and seem to influence the social environment in these areas as well, according to Garreau.

The 1974 and 1978 energy "crises" further highlighted resource differences between east and west, north and south. Inter-regional conflicts were not always good natured, as energy rich areas blatantly seduced business, people and other economic resources migrate south and west to avoid "freezing in the dark." These energy-rich areas had the added advantage of low state and local tax rates since coal and oil production generates revenue for public services. Montana has sought to erect a formidable tax barrier to shipments, but to reflect the importance of this non-renewable resource to the state's economic future. Mid western leaders coined the slogan "soil for oil" to characterize the bargaining terms for development. The 1970 Clean Air Act has sharpened differences between high sulfur eastern coal and the cleaner burning western variety. Subsequent amendments to the Clean Air Act have reduced the western advantage by permitting coal users to install scrubbers that reduce sulfur dioxide emissions, rather than achieve a uniform standard. This was a deliberate action by Congress to improve things for the eastern and mid western states (11, p. 36-38).

The 1981-83 economic recession (or depression, depending on your location) contributed to inter-regional differences as many people relocated to seek better opportunities outside of the older industrial cities of the North Central region. Eventually, however, the recession even caught up with "boom regions" as energy demands subsided.

One must be cautious not to make more of these obvious regional differences in natural resource endowment than they deserve. The conflicts may be more form than substance. They are certainly not new (18). There are several implications for this conference:

a) Regional identity is important, particularly in a highly specialized developed economy such as that in the US. Even the North Central Region, an artifact of convenience for the conduct of the academic enterprise, has a certain amount of natural resource coherence. Our regional identity is agriculture and forestry with all of their ancillary activities. There are other things going on here, of course, but this is an agricultural/forestry region. Those of us who consider ourselves resource economists or some other sub-species of the economics profession have had to acknowledge this reality. There is strength in comparative advantage, and our best strategy is to acknowledge regional identity and make the most of it.

b) There are many linkages between agriculture and natural resources. Resources are both inputs to and outputs from agriculture; availability and quality of natural resources affect the structure of agriculture throughout the region (14). In some cases agriculture destroys resource quality limiting use for non-agricultural purposes. We in the academic field should make more of our "regionalness" by helping to define the substance of regional resource/agricultural linkages, both positive and negative. The economic future of this area depends on a clear understanding of those linkages. We have focused most of our effort at the state level and have not adequately pursued regional interactions on natural resource policies that affect our economic future. Land and water policies, for example, are often inconsistent and counterproductive across state lines. Environmental standards differ as well. Complete coherence is neither advisable nor possible -- state differences are important, regional government is ill-advised. But greater exploitation of our regional natural resource and economic character through research and education would be an important investment in our economic future.

c) Elected officials of the region, particularly the Governors, should establish more formal contact on natural resource matters. A 1977 Midwest Governors Conference identified water development, energy conservation, energy development and soil conservation as most important policy needs -- all are natural resource issues (17, p. 112). There has been little direct group action on these, but the collective handwringing was useful. A Great Lakes Council of Governors has recently been organized, primarily to respond to a specific inter-regional natural resource conflict -- alleged willingness of the Parch Belt to buy Great Lakes water. It takes conflict to generate action. In fact, this perceived threat from the "outside" has done more to crystallize cooperation among the Great Lakes states than any internal advantage of more positive nature. A charter has been drafted to establish limits on state discretion on use or transfer of Great Lakes water and procedures by which any major action will be reviewed by other states.

In 1984, and perhaps for a long period into the future, the Great Lakes/Grain Belt states face economic crises within agriculture. While the source of the problem is more difficult to define than in the case of the Parch Belt raids, the importance of region-wide cooperation is just as clear.

3. Natural Resources and State Level Economic Development Policy. Recent economic hard times in the more industrial states of the North Central Region have called attention to the natural resource endowment within those states. Many, both in and out of this region, are beginning to formulate deliberate economic development policies with emphasis on natural resource services and commodities. Nothdurft claims that states have been for more innovative than the federal government in investing in their natural resource stock. "As they search for workable formulas for economic renewal or for coping with mature economies, many states are re-discovering the economic importance of their resource based industries agriculture, forestry, recreation and commercial fishing (17, p.8). "A survey of the nation's governors...in 1983...found

that of seventeen crucial public policy issues they face in the future, the state executives ranked natural resources number one." (17, p. 113) The various policy instruments available to states are being directed toward encouraging private investment in natural resource industries in search of sustained economic development. Impact is not limited to primary resource commodities, but necessarily includes the network of input suppliers and output processors as states seek to capture a greater portion of value added to the commodity before it is exported to other states, regions or nations.

Several states, including Maine, California, Massachusetts, Texas, Alaska, Montana, North Carolina, and Michigan have active economic development programs based on natural resources. Michigan is a convenient example. Brief discussion may be useful.

Michigan, home of the US auto industry, has been particularly hard hit by the recent recession. Through the mid 70's, annual investment in industrial plant and equipment average \$1.3 billion; exports were \$3.5 billion per year, highest in the nation. For various reasons that will not be detailed here, that situation has changed dramatically in the 80's. Unemployment has risen to and remained highest in the nation with little likelihood that all or even most of the auto workers can return to work in the same occupation. There are fewer jobs in industry -- some components of industry have moved to warmer less expensive states and machines have replaced many workers in the plants that have remained (22). In 1982, the Governor had to deal first with a serious cash flow problem that had left the state close to non-compliance with balanced budget provisions of the State Constitution, and nearly bankrupt in the full sense of the term. He dealt with these problems in a direct if politically risky way. He engineered a tax increase. To his credit, however, the Governor looked beyond these short term needs and began formulating an economic development strategy. Goals were to put people to work, but more fundamentally to reduce vulnerability of the economy by broadening its base. A "target industry" concept was developed, to focus energy and policy attention on those sectors showed particular promise. Two of the three selected are natural resource

based -- agricultural processing and forest products. The third is production of auto parts. Agriculture and forestry are and have been mainstays of the Michigan economy. The water, soil and other resources favor farm production, though much of the food processing has been accomplished elsewhere. The northern 2/3 of the state is heavily forested, including 4 million acres of state-owned forests. These lands also serve as the playground for residents of southern Michigan and other states to the south. Tourism is not a designated "target industry", though its close lineage to forest land has helped focus attention on its potential. A consultant's study estimated the 50,000 new jobs could be created within the state the state's forest products industry, added to the current 63,000, based largely on under used wood supply. While validity of these estimates may be questioned (and has been), the important point for this conference is that this natural resource sector is a cornerstone of economic development policy in what has basically been an urban industrial state. The Michigan Department of Commerce has taken the lead in aggressively recruiting new forest products firms, seeking national and international markets for Michigan products, helping existing firms improve the business climate (with particular attention to workers compensation) and encouraging product research (8).

There is also considerable effort to encourage tourism to take advantage of various on site services available from the forest environment and the Great Lakes coastlines. There are additional joint product possibilities between tourism and commercial agriculture. On-farm tourist homes apparently have potential. Fruit growers in southwest Michigan have even tried a "rent a tree" program for frustrated urban orchardists from Chicago. The annual Farm and Natural Resources Week at Michigan State University in March 1985 has as its theme "Agriculture and Tourism: Partners in Progress." This is fairly revolutionary stuff for a college of agriculture.

The Lands Division of the Michigan Department of Natural Resources has conducted several public auctions of mineral rights leases for oil and gas reserves located under public land. Expressed purpose is to encourage economic development by making these rights available to energy developers. Geological Survey Division of the same agency is considering ways to get on this economic development bandwagon in state policy by offering exploration and development leases on various metallic and non-metallic minerals. There is tentative exploration of diamond deposits.

Michigan State University, as the state's land grant institution has been actively involved in the target industry efforts of both food processing and forest products. Our role has been to help sort out fact from "hype", that is to avoid full reliance on the "positive thinking" approach to economic development. There have been various task forces to clarify development problems, identify development options that are feasible, analyze policy alternatives. Agricultural and forestry specialists from Michigan State have had leadership roles in most of these. The food processing group, for example, has carefully analyzed agricultural sub-sectors to identify those for which production and marketing conditions favor increased processing in Michigan. Various state regulations that might inhibit expansion of this industry have also been identified. (6).

A large element in any economic development effort is a sort of upbeat, positive, promotional attitude. Economists have long understood that investment decisions depend on one's view of the future. If private investors in forestry and agriculture feel good about Michigan's economic future, they will invest. If they don't they won't. Declared intention to encourage business is one good indicator of a positive future. But the state should not sacrifice all of its social and environmental gains of the past 50 years to cater to cater to business investors, or much of the attractiveness of living and working in the state will be lost. And a state agency can't magically convert an economic failure into a viable enterprise just through positive thinking or, more importantly, by spending public dollars to hide inherent risk. There are unfortunate examples of these miscalculations in

Michigan and in other states. Interest groups that have fought hard and long for certain environmental and workplace safeguards are not likely to support massive erosion of those attributes.

New York is one of several other states to recently explore economic development possibilities with its agriculture and forestry sectors. New York has added aquatic products -- another natural resource sector -- to its list of target industries. The mechanism there has been a Governor's Conference, held on November 29, 1984, to publicly highlight economic development potential in the various components of these sectors. University scientists and policy specialists have been a key resource in sorting out the real possibilities (16).

4. Natural Resources, Development and Quality of Rural Life. This final issue in the linkages between natural resources and development is really a class of inter-related issues. Included are various impacts on the people and revenues in the arena of natural resource based rural development, the rural areas themselves.

a) Individual vs. Collective Rights. Economic development strategies imply centralized decisions on such matters as the pace and pattern by which stocks of natural resources are converted to income, and farm land is converted to non-farm use. Most natural resources are tangible, fixed in location, and linked to land. Most of the rights to land accrue to the owner fee. Distribution of land rights between owner and a government is a function of various policies undertaken "in the public interest." Public regulation of land use, in the North Central Region at least, has historically been a local government function. Any attempt to shift that authority upward to the state or national level, even to accomplish widely supported economic development goals, will be resisted both by land owners and local governments. I do not suggest that state or national actions are inappropriate -- I believe that many such actions are appropriate -- but only that there will be resistance. On the matter of farm land scarcity, for example, efforts to require a farmer to stay in farming or even to install soil conserving measure

can be a real economic, social and philosophical burden for the people so regulated. Any attempt to force protection of resource stock shifts income potential from the present to the future. That may be wise on the whole, but can be painful for the few asked to forego present income. They are undeveloped in the name of development. Mandatory soil conservation measures could be a severe strain on those farmers unfortunate enough to be farming marginal, erosive lands.

The point for this conference is that economic development policies designed to enhance the public good through "better" use of natural resources could impose hardship on some rural people. Those impacts must be part of the policy choice. The instruments of policy -- tax incentives or changes, regulations, acquisition and payment of market value -- imply very different impacts on rural resource owners.

b) Resource Contamination. Ground water contamination is an issue of major proportion in the more industrial states of the North Central Region. The causes include improper disposal of industrial waste, corroding underground storage tanks for gasoline, agricultural waste and run-off. A valuable service available from water and land resources is waste assimilation. Most wastes will decompose in land and water, given sufficient time. Our whole solid waste management system, so crucial to continued economic development, depends on the natural chemistry of landfills. There are biological limits that once exceeded can create real problems that offset any positive impact of the development involved. Ground water contamination is important enough to this region to warrant highest priority in research and education. We need better understanding of causes and cures, both technical and institutional.

There are various risks and uncertainties associated with farm production technologies that have led some scientists to recommend converting to "regenerative" agricultural systems. The issues concern the extent to which chemical fertilizers and pesticides are relied upon and impacts of these chemicals on food safety. The issue also involves who should or may bear risks associated with different production technologies.

Strong advocates for organic or regenerative agriculture argue that long term risks of high-tech agriculture are so great that government should undertake more restrictive policies on chemical use or at least encourage research into less chemical-dependent technologies. Those supporting contemporary energy and chemical intensive technologies do not apparently worry about alleged risks, and would resist efforts by government to absorb those risks through regulation (15).

Contamination of rural resources in an important resource dimension of agricultural, rural, and community development. Since natural resources generally imply absence of people, rural areas may well feel most of these unfortunate side effects of resource oriented economic development.

The Research and Education Agenda

Land grant universities have a crucial role in formulation and implementation of economic development policy at all levels. As agriculture and natural resources become more prominent foci for development efforts, the land grant role becomes even more important. While we have had some successes, there is far more potential than progress, in my judgment.

In general, extension and research efforts in economic development seem to fit into the following categories:

1. Sectoral. Much of the experiment station research of recent decades has sought to increase productivity of agriculture and forestry. To the extent that resource efficiencies release physical and human resources for other enterprises, economic development is accomplished. The record in agricultural research is impressive, and will likely continue in fields of bio-technology. There is still the challenge of converting laboratory and production results into policy-relevant information. Target industry efforts in several states seek to define useful options by sector -- agriculture, forestry, mining, fisheries. The educators role is to package sectoral analysis results in doses that can be used in policy development by leaders in business, industry, and government.

2. General Economic Training. Neither Michigan nor Iowa nor any other state exists in economic isolation. Better understanding of macro-economic patterns in the world economy and relationships among parts of the US economy is necessary for effective development policy. In general this is an applied research/extension task, to convert the results of all those Ph.D. theses and textbooks into material that may be understood by decision makers. We need content in the economics and politics development. A state official participating in our in-service training program for Michigan extension field staff in 1984 acknowledged that his interest in development stopped at the state line. His job was to help Michigan and if that occurred at Indiana's expense, that's okay. It is essential to have aggressive positive thinkers in state policy, but that does not account for economic realities. It is doubtful that promotional efforts by any state will increase the size of the economic pie. They will simply shift the pieces around. We at least need to understand those economic realities in a faculty rigorous fashion.

3. Locality Specific. Much of the extension effort in this area entails helping a community, a sub state region or a state examine its own comparative advantage. There is plenty of analysis in defining the services and/or commodities which show real promise for a particular place. These efforts include community development efforts to help a central city or a constrained neighborhood of a city brighten its economic future. The research and education efforts are narrowly defined, limited in scope, by design. They are case studies -- perfectly acceptable problem oriented programs. They tend to be expensive, however, because of time and effort focused on a place, with relatively little application to other localities.

4. Industry or Firm Specific. Since universities are divided into departments and many have a clear commodity orientation, research and education affecting economic development is similarly defined. We have programs in forestry, poultry, recreation,

and agri-business. Each has its political power cluster, economics, biology, and policy setting. Other efforts may focus on the needs of small business, or the hotel industry, or commercial fishing.

None of the above categories is more defensible or relevant than any other. But effective work in this area requires an understanding of the university. Economic, rural and agricultural development comes in many forms.

I offer the following final recommendation:

The land grant university as an institution should marshal its resources to effectively contribute to economic development policy formulation and implementation at the state and multi-state level. The whole is far greater than the sum of its parts in this case. As departments and colleges, we handle the above pieces well, but have done little to deal comprehensively with policy needs. Land grants exist to diagnose, analyze, and help deal with the most pressing issues of the respective states. There is no more pressing issue in the North Central Region now, I believe, than its long-term economic recovery and growth. The University President (or appropriate vice president) should be the catalyst bringing relevant and available social and physical scientists together in a productive format. The present, past, and future may be investigated, feasible options considered, key people involved, and recommendations offered. I know that academicians are not easily directed or pushed to do things. Academic freedom is crucial to me and others in the university. But I feel there is a willingness to help, and plenty of unexploited energy. It just takes leadership. To do less is to miss the true strength of our land grant system. Perhaps this group today should specify and communicate this challenge to the 10 or 12 university presidents of the North Central Region.

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