

Economic Impact of Michigan's State Parks: A Case Study of Rifle River Recreation Area

Report # CS-2007-02

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Shaping the Future from the Ground Up



**Economic Impact of Michigan's State Parks
A Case Study of Ogemaw County**

Report #2

**Series on Economic Impact and Valuation Studies
in Natural Resources and Conservation**

**Hannah Professor Research Program
Land Policy Institute**



**LAND POLICY
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Economic Impact of Michigan’s State Parks

A Case Study of Ogemaw County

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Executive Summary

Natural and environmental resources, or “green assets,” provide a number of benefits to society ranging from recreational opportunities, natural scenery (aesthetic value), air/water recharge capacity, environmental quality and quality of life benefits. These facilitate local economic growth and development. Despite strong evidence of links between green infrastructure and quality of life, the connection to economic activity and prosperity is not often well understood. Many questions still arise with regard to the value and role of green assets and the ability of local communities to leverage their green infrastructure for economic prosperity. Understanding the link between green assets and economic activity will be crucial to local communities and regional organizations in defining sustainable future sources of economic growth and prosperity.

In increasingly competitive global, regional and local economies, stiff economic competition has encouraged many to pursue new economic strategies for local comparative advantage. Green infrastructure development and the attraction of knowledge-based workers are among the emerging sources of new comparative advantage and competitiveness in the “New Economy.” Understanding the crucial links between green infrastructure and its contribution to the local economy is a first step in understanding the value of local green assets and in leveraging them to bring economic growth.

This report is the second in a series published by the Hannah Professor Research Program of the Land Policy Institute (LPI) on *Economic Impact and Valuation Studies in Natural Resources and Conservation*. This particular report focuses on the economic impact of Rifle River Recreational Area (RRRA) in Ogemaw County, Michigan, as additional evidence of the economic importance of green assets. RRRA is a wilderness area located in the AuSable State Forest. It provides recreational opportunities to an average of 38,900 day-time users and generates 15,273 “camper group nights” per year. The camp is operated with an annual payroll of \$263,243 and maintenance expenses of \$71,591.

Economic impact can be defined as the total income, jobs, tax, and value-added¹ impacts to local and regional economies as a result of changes in investment or spending patterns in the local, or regional, economic area. Economic impact studies can provide relevant information of interest to local communities, regional institutions, and development planners. The total annual economic impact of RRRA is estimated at

¹ Value-added can be literally defined as “the difference between the overall cost of a manufacturing or marketing process and the final value of the goods.” Source: <http://www.allwords.com/word-added%20value.html>. Value added in general can mean the additional economic value (in terms of additional after cost value) created as a result of a given economic activity.

\$1,788,095. Moreover, we estimate that RRRA creates 37 jobs and an additional \$933,003 in total value-added impacts per year. Considering the fact that the park is only 4,450 acres in size, the estimated annual economic impacts are quite significant. This result provides additional evidence that local green assets could be sources of significant local comparative advantage, and if properly leveraged, could potentially stimulate local economic growth.

As Michigan and many regional organizations and local governments strive to restructure the economy and facilitate prosperity, the role of green assets and other local assets could be significant. As much as keeping the balance between green infrastructure utilization and conservation is important, so is the ability to sustainably generate economic value from local green assets. This report aims to bridge the information gap on the green infrastructure and economic impact linkages and encourages broader discussion on identifying key local resources to help Michigan grow in a sustainable and smart way.

Economic Impact of Michigan's State Parks A Case Study of Ogemaw County

1.0 Introduction

As components of “green infrastructure,” natural and environmental resources provide a wide array of amenity services benefits to society (Kline and Wichelns 1996, Platinga and Miller 2001, Irwin and Bockstael 2001). They also determine population and income growth (Deller et al. 2001, Duffy-Deno 1998) and generate direct and indirect economic impacts through visitors spending in the local economy (Stynes, et al. 2000, Nelson and Stynes 2003). Despite the existence of substantial evidence on the quality of life importance of green infrastructure, the connections between natural and environmental resources and economic activity is often not well understood. Many questions arise in this regard from different corners:

- (1) does the protection of natural resources translate into economic opportunities?
- (2) how can natural resources be in the mix of strategies to bring about local economic prosperity?
- (3) what does local green infrastructure add to quality of life?
- (4) in the face of economic challenges in Michigan, how can we leverage our local green assets to foster sustainable economic growth?

The answers to these questions are critical and relevant in defining future economic growth strategies for Michigan communities.

Green infrastructure assets, such as parks, wetlands, sand dunes, forests, water bodies, trails, and other natural areas have been shown to have substantial economic value. With changing global and regional economic structure and with increasing specialization in service-based industries, the economic vitality and role of green assets in creating new economic opportunities has become relevant. To many, the question has increasingly become how can one leverage local green resources, assets and services to gain a comparative advantage? Identifying crucial local green assets and investigating their contribution to the local economy is a key first step in addressing this question.

This report is one in a series published by the Hannah Professor Research Program of the Land Policy Institute on *Economic Impact and Valuation Studies in Natural Resources and Conservation*. The main goal of this particular study is to provide some evidence on the economic impact of green infrastructure, particularly a state park, on county economic activity. The study aims to estimate the economic impact of Rifle River Recreational Area (RRRA) on the Ogemaw County economy.

Economic impact is broadly defined as the total income, job creation, tax revenue, and value-added impacts to local or regional economies as a result of changes in investment or spending in the same local or regional economy. Economic impact analysis, therefore, focuses on “the assessment of the change in the overall economic activity as a result of some change in one or several economic activities” (IMPLAN Pro

V.2.0 2004). In the context of the RRRRA economic impact is defined as the total job creation, income, and value added impacts of annual RRRRA visitors' spending in Ogemaw County.

To the extent that green infrastructure affects tax collections, income and job creation, and value-added growth, it is relevant to local citizens, local governments, and policy makers. Information on such interactions can support sound policies to leverage green assets for economic opportunities.

This study can add value in many ways:

- (1) it can inform on links between green assets and economic activities in a measurable way;
- (2) it can potentially inform decision makers about the level of contribution of green infrastructure to local economies; and
- (3) it can highlight the importance of bringing green assets into the mix of strategies to gain local comparative advantage as the overall national and regional economies become more competitive and strategic.

2.0 Economic Impact of Green infrastructure in Michigan

Previous studies that focused on measuring the economic impact of natural resources in Michigan provide evidence on linkages between green infrastructure and economic outcomes. Michigan is well-endowed with natural and environmental resources and has significant natural resource based economic activities. Michigan has 3,288 miles of Great Lakes shoreline, 38,000 square miles of Great Lakes water, 11,000 inland lakes, 36,000 miles of rivers and streams, 75,000 acres of sand dunes, and 5.5 million acres of wetlands (Nelson and Stynes 2003). Michigan also has a total of 19.3 million acres in forested lands of which 38 percent are publicly owned (Hansen and Brand 2006).

Michigan ranks 3rd in the nation in licensed hunters (over 750,000), with a \$1.3 billion annual contribution to the economy. The state also ranks 8th in number of anglers, with a \$2 billion economic contribution. The state ranks 1st in the number of registered boats and snowmobiles, with an estimated \$2 billion economic contribution (MDNR 2007).

In 2000, Michigan had 89 million "travel party nights" with \$8.8 billion in tourism spending, creating 209,000 jobs, \$4.3 billion in personal incomes as wage and salaries, and \$6.9 billion in value-added. This represented 2% of the state economy and 4% of total jobs (Stynes 2000). In 2000-2001, skiers and snowboarders spent \$146 million on trips to ski areas through 2.2 million skier visits, generating \$63.7 million in ski revenue, \$41.3 million in visit expenditures, and \$41.4 million in tourism related spending. This created \$54 million in direct personal income and 3,900 jobs (Stynes and Sun 2001).

At the local level, the economic impact of green infrastructure based activities are also substantial. For instance, in 2002, total tourism spending in Washtenaw County was

estimated at \$352 million. The direct economic impact of this spending was \$111 million in wages and about 5,700 jobs (Stynes 2003). Similarly, Pictured Rocks National Lakeshore hosted 421,000 recreational visits in 2001, spending \$14.8 million. The total estimated economic impact of visitor spending was \$12 million in sales, \$4.6 million in personal income, \$7.4 million in direct value-added, and 426 jobs (Stynes and Sun 2003).

These studies have investigated the economic value of the services from different types of green assets. The estimated income, employment and value added impacts are quite substantial and clearly inform on the link in Michigan between green infrastructure and economic impacts. At the local or regional level, these studies provide information on the value of green infrastructure in providing local economic opportunities. This becomes particularly relevant in communities and regions in transition from “old” to “new” economies.

3.0 Profile of Ogemaw County and Rifle River Recreation Area (RRRA)

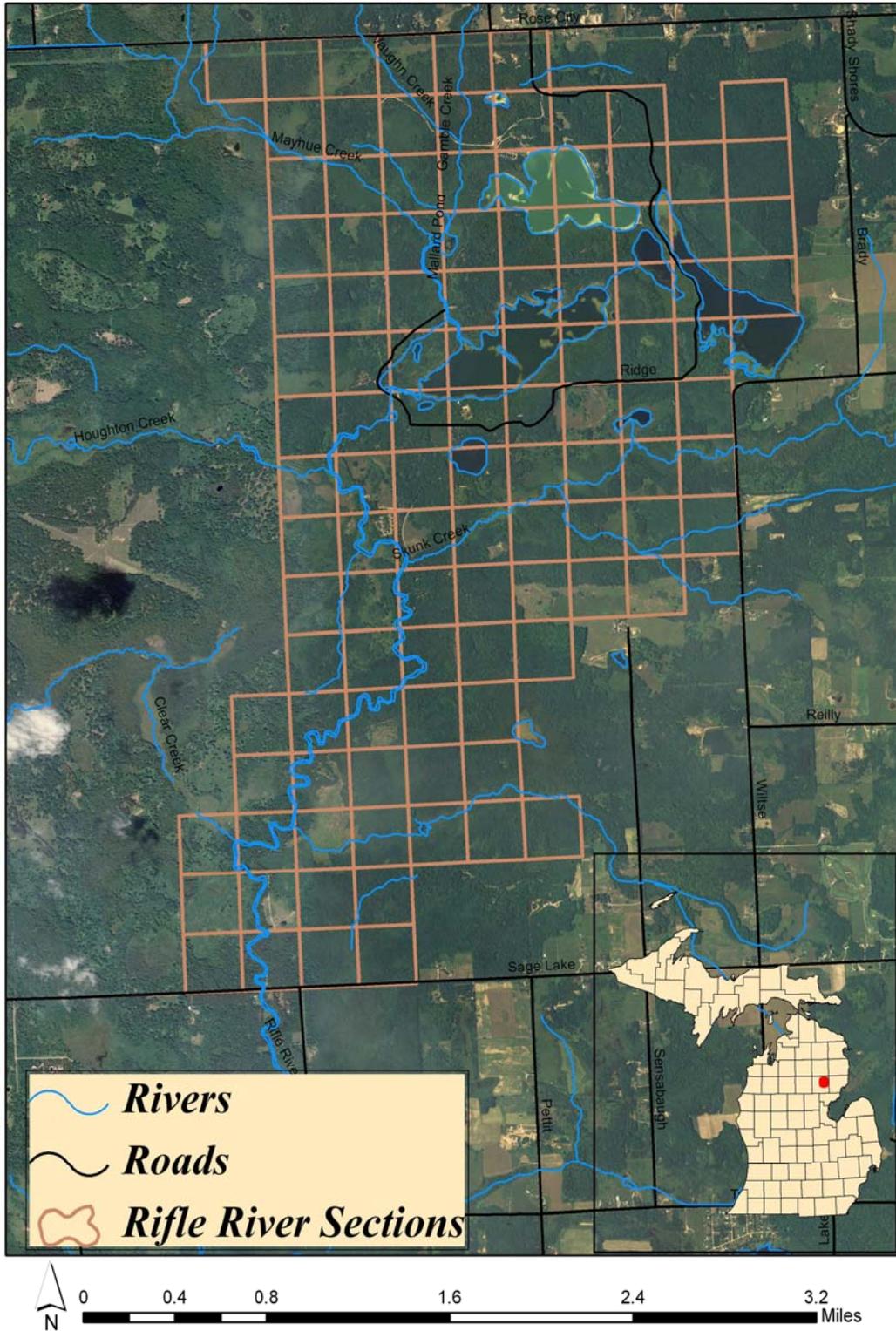
The Rifle River Recreation Area is a wilderness area located within the AuSable State Forest. It provides recreational opportunities to visitors. Before 1945, RRRA was a private hunting and fishing retreat owned by the late H.M. Jewett, a pioneer auto manufacturer (MDNR 2007). In 1945 it was purchased by the Department of Conservation and was renamed Rifle River Area. In 1963, the Parks Division acquired the area now named Rifle River Recreation Area (MDNR 2007).

RRRA is located in the northeastern part of the lower peninsula of Michigan in Ogemaw County. It has an approximate area of 4,450 acres. In terms of visitors, it accommodates 15,273 camper party group nights (camper nights), for an estimated 72,000 campers per year. The camp also accommodates an estimated 10,824 user group party days (day visits) per year. There are an estimated 38,900 day users of the camp. The annual employee payroll for the camp is estimated at \$263,243 and the annual maintenance expenses are \$71,591. Figure 3.1 shows the location of RRRA in Michigan.

Ogemaw County has a population of 21,645 and a population density per square mile of 38.36 (2000 Census of Population). The median household income of the County, based on 2000 Census estimates, is \$30,474. This falls short of the national average for the same period, estimated at \$41,994. The economic profile of the County by sectoral activity is summarized in Table 3.1.

In terms of the major sources of employment opportunities in the County by industrial sector, manufacturing, retail trade, and healthcare and social assistance industries provide the largest share of employment opportunities for 1,040, 1,287, and 1,101 workers, respectively. The accommodation and food services industry, which is closely related with tourism activities, also provides a significant employment opportunity in the county, employing 684 workers. Table 3.1 summarizes additional information by sector for jobs, payroll and trade, by sector.

Figure 3.1 Rifle River Recreation Area.



Source: Prepared by the Hannah Professor Research Program of the Land Policy Institute.

Table 3.1. Economic Profile of Ogemaw County.

Industry	Number of Establishments	Number of Employees	Annual Payroll (\$1,000)	Shipments/Sales/ Receipts
Manufacturing	34	1,040	\$31,182	\$101,540
Wholesale trade	14	224	\$7,193	\$74,957
Retail trade	135	1,287	\$23,702	\$316,402
Information	7	73	\$2,176	Not-reported
Real estate and rental and leasing	25	91	\$1,891	\$9,797
Professional, scientific and technical services	29	119	\$2,973	\$7,108
Administrative support, waste management and remediation service	16	72	\$2,306	\$4,415
Health care and social assistance	62	1,101	\$28,678	\$71,919
Arts, entertainment and recreation	12	51	\$975	\$3,482
Accommodation and food services	62	684	\$7,331	\$30,188
Other services (except public administration)	42	156	\$2,707	\$9,777

Source: Ogemaw County, Michigan Business Data; available at <http://www.city-data.com/business2/econ-Ogemaw-County-MI.html>.

4.0 Methodology and Data

To estimate the economic impact of RRRR on the economy of Ogemaw County, park visitor spending data was collected and the economic impact of such spending on the local economy was estimated. The regional economic impacts of RRRR is determined using Stynes (1998) estimated visitor spending profiles created using the 1996/1997 Michigan State Park (MSP) visitor survey, 2005/2006 RRRR user and operations budget data, as well as income spending profiles and a regional economic model of Ogemaw County estimated using IMPLAN Pro 2.0 software. Stynes (1998) calculated spending profiles for several user types throughout the four major regions of Michigan (Upper Peninsula, Northern Lower Peninsula (NLP), and the eastern/western Lower Peninsula). These spending profiles were estimated on a *party day basis* (all spending for a user group per day) and then multiplied by the number of RRRR camper party nights and day use party visits to estimate total visitor spending. Total visitor spending is then applied in an IMPLAN generated input-output model of the Ogemaw County economy to estimate secondary effects and estimate the amount of income and

jobs associated with visitor spending. Because the Stynes (1998) study used dollar values from 1997, all visitor spending profiles were adjusted to reflect 2006 values using the Bureau of Labor and Statistics Consumer Price Index calculator.²

Local purchases for RRRR operations as well as employees spending of their incomes locally must be accounted for in order to derive the total regional economic impacts of RRRR. The amount spent within RRRR by park visitors is subtracted from their spending profiles, as these dollars are the same dollars spent by employees via income or on RRRR operations. To separate visitor impacts from park operations impacts, all visitors staying overnight in the park (campers) have their lodging expense set to zero. RRRR employee income is then categorized using annual income spending profiles derived from IMPLAN, and all those on the payroll are assumed to spend their income in the local area. The impact of employees spending their income locally and the impact of locally spent dollars on park maintenance are then calculated as separate *events* using IMPLAN. Visitor impacts and operations impacts are then aggregated to arrive at the total regional economic impacts of RRRR on Ogemaw County, Michigan.

The reported number of ‘camps’ (15,273 nights) at the park are used to estimate camping activity. A camp is a single group occupying a single site for a single night. Day use figures (~38,966) are divided by an average day use party size (3.6), derived by the Michigan Department of Natural Resources and the RRRR park supervisor. Reported park operations expenditures (payroll and maintenance expenses) are assumed to provide an accurate estimate of the annual cost to sustain the RRRR.

The spending profiles for park users require some assumptions. State park visitors are divided in to three groups: (1) state park campers; (2) day users on day trips; and (3) day users on overnight trips. Day users reported spending for their entire group for the day and campers reported spending for everybody at the campsite. A detailed explanation of the assumptions made by Stynes (1998) is available in that study, including how the following were managed: zeros and missing data, outliers, campers in the day use sample, and double counting.

Data on number of camper nights, number of day users, number of park employees, wages and hours worked, and maintenance expenses are based on information provided by park staff. Spending profile data, i.e., average spending per visitor, is based on the Stynes (1998) study. Regional economic multipliers are calculated in IMPLAN Professional Version 2 economic impact analysis software.

The impact analysis is thus estimated based on three user groups (campers, users on day trips, and users on overnight trips) and data on six spending categories, i.e., vehicle-related, groceries, restaurants, sporting goods, lodging, and other expenses. Using this information, the total economic impact of visitor spending on local income, jobs and value-added is estimated.

² Bureau of Labor and Statistics Consumer Price Index calculator is available at: <http://www.bls.gov/cpi>.

The estimated economic impacts are reported at three levels: (1) *direct economic impacts* (i.e., the total economic activity facilitation effect of RRRA visitors’ spending in industries directly related to visitors, such as lounge and hotels, restaurants, sport goods stores, groceries, gas stations, etc) and *indirect economic impacts* (i.e., the secondary impacts in “backward” and “forward” linked industries as a result of RRRA visitors spending impact in primary sectors, (2) total (direct and indirect) job creation impacts, and (4) total value added impacts (value in goods and services added across industries as a result of spending by RRRA visitors after accounting for costs).³

5.0 Estimated Economic Impacts of RRRA in Ogemaw County

In general, there are an estimated 15,273 camper party group nights (camper nights), 72,000 campers, 10,824 day visits, and 38,900 day users annually. The annual employee payroll is \$263,243 and maintenance expenses are \$71,591. The total economic impacts associated with these visitors and their spending in Ogemaw County is estimated and results are provided in Table 5.1.

Based on the RRRA visitors spending data, the total annual estimated direct economic impact of visitor spending on Ogemaw County economy is \$1,368,280, and the induced (indirect) economic impacts are estimated at \$419,815. The total direct and indirect economic impacts are, therefore, \$1,788,095. For a park the size of 4,450 acres, the annual economic impacts are significant.

Table 5.1. Direct and Indirect (Induced) Economic Impacts of Rifle River Recreational Area Visitor Spending.

Type of Economic Impact	Economic Impact Estimates	
Total economic impacts		\$1,788,095
<i>Direct economic impacts</i>	\$1,368,280	
<i>Indirect (induced) economic impacts</i>	\$419,815	
Total jobs created		37 jobs
<i>Direct jobs creation</i>	32 jobs	
<i>Indirect (induced) job creation</i>	5 jobs	
Total value-added impacts		\$933,003
<i>Direct value-added impacts</i>	\$684,574	
<i>Indirect (induced) value-added impacts</i>	\$248,429	

³ The estimation of economic impacts from visitor spending involves direct and indirect economic impacts. Economic activities are inter-related. As a result, there are “backward” and “forward” linkages in the economy where changes in one economic activity will often have a chain effect on related activities. Suppliers of parts and services to mainline economic activity are “backward linked” to the main activity, and economic activities that are dependent on the mainline activity as inputs are “forward linked.” In the case of RRRA, its impact on the economy of Ogemaw County is determined similarly following the *backward* and *forward* linkages of the park services with other activities in the rest of the County economy.

In terms of job creation impact, the total employment impact of the park is estimated at 32 in direct job creation and 5 in indirect (induced) job creation impacts. The induced job impacts are the jobs created in other sectors that are related to RRRA park activities due to visitor spending in RRRA related activities. The total job impacts associated with the park, direct and indirect, is therefore 37.

In terms of value-added impacts, the direct value added impact of RRRA on Ogemaw County is estimated at \$684,574 and the indirect (or induced) value-added impacts in other sectors is estimated at \$248,429. The total value-added impact is, therefore, estimated at \$933,003.

6.0 Conclusion and Implications

This study is one of the series of studies published by the Hannah Professor Research Program of the Land Policy Institute on *Economic Impact and Valuation Studies in Natural Resources and Conservation*. This particular report is focused on understanding the economic impacts of green infrastructure, specifically the Rifle River Recreational Area (RRRA). As Michigan experiences economic growth challenges, key questions arise as to whether green infrastructure can provide an economic growth opportunity at the local level. This case study of the Rifle River Recreational Area (RRRA) in Ogemaw County can contribute to increased understanding of the economic contributions of green infrastructure.

Using visitor spending data on RRRA related visits and activities and utilizing Stynes (1998) visitor spending profile, the annual economic impact of RRRA visitor spending on the economy of Ogemaw County was estimated using IMPLAN. Results suggest significant economic impact. The total estimated direct and indirect economic impacts of RRRA visitor spending is \$1,788,095. Given the park size of 4,450 acres, the economic impact is significant. RRRA visitor spending is also estimated to induce a total of 32 jobs in direct job creation and 5 jobs in induced (indirect) job creation. The total job impact of RRRA visitor spending is estimated at 37 jobs. The total value-added impact of RRRA visitor spending is estimated at \$684,574 in direct value-added impact and \$248,429 in indirect value-added impacts. The total estimated value added impact in Ogemaw County is \$933,033.

The findings from this study clearly indicate the importance of green infrastructure to local economic activities and the overall impact of “green assets” on local economic performance. These results can imply three policy implications: (1) to the extent that the services of “green assets” are related to economic impacts, sustainable and viable utilization of these resources can translate into economic outcomes; (2) to the extent that “green-assets” are tied to creating or enhancing local economic opportunities, they can be used as strategic assets for local comparative advantage; and (3) conservation of natural resources and economic growth need not be antagonistic, and in fact can be synthesized in win-win sustainable use of “green assets” to foster economic prosperity.

As Michigan strives to foster economic prosperity, green infrastructure can play a crucial role in providing local economies needed support. As the translation from “green assets” to economic performance becomes better known, the strategic role of green infrastructure in revitalizing and enhancing local economies will become more apparent.

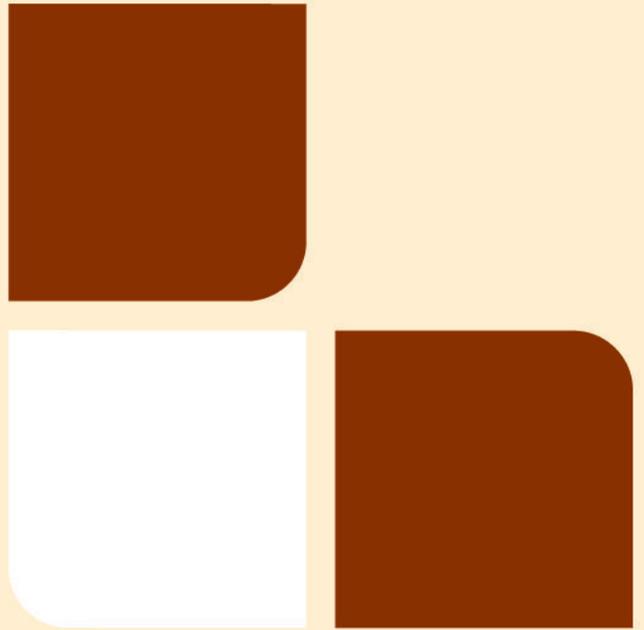
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