

**FINANCIAL INCENTIVES TO
RESTRUCTURE COAL MINING INDUSTRY.
COMPARATIVE CASE STUDY ROMANIA
AND STATE OF MICHIGAN, U.S.**

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Former coal mining sites have always raised environmental and economic challenges for the areas where they were located, especially for those communities that were highly dependent on the coal mining industry. The present paper will explore the factors leading to the decline of coal mining industry in Romania and State of Michigan, U.S., the social, economic and environmental impact that occurred after closing coal extractions and the approaches that the two states took to reconstruct the economy of the former mining areas. The paper attempts to make recommendations of financial incentives that can be used to foster the economic redevelopment of former coal mining sites in Romania.

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Introduction

The increase of the abandoned industrial land and buildings, the decline of the industrial base and the social distress represent challenges that all countries confront in the process of restructuring the coal mining sector. Economic and social redevelopment of these areas is difficult to achieve due to the perception of severe contamination that inhibits private investment in developing vacant sites. In many cases, the desire to remove the stigma of contaminated sites drives cities to rehabilitate and redevelop these areas.

The Romanian coal mining industry has passed through a major process of restructuring starting with 1998 when the Romanian government decided to reduce subsidies to the mining sector. This decision had a strong economic, social and environmental impact on mining communities, and there was a long and steep learning process of several years before the various local development efforts and labor market policies began to have a positive impact. Many communities are still struggling to overcome the negative consequences of closing the mining sites. To understand what is

happening to these communities, one has to understand why and how they were created and why and how they have declined.

A comparison with the policies that State of Michigan adopted to restructure the coal mining industry will be made. Someone can argue that there are no similarities between the coal mining sector policies in these two states, and therefore no basis for recommendations that can be applied from one state to another. In our opinion, the economic redevelopment strategies that the State of Michigan adopted to stimulate economic redevelopment around former mining sites are relevant and can represent a good basis for recommendations for Romania. We do acknowledge that there are several differences between the two countries with regard to their strategy to restructure the mining sector, but at the same time, we do understand the importance of analyzing a different approach to the same problem in order to find innovative solutions. Even more, the State of Michigan is considered one of most innovative states in cleaning and redeveloping the abandoned and contaminated sites.

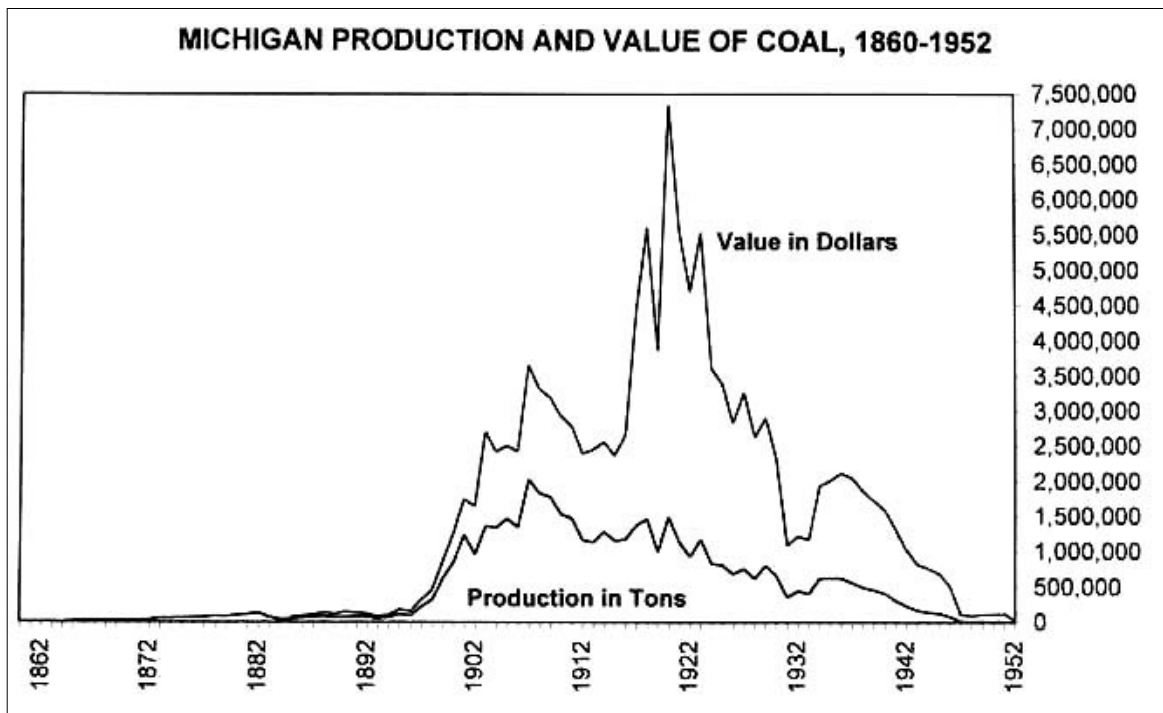
History of coal mining industry in Romania and State of Michigan

According to the Romanian National Institute of Statistics, in 2004, coal industry provided approximately 20% of the total energy needs of the country. 15.3% was locally produced and 6.7% was imported. The national statistics show a steady decline of energy provision by the coal industry.

The coal mining industry in Romania always raised economical, environmental and social issues. These issues became problems only after the fall of the communism regime in 1989. In 1997, as a response to the increasing subsidies given to the coal industry, the Romanian government decided to improve the efficiency of the sector by reducing the government's direct intervention, to seek investment sources in the private sector and to adapt the mining industry to commercial operations.

The current situation of the coal industry is a consequence of the policies promoted during the communism regime, when government subsidized the development of coal mining to support the national industry, which was at the time one of the most inefficient industries among the former communist countries. In the 1970s, as a response to the international oil crisis, when Iran decided to stop the shipment of crude oil to Romania (among other countries) the former Romanian dictator decided to increase coal's share in production of energy in order to compensate for the reduced role of oil and natural gas in energy production. In this context, the former Romanian dictator launched a program to expand the production of coal by opening 35 new open-pits and underground mines. The coal from the new mines turned out to be of poor quality and had a low caloric content. Even though the national government largely subsidized the industry, it could not keep up with industrial needs. Large quantities of coking coal had to be imported from the Soviet Union. After 1989, production of coal decreased. This decline accelerated mainly due to the restructuring policy that that Romanian government adopted in 1997.

Michigan has a similar history with an inefficient coal mining industry that had to be closed. Even though the history of coal mining is short, cleaning up former mining sites has represented a challenge for the economic redevelopment of the areas where these sites were located. Michigan became a center of coal, coke and iron ore mining during the early part of the twentieth century. More plentiful and higher quality sources of the materials existed in other parts of the US, including some places close to Michigan. Yet, Michigan mining was in demand. It was easily transportable to the cluster of heavy industries found throughout the Great Lakes Region. Coal, coke and iron ore were used by the steel factories at the southern tip of Lake Michigan in Gary, Indiana near Chicago. The auto industry centered in Detroit then used the steel in its production. The manufacturing of other durables also use steel in Cleveland, Buffalo, Milwaukee and Toronto.



(Source: Michigan History Magazine)

The coal mining industry in Michigan was short lived, however. First, better rail transport brought higher quality coal from nearby Pennsylvania and West Virginia as early as 1900. Then, steel use in durables like autos was reduced. Eventually, the auto industry and other durable industries declined, further reducing the demand for steel. The social and economic problems associated with this industrial shift continue throughout the region as a result of unemployment and reduced real wage levels. (History of Coal Mining in Michigan 2005).

Today, Michigan has no active coalmines; the last major deep coal mine close in 1952. Yet, the problems associated with cleaning up their environmental damage persist, which hinders economic development. A large percentage of these abandoned coalmines rest above the state's largest aquifer, adding to the environmental and economic danger associate with their continued status. Many of the mines, such as those in the northern-most part of the state, known as the Upper Peninsula, were the major employers in their communities. Their abandonment left behind communities without an economic base.

General strategies to increase the efficiency of mining sector

Both states decided that the best solution to increase the efficiency of the mining sector is to close those mines that were inefficient. In Romania, the national government indirectly had the control over the coal mines through the transfer of subsidies to the coal companies. Therefore, it decided to stop the outflow of funds to those mines that operated in dangerous conditions or where reserves of coal were close to becoming exhausted. In Michigan, private companies owned the coalmines, and their owners gradually closed those companies that could not compete in the market.

In 1997, in Romania, up to 132 mines were identified as economically inefficient and had to be closed. Production from these mines have ceased, in most cases, and except for workers required for maintenance prior to closure, all other workers have been laid off. Romanian government provided the funds for the closure of more than 60 mines. In 1998, the World Bank gave a loan to the national

government to close another twenty coalmines, and the International Bank for Reconstruction and Development (IBRD) will finance the closure of other 40 mines. It is estimated that at the end of the restructuring program, 35 mines will operate.

Both states had to address the negative impact of closing the coal mines. The socio-economic structure of the mining areas was affected and the degradation of the environment made these communities unattractive for future redevelopments. The coal sector in Michigan employed a smaller number of people and the social consequences were not as severe as in Romania. In Romania, within a year, around 70,000 former mine workers lost their jobs and the unemployment continued to increase at a slower rate in the following years. In this context, the two states had a different approach for the redevelopment of the mining areas. Michigan focused more on the environmental rehabilitation of the sites as a prerequisite for economic development, and Michigan's approach relies almost entirely on the private sector to do the job, with a variety of public incentives. And, the public-private partnership in Michigan has involved multiple levels of government, with local government taking the lead. Romania used a more centralized approach and focused more on mitigating the social impact of closing the coalmines. The following section will analyze the policies adopted by the two states.

Programs to support economic redevelopment of former coal mines

As it was mentioned previously, in 1997, Romanian Government decided to restructure the coal industry through a voluntary downsizing program. The program mainly consisted in offering a separation package of up to 20 months of wages as severance. Being financially attractive, the severance program was successful in the short term, and it mitigated social tension among those people who were about to lose their jobs. By December 1998, about 83,000 miners (out of total of 173,000 workers in coal and other mining industries) left the industry. 70,000 of them accepted the voluntary redundancy package.

At that time, stopping the flow of funds to inefficient coalmines and offering compensation payments to the coal mine workers were the only measures that Romanian government adopted to downsize the mining sector. No other programs were created to absorb the unemployed workforce or to foster the job-creation. The Romanian government expected that the severance would serve as seed capital to be invested in new small businesses and/or to facilitate people's migration to a place where they could start a business. But, by January 1999, the first group of workers that accepted the separation package consumed their severance payments, without creating the number of jobs that it was expected, and they didn't migrate to other regions of the country. At that time, it became clear that employment opportunities in coal regions were extremely limited and therefore the other mine workers refused to take the separation package. In that context, the mining unions went on strike to protest against continued high unemployment and the poor results of the efforts to create jobs in the mining regions. Romanian government had to initiate programs that would stimulate the supply of jobs.

The decision to downsize the coal mining sector had devastated many mining communities that were artificially created during the communism regime. Many people that lived in these communities were brought from different parts of the country to work in the coal mines. These communities were reliant upon the mining sector, which represented the major employer for them, and no other economic activity was there to absorb a part of the shed workforce. The most affected area of the country was the Southwest, which was known as the mining area of the country. Statistics released by the Romanian National Institute for Statistics show a decrease of population of the counties located in this area, along with the decrease in economic activity and a rapid increase in the unemployment rate. Therefore, mitigating the social impact of closing the mines, became the primary concern of Romanian government.

Beginning with late 1999, the World Bank supported government's restructuring program with the provision of a 44.5 million dollars loan targeted for the physical closure of twenty lignite and

coalmines and for the mitigation of the social impact of these closures. In addition, the Romanian government initiated other programs to stimulate the creation of alternative working places for people that lost their jobs and to support economic redevelopment of former mining areas.

The Romanian government used the loan from the World Bank to finance the Mine Closure, Environment and Social Mitigation Project. The Ministry of Economy and Commerce through the National Agency for Development of the Mining Areas is responsible for the implementation of the project. The project consists of three main components: mine closure, social mitigation and an institutional strengthening component. The social mitigation component was intended to create economic alternatives for the mining regions severely affected by mining restructuring and to assess the effectiveness of a comprehensive social mitigation strategy in Romania. It consists of seven sub-components: micro credits, workspace centers, enterprise support and workspace management, an employment and training incentives scheme, public information and social dialogue, social impact monitoring, and vehicles.

In addition to the programs focused on the mining regions, other national-level programs seek to stimulate employment in depressed regions. These programs include subsidized credits and temporary work programs, creation of renaissance zones (or “disadvantaged zones”) that would provide access to tax abatements and other financial incentives.

For the purpose of the present paper, the micro-credits, business incubators, employment and training incentives scheme and the status of renaissance zone will be presented. Along with severance payments, these programs represented the major financial incentives to mitigate the social impact of closing the mines.

- a. The **Micro-credits program** addresses the need of individual entrepreneurs to have access to credits that are severely constrained by unrealistic collateral requirements. The fund is administered by two non-governmental micro-finance institutions selected on a competitive basis by the World Bank. The selected NGOs have been licensed under the project to do micro-credit lending in Romania. It was expected that this scheme would enable provision of loans to 2,000 borrowers in two cycles during the project period. In March 2005, 2,484 micro-credits were lent and their value was 5,581,140 USD.
- b. The **Business incubator program** was an additional support for individual entrepreneurs who wanted to start up a business. It consisted in providing the space and the management services to open a business. The project has financed building repairs and infrastructure development, and provided furniture and equipment for ten incubators. Consultancy services have been contracted with NGOs specialized in enterprise development to assist small entrepreneurs in business planning and business start-ups.

By the end of March 2005, 10 buildings have been repaired, furnished and equipped for this purpose and have gradually become operational starting with the end of 2003, and 64 businesses had been incubating in the workspace centers.

Individual entrepreneurs were provided with assistance in preparing business plans, navigating the bureaucratic requirements of starting a new business, introductory courses in business management, marketing, sales, advertising, etc. In addition, the Romanian government focused on the problem of reducing the administrative barriers to establishing new businesses, requiring that new businesses be registered within 30 days of the submission of their application.

- c. The **Matching job-seekers with potential employers program** is another major component for the redevelopment strategies of the former coal mining areas. In addition to the more traditional local employment offices that provide information on vacancies to job-seekers, an employment-and-training incentives scheme was designed to underwrite the cost of on-the-job training for former

miners. The entrepreneurs who were willing to hire them were provided with an employment and training incentive grant of US \$960 per person recruited for one year and provided with on-the-job training. Recently the eligibility criteria for employment and training incentives program were extended to include also the members of former miners' families. This was welcomed, not just presumably by the employees, but also by the employers. The decision helped local businesses and created the opportunity for the miners' families to increase the family income.

Unfortunately, the program was not as successful as expected. By the end of March 2005, contracts had been signed with companies for the creation of 8,196 new jobs but, after 60 days only 2,932 people had been recruited for them, with another 482 possibilities 'being notified.' This indicates that only about 40% of the jobs contracted were created and filled by an employment-and-training-incentives-scheme employee.

d. An alternative to attracting new investments was to confer upon a region the status of a **renaissance zone** (or disadvantaged region). The special status referred to the tax abatements that were given to the companies located in these regions. Also, businesses had access to grants for development or redevelopment of their products and services. The program was designed for the entire country, not specifically for the mining areas, but most mining areas met the requirements for being granted renaissance zone status. The program required that the registered unemployment in a region be at least three times greater than the national average and that more than 25% of the workforce has been declared "redundant" as a result of major layoffs. The program has not resulted in the anticipated increase in investments and new jobs. One of the reasons was that the eligibility criteria for these funds tended to be decided based on factors that had no major significance to investors. The existence of the law on small businesses (that in part duplicated the legislation on renaissance zones) made redundant the application of the laws. The implementation was difficult, mainly because some investors have registered businesses in these areas only to take advantage of tax abatements, without creating jobs.

Environmental rehabilitation of mining sites and of the infrastructure was not a major component of the restructuring programs of the mining sector. However, activities to clean up former mining sites did happen and were implemented, especially in those areas confronting high levels of contamination of ground water. Jiu Valley was one of the major areas of concern. Coal mining companies have the liability for cleaning up the sites because they are the owners of the land where mines are located. Unfortunately, lack of available funds reduced the number of sites that were rehabilitated. Still, the perception of major contamination of the mining sites reduces the attractiveness for private investors. Therefore, cleaning the sites and creating the opportunity for re-vegetation is, in some cases, an alternative to the industrial reutilization, and may be a prerequisite for economic development of the region.

In Michigan the major obstacle in redeveloping former mining areas was the contamination of the sites, and the economic development strategies were primarily concern with creating the mechanisms that would stimulate private companies to clean up the sites, while giving at the same time the opportunity to gain a profit.

Throughout the US, undeveloped polluted industrial sites were perceived as a major cause of the decay of many communities. Environmental regulations throughout the US became much tougher, and the terminology "brownfield" became a part of the policy vocabulary. Extremely polluted sites such as Love Canal near Buffalo/Niagara and Swartz Creek in Michigan were two of the most visible cases of what came to be known as brownfields. Later it became clear that the problem was not limited to a few sites. In fact, a high percentage of mining and industrial sites had enough pollutants in the soil to risk health and limit their future use.

The first national response to the new realization about the state of old mining and industrial sites was focused totally on environmental issues, and the national mood starting in the 1970s was to assess blame. The fair and equitable approach in the opinion of many seemed to be that whoever caused the damage should have to pay to clean it up. Yet, this simplified response proved difficult. First, proving who caused what pollution was not always easy. Second, much of the pollution took place legally, before laws and regulations prohibited it, and before most people fully understood the hazard. To require that these firms suffer legal consequences ten to forty years after the fact had legal difficulties. Furthermore, the companies that did the polluting often abandoned those sites in the first place because they were going out of business or experiencing severe financial difficulties. They were not in a position to pay for the clean up. In many cases those companies no longer existed. In some cases they were driven out of business because of environmental liabilities.

As policy makers began to realize that simplistic blame assignment did not help the situation, the next idea put forward was that whoever owned the site was responsible for cleaning it up before the site could be put to another use. Or, they might have to clean it up whether or not they planned to use it. This approach made investors and entrepreneurs very cautious about purchasing any site that had the possibility of containing contaminants. Certainly, this reluctance has applied to most abandoned coalmines. And, banks became averse to lending money in any location with potential cleanup problems. Lenders feared that if they became owners of a site as a result of foreclosure, they would then be faced with cleanup liability. The inability to obtain a bank loan made cleanup, physical redevelopment and potential economic development very difficult.

Compounding this situation was the realization of how costly cleanup was. Throughout this period, "cleanup" meant that land had to be returned to a pre-use condition, a very expensive, if not impossible challenge in many cases. The end result was that many brownfield sites and certainly most coal mines were simply abandoned by their private companies and left for cash strapped governments to deal with. The local population was also abandoned and programs were not in place to deal with their concerns. Being strongly private-sector oriented the US and Michigan needed a private-sector-oriented solution to this problem.

At the national level, the approach was to use government funds to address the most severe sites that were getting headlines. The largest of these efforts is the Comprehensive Response, Compensation and Liability Act of 1980 (CERCLA). The program, known commonly as the Superfund Program, was to create a pool of money funded initially by the national government, to use those monies to clean up high priority sites, and then, where possible, to recover money from those companies causing the pollution so as to partially replenish the fund. Cost recovery often required strong legal remedies. Key elements of the program were federal decision-making, a commitment to restoring sites to their "natural," pre-use condition, and the assumption that those responsible for pollution are responsible for all costs associated with cleanup (Hula 2002). The program, which continues to function, only deals with severe sites of national concern and has little funding for social and economic development issues. (Bartch and Dorfman 2000)

Many states formulated their own policies and programs to deal with brownfields. (Bartsch and Wells 2005) Michigan became the first state, and in many ways the most radical and controversial in its divergence from the policies and results described above (Hula 2003). This radical approach resulted from the confluence of many forces. First, Michigan was experiencing severe economic problems because of the decline of the auto industry in the 1980s and 1990s. Second, Michigan had a new governor in the 1990's who was less focused on environmental issues. Third, a small group of Michigan State University professors advised the governor to adopt a very different direction. So, Michigan sought an approach to brownfields that would not have such an adverse effect on local

economies. Michigan adopted the controversial approach known as "relative risk". It is too soon to determine if Michigan's approach is correct and working (Hula 2003).

"Relative risk," means that risk to society in any situation can come from many directions. An attempt to solve one problem might cause other problems. In the situation of mine reclamation and other brownfield policies, an attempt to assess blame and place cost on those at fault might in fact impede clean up and site reuse. This impediment might cause other risks to society such as health damage from the continued contamination of the site and economic damage from the lack of economic reuse of the site. Some suggested that to force sites into a perpetual state of abandonment with little hope for reinvestment was not helping anyone.

This new Michigan approach further asks the questions, why should contaminated property be cleaned to "natural," residential or pre-use standards if the property is likely to be placed back into an industrial use? And, why should millions of dollars be spent on cleanup if the contaminated area can be capped sufficiently to contain toxics and eliminate health hazards?

The Michigan policy, which is now emulated in several states, has been as follows. First, the new owner of a property is not responsible for previous owner's environmental damage. In those cases where the polluting company cannot be found, identified or proven or does not have adequate financial resources, this no-blame policy allows property to go back on the market for potential investment and reuse. Second, a new property owner pursuing redevelopment of the property hires an environmental engineer to do a baseline environmental assessment. The new property owner is responsible only for damage they create, i.e. anything greater than indicated by the baseline assessment. Third, environmental cleanup must take place to bring the property to a quality appropriate for the use to which it is intended, not necessarily to the quality necessary for residential development. Separate standards have been set for each major land use category (Hula 2002). Fourth, any contaminants that can be effectively capped may be dealt with in this way rather than requiring removal. If the owner chooses to cap, the owner must have a plan in place that describes how the effectiveness of the capping is monitored. This monitoring may have to continue for decades into the future to ensure that no leachate develops. Fifth, a set of financial incentives have been put in place to promote cleanup. Financial incentives include: 1) some small grants for cleanup primarily coming from a special state bond issue for that purpose (Hula 2002), 2) tax credits on the single business tax, and 3) use of tax increment financing.

The Single Business tax is Michigan's form of business taxation (Bartsch and Wells 2006). Rather than taxing corporations using a corporate income tax, Michigan applies a tax rate to all businesses. Theoretically, by using a broader base, Michigan can keep business taxes simpler and lower. However, the tax has been under attack from both major political parties and is scheduled to be phased out. This will make the Single Business Tax credit meaningless in the future.

Tax increment financing (TIF) has become a centerpiece in the Michigan brownfield program. TIF is a state level program with no national government involvement. It is a common program in Michigan and is used in several states. Like many economic development programs, TIF is enabled by the state government but is managed locally. It is good for countries and states with high reliance on property taxes at the local level. However, the concept could apply to nearly any kind of tax at any level of government. Michigan relies heavily on TIF for many kinds of economic development activities, including downtown redevelopment, neighborhood renewal, and development of industrial parks.

When used properly, TIF is a highly flexible way for government to generate revenues without increasing taxation. The revenues come indirectly from the redevelopment generated by use of the funds, creating a chicken-or-egg, upward spiral. It allows local governments to be a strong and positive

partner with the private sector to promote local economic development without taking budget away from other governmental functions.

TIF works as follows. First, a local government creates a tax increment finance authority, an NGO owned by the local government. In this case it is called a Brownfield Redevelopment Authority (BRA) but could be a downtown development authority or an industrial development authority (Lyons 2001). Then the authority determines a project area. The project area might be totally owned by the private sector, and typically is experiencing some kind of decline or special problem. Next, the authority creates an internal account (a pot of money) designated for that project area. This is the tax increment finance fund (TIFF). For purposes of determining how much revenue local government will continue to receive, the tax base (in this case, all property values) of the project is frozen. Tax revenues that continue to flow to local governments result from multiplying this frozen tax base by the tax rate in the normal way. If the tax base increases in value (real estate market values rise), the additional value above the frozen initial level is labeled the increment. The revenues collected from applying the tax rate to the increment go into the special account for the project area, the TIF fund. The money in the TIF project account can then be used flexibly to improve the project area. The money can be loaned to businesses, utilized as a loan insurance or loan guarantee to back bank loans (Hamlin 2003), used to create small business incubators, to build and improve local infrastructure, improve streetscapes, or buy and clean up buildings around the site, such as mine administrative buildings, to name a few. In the case of the brownfield redevelopment authority (BRA) this flexibility exists as long as primary site cleanup issues are being addressed. With respect to coal mines and other brownfields, the money can be loaned to property owners to complete cleanup, land reclamation and redevelopment.

The principal philosophy behind TIF is that activities fomented by TIF funds cause improvements in the project area that elevate land values there, expanding the tax base increment. This, in turn, augments the amount of money that goes into the pool, which increases the amount that is available in the TIFF to complete improvement. It is a positive version of a vicious circle. A more aggressive use of TIF allows a municipality to float bonds to raise money for improvements such as cleanup and economic development. Then, the revenues that go into the TIF pool as a result of the improved economic development and increased property values are used to payoff the bonds over time. Investors who buy bonds are more likely to buy them in either scenario, knowing that the revenue stream flowing into the tax increment finance fund is secure. The whole cycle succeeds by drawing in private monies, not by relying on public funds that are needed for other services.

Key to the use of TIF is that the tax base go up as a result of the economic development activity. A strategy is to choose a place with a very low tax base that will experience a large effect of the economic development program. In this case the property, such as the abandoned coalmine, should have very low value in the beginning of the project and experience a great increase in value as a result of the project improvements. This large increase in value generates a large increment that in turn provides a large potential for cleanup, reclamation, redevelopment and economic development activities.

Mine reclamation projects in Michigan may also use a variety of other incentives that are available more broadly. If the site is inside of an enterprise zone, (also called a Renaissance Zone in Michigan) both citizens and companies may be exempt from some taxation, and supporting grants and loans might be available for both the mine owner and the surrounding community. Other small business loans and loan guarantees might also be available from the state, and small-city community development block grants (CDGB) are also authorized for use on brownfields on a competitive basis.

Comparison between the policies to restructure the mining sector in two states

Romania and Michigan are confronting the same problem, namely the redevelopment of former coal mining sites, and they adopted different approaches to solve the problem. Romania focused primarily on mitigating the social impact of downsizing the mining sector, while Michigan focused more on environmental rehabilitation of the sites as a prerequisite for economic development of the region. The two different approaches have to be understood in the contexts within which they were adopted. The size of the coal-mining sector in Romania was larger than in Michigan and the number of miners that were laid off in Romania was larger than in Michigan, therefore the social impact was stronger.

A second major difference between the two states rests in the ownership of coal mines. In Michigan, private companies owned coalmines. As the coal sector started to decline, they were closed gradually reducing the overall impact on the economy of the state and giving the opportunity for the labor market to absorb the unemployed people. In Romania coalmines were owned by public companies, and many were closed at about the same time. The major concern of the Romanian government was to reduce the flow of subsidies to the inefficient coal companies. A lesser concern has been paid to stimulate provision of alternative employment opportunities to the large number of people living approximately within the same area that lost their jobs within the same interval of time.

The third major difference between the policies in the two states refers to the type of communities that were affected by the coal industry. In Michigan, the type of zoning promoted a strong separation between different land uses, and the closure of coalmines did not devastate entire communities in the same way. The higher mobility of people in commuting between homes and working places or moving between cities and regions helped them find alternative jobs more easily. In Romania, many people that were affected by downsizing of the coal industry lived in mining communities that were created exclusively to accommodate the large number of people that worked in the mining sector. Therefore, these communities needed a longer period of time to diversify the local economy.

The fourth difference refers to the financial tools that were used to redevelop the local economy. In Michigan, the private sector was the major actor in redeveloping the mining sites, but the public sector created incentives and mechanisms to make profitable any activity of cleaning them. In Romania, the public sector was responsible for putting in place all the programs to redevelop the former mining area.

Conclusions and recommendations

The Romanian and Michigan situations investigated and described in this paper were very different, and the respective policies reflected these divergent contexts. But, both states experienced a set of similar circumstances. Mine closures, environmental problems related to those closures, resultant economic and social distress in the areas surrounding the mines and general regional economic decline plagued both situations. Both states experienced failures in their attempts to solve the problem of mine closure. Both have attempted to readjust policies to overcome failures, albeit with uncertain success.

Despite the fact that the governmental, institutional and cultural contexts were different, each state can learn from the other's attempts to resolve similar problems. In fact, viewing the policy efforts of societies in different contexts can lead to new and innovative ideas for the solution of problems. It is the kind of analysis that generates outside-the-box thinking and results in innovation.

Although much more study is needed, the following recommendations emerge from this investigation. They are as follows:

- 1) Some form of environmental solution is a necessary prerequisite to economic development in former mining areas. As long as severe safety, health and aesthetic issues remain, true economic

development will not take place. On the other hand, a balance must be achieved. Over emphasis on assessing blame for environmental damage, or demanding cleanup to a "natural," or pre-use state, will just stagnate economic development.

- 2) Some involvement of private sector actors is probably necessary in any institutional context. As long as the problem rests solely on the back of government, with limited resources, solutions will be slow, haphazard, and prone to political manipulation and bureaucratic stagnation. This conclusion makes recommendation #1 above more important since a balanced environmental solution is a prerequisite for attracting private investment.
- 3) Simply providing severance pay or unemployment compensation to laid off mine workers does not totally solve the problems of mine towns with closed mines. Comprehensive economic development and social mitigation approaches are required including a variety of enterprise development efforts, investment attraction efforts and social programs that address entire families and communities, not just the lost wages of the mine workers.
- 4) Some form of local involvement in decision-making is critical to tailoring solution to local needs. Standard one-package-fits-all solutions generally do not succeed. Examples in this investigation included the rigid cleanup standards of the US government, a simple severance package provided by the Romanian government, or standardize small business incubation or job creation programs tried in both environments.

A synthetic example of a program with local control, private sector resources, balanced cleanup and comprehensive economic and social development might be useful. As an example, the use of tax increment financing to clean up the buildings around mine entrances might be a project that works in many communities. Preparation of those building for reuse could include creation of business incubation programs with small business training and support services. The TIF fund could provide loans, loan guarantees, seed capital, bond financing and infrastructure development. Money for the TIFF could come from the capture of the tax increment generated from resulting developments.

Greater study and comparison of coal mining communities is necessary along with expertise to bring the knowledge gained to each unique local situation.

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