




The ReGenesis Project:

A national model for
collaborative problem-
solving

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The Arkwright Mill in its Heyday

Introduction

ReGenesis is a community-based non-profit organization formed in 1998 to address environmental health issues in the Arkwright and Forest Park communities in the Southside of the City of Spartanburg, South Carolina. ReGenesis has focused on the assessment, cleanup, redevelopment and revitalization of these communities, a 500 acre area that includes two Superfund hazardous waste sites, the Arkwright Dump and the former IMC Fertilizer Plant, as well as an abandoned textile mill, an operating chemical plant, two dumps and several suspected illegal disposal areas. In 2000, ReGenesis was selected as one of fifteen national demonstration projects by the Federal Interagency Working Group (IWG) on Environmental Justice. ReGenesis has been recognized in numerous other ways, before and since.

At the core of the ReGenesis project is a partnership between ReGenesis, the United States Environmental Protection Agency's Region Four office (EPA R4), and Rhodia, the chemical manufacturing facility located in the community. The partnership, which continues to this day, has leveraged maximum federal, state, corporate, and local dollars to achieve the

ultimate purpose of environmental justice in this 96 percent African American community. As a result, the community has realized its vision to not only clean up polluted and blighted areas, but also to provide underserved residents access to health care, economic and educational opportunities, and improved public safety.

Critical to the realization of the ReGenesis agenda has been extensive support and commitment from all three partners. ReGenesis has been the convener and the voice of the community, EPA R4 has provided resources and technical expertise for remediation and revitalization, and Rhodia has partnered with its neighbors to create a more livable community in many ways. These "dialogue partners" continue to be committed to sustaining progress in the Arkwright and Forest Park communities. Because of this ongoing commitment, as evidenced by monthly meetings and continued revitalization of the area, ReGenesis has maintained its national status as a recognized model for engendering environmental justice in minority and low-income neighborhoods.

The ReGenesis Story

The story of ReGenesis is a story of a community that came together to address deeply entrenched problems that had much of their origins in disproportionate exposure to environmental hazards. It is a story of remarkable remediation, redevelopment, and revitalization, supported by numerous partners, that continues fifteen years later. The story takes place in the Arkwright and Forrest Park Communities of Spartanburg, South Carolina, an area of the city that is home to approximately 5,000 residents, mostly African American and low income.

In the mid-1990s, Harold Mitchell, a life-long resident of the Arkwright neighborhood, began to suspect that his community was experiencing unique health problems – problems disproportionate to other Spartanburg neighborhoods. Too many friends and neighbors were dying, and they were dying too young. There were too many miscarriages and stillbirths. There was too much cancer – especially lung cancer and lymphoma. Too many people were sick with respiratory conditions and unusual systemic illnesses.



Harold grew up in a home immediately adjacent to the IMC Fertilizer Plant where many of the community's residents worked. The plant, opened in 1910 by International Minerals and Chemicals (IMC) on a 47-acre site, was operational until 1986. In 1987 the plant was sold and was eventually acquired by a company that used it to store textile machinery. Although, in the plant's heyday, folks complained from time to time about the dusty haze that hung over everything and the pervasive odors of sulfur and ammonia, it was a different time. No one in the community thought that the dust and the fumes and the liquids being poured from the plant into the local streams and down gullies might be a problem. And later, no one thought much about the children playing in the abandoned plant, their footprints all over the dusty floors and up and down the abandoned piles of chemicals used in the making of fertilizer. No one really thought about it until Harold wondered about the connection between the plant and the health problems the Arkwright and Forest Park residents were experiencing.

The Mitchell household wasn't immune to health problems. Over the course of eight or nine months in 1996, Harold began experiencing symptoms including constant nausea, abdominal pain and tenderness, back pain, and passing blood. Despite multiple medical tests, he was never diagnosed. However, soon after Harold's symptoms started to abate, his father began experiencing some of the same symptoms. After the same series of tests, this time, the diagnosis was lymphoma. About six months later, the senior Mr. Mitchell died. He was 59 years old.

During his own illness and his father's illness, Harold started asking questions. He gathered records on the old fertilizer plant, and he gathered family medical records, including the death certificate of his infant sister who had died in the 1960s within a few hours of her birth. The family was never provided with a reasonable explanation of her death, so Harold took the death certificate to a coroner outside of Spartanburg. He was told that his sister had evidently died of sepsis. By this time, Harold had become self-educated on environmental pollutants and chemical hazards. He had consulted a number of sources, including the EPA's Toxics Release Inventory Program. He knew which chemicals were being used at the fertilizer plant at the time of his sister's death and learned about the short-term and long-term effects of these chemicals on pregnant women. Things started connecting for him. He thought of his mother's sister who lived in the home with the Mitchells in the 1960's. She, too, had a baby girl who died about a week after being born. The same thing happened to a family two doors down from the Mitchells.

In 1996, when he started asking his neighbors about their health and how long they had lived and worked in the community, Harold was reminded about the municipal dump. In 1954, the city opened a 30-acre solid waste landfill known as the Arkwright Dump. The dump was located within 20 yards of more than 200 community residents. In 1972 the dump closed and was covered with a thin layer of topsoil. In 1976 it was sold to a private citizen. The site had sat fallow ever since, but medical, municipal, and automotive waste had emerged over the years as the topsoil eroded away, resulting in an unsightly debris field. Again, when the dump was most active, few regulations existed to preclude the dumping of untreated





biological and environmental hazards. Moreover, regulations did not exist to prevent the siting of landfills and potentially hazardous industries within residential communities.

The more he investigated, the more Harold learned about the health problems in both the Arkwright and neighboring Forest Park communities. Within a one-mile radius, 62 people had died of lung cancer or respiratory disease in one year. The old timers had

never wondered about their breathing difficulties and constantly burning throats and eyes when the plant was operating. It was normal in Arkwright and Forest Park. Even to Harold, growing up with a neon green pond in his backyard, a few feet from a fertilizer plant, was normal.

Harold kept busy researching, collecting data, and contacting public officials and environmental professionals. As early as 1991, the S.C. Department of Health and Environmental Control (SC DHEC) reported contamination in IMC's soil and groundwater, as well as in nearby Fairforest Creek, another unnamed tributary, and several residential wells. Harold traveled to various meetings and got to know other people with similar concerns. In 1997, he took his concerns to the EPA in Washington. He was directed to the Region 4 office in Atlanta where Cynthia Peurifoy, Director of Environmental Justice, became concerned by the proximity of the IMC plant and the dump to the neighborhoods. She was also concerned about the lack of available information about the facility. Soon afterward, EPA representatives conducted the first site visit and assessment of the IMC plant and the Arkwright Dump. It was determined that there were no contaminants at the sites that posed immediate threat to the short term health of residents or to the environment. However, the dilapidated state of the IMC plant, and the fact that it was located essentially within the neighborhood, caused significant concern and prompted further investigation.

Harold convened the first formal meeting of community residents in 1997 to convey his concerns. More than 100 Arkwright and Forest Park residents attended, as did Spartanburg's Mayor. Many residents told their stories about health problems, with many reporting that their doctors had diagnosed them as having rare respiratory conditions. Soon it became clear that their illnesses weren't so rare within their own neighborhoods. The residents counted over

60 miscarriages and stillborn births in the area since the 1960s – most of them in the 1980s and 1990s.

And health problems weren't the only things plaguing the community. The area was blighted with condemned and boarded up properties that were being used by drug dealers. The abandoned fertilizer plant was at the end of a dead-end road, inviting illicit activity, including, it was believed, providing a hideout for a man who raped four elderly women in the community. The neighborhood was marked by a large tract of 1950s-era public housing that was old and distressed. Economic development efforts were nonexistent, despite the fact that the area had no retail stores or other businesses. Children

had no play areas and crime abounded, but little was being done to address it. Those who could afford to do so had already moved away; those who could not afford to do so were stuck.



It was clear to residents that something had to be done. So, in 1998 Harold took it upon himself to establish ReGenesis, a nonprofit whose mission was to provide leadership and to generate interest in cleaning up the contamination and revitalizing the community. ReGenesis combined efforts with existing neighboring community associations in Arkwright and Forest Park. From the outset of ReGenesis' efforts, a new energy was manifest in workshops that educated residents about toxic waste and community revitalization.



In 1998 and 1999 the EPA conducted additional tests at the abandoned IMC plant and the Arkwright dump. At IMC, chemicals associated with fertilizer manufacturing such as nitrate, sulfate, and phosphorus were detected in the soil, and fluoride was detected in the ground water. Dioxins and heavy metal pollutants such as mercury, lead, and cadmium were found at the dump site. In all, 70 contaminants were found, and 30 of these were at three times the maximum contamination level.

It was determined that several nearby private wells could present risks if people were using the water for cooking, drinking, or bathing. An alternate drinking water source was provided to the affected residents. These findings generated a great deal of concern, and as a result, both sites were designated by the EPA as Superfund sites, that is, sites where abandoned or uncontrolled hazardous waste poses current or future threats to humans or the environment. The EPA granted \$100,000 to ReGenesis for redevelopment planning at these sites. Also in 1998, the current owner of the IMC plant conducted an illegal demolition of the main facility building, which created significant clouds of particulates, including dust, fertilizer, and asbestos. Harold contacted the EPA Waste Division Environmental Justice Program to file an official complaint, and then reported the incident to the National Response Center (NRC). The NRC ensured that SC DHEC conducted sampling of the air and of construction debris the next day.

During the fall of 1998, EPA Region 4 and ReGenesis collaborated to solicit information about waste disposal practices from former workers at both sites. Over 30 workers were interviewed and taped. The information obtained helped EPA Region 4 strategize its sampling investigations and helped civil investigators understand liability issues and site history for both sites.

A Partnership is Born

If the community could isolate any one turning point for itself, it would be the August 2000 meeting of over 100 individuals – residents, representatives from federal agencies, city and county personnel, Spartanburg business and industry representatives, and faculty and administrators from local universities. All gathered to discuss the issues the community identified as being important. This group had never come together before, but there was a long history of uneasy, even distrustful, relationships between many of the residents and the organizations represented. Fraught with emotion, the discussion became loud and

contentious. In the calming and articulate manner he had come to be known for, Harold Mitchell refocused the discussion, exhorting everyone to calm down and maintain focus on the issues. He went on to explain the community's concerns in an organized manner that set the stage for each side to articulate its goals. As it turned out, residents wanted to eradicate crime, improve health and access to health care, and improve housing opportunities. Federal and local agencies wanted to help with all of these goals, and businesses, industries and universities were willing to do their part.



In order to work effectively toward the achievement of these goals, the EPA suggested that ReGenesis adopt a more formal organizational structure. Thus, the ReGenesis Environmental Justice Partnership was born with its primary members being ReGenesis, the City of Spartanburg, Spartanburg County and the local Housing Authority. All were equally represented. Secondary members were EPA Region 4, SC DHEC, and the University of South Carolina Upstate. Other members included business,

industry, and other federal, state, and local agencies, as well as various other stakeholders.

That same year (2000), ReGenesis was designated by the EPA as one of the first 15 national demonstration projects of the Federal Interagency Working Group on Environmental Justice. Such designation gave ReGenesis access to the resources of eleven federal agencies - agencies that started to take notice of Spartanburg. The designation also validated the residents' feelings that their health and quality of life had been compromised because they were poor and minority and thus carried a greater burden of environmental risk.

As other partners became involved, energy continued to build, administrative tasks were divvied up, and leveraging was used to obtain further resources. Upon EPA's suggestion, the area obtained Brownfields designation and was awarded \$200,000 in Brownfields assessment grants to ReGenesis and the county. Clean up and efforts to attract reinvestment began on six sites in the project area, including the old Arkwright mill and several dump sites. As contamination was uncovered, other grants were leveraged for

cleanup. South Carolina DHEC committed \$490,000 to Brownfields redevelopment. HUD awarded \$848,000 to the city and ReGenesis to buy properties in Brownfields sites and redevelop them.

A New Way of Working Together

In any endeavor, the partners involved have their own interests and don't always work well together. Initially, ReGenesis was no different. As challenging as the task of cleaning up and revitalizing the community was, maintaining strong partnerships proved to be almost as challenging. However, ongoing focus on the community's goals kept things on track. Dedication to the project was so complete that partners were committed to finding ways to resolve internal issues and get on with the business of the project. Respect for different perspectives actually engendered creativity as issues were addressed and resolved.

In 2001, a community visioning process began. Design charrettes funded by a US Department of Energy grant allowed for creative brainstorming by the community to envision what it wanted for itself. Several design charrettes were held in Spartanburg and visions for community parks, shopping, a parkway, entertainment venues, a job training center, and a technical center emerged.

Meanwhile, in 2001 another critical partner was brought to the table. Rhodia Inc. is a chemical manufacturing plant still operating in the Arkwright community. The relationship between Rhodia and community residents was already rocky, stemming from unfulfilled promises made by the first owners of the plant



in the 1970s that turned plans for promised apartment buildings into storage facilities for the company. After a series of owners, the plant became part of Rhodia, Inc. in 1998. Until that time, there was very little communication between the plant and the community, furthering mistrust.

As the community visioning got underway, residents expressed the feeling that Rhodia's continued existence in the community was incompatible with improvements envisioned in the design charrettes. Rhodia was asked to move out of the community. However, after researching its options, Rhodia concluded that continuing operations was consistent and compatible with the community's redevelopment plans and decided to stay. Jim Trafton, Rhodia's new plant manager, voiced a public commitment to support the community's redevelopment efforts by partnering with ReGenesis, EPA Region 4 and the plant's neighbors.

As the extent of the mistrust between residents and Rhodia became evident, ReGenesis and Rhodia together decided to take significant action by enlisting an independent facilitator to assist in resolving the disputes. The process of "facilitated dialogue" addressed issues with civility by giving both sides equal voice. Legal action was avoided, and dialogue resulted in

Rhodia's agreeing to improve noise and odor control, monitor air and groundwater quality, provide job opportunities for residents of the community, beautify their facilities, enhance health and safety

procedures, and enact new emergency preparedness procedures. Rhodia administrators characterized the process as a “wake up call” to the fact that it is good business, actually imperative for business, to build trust in the community. The deliberate, time consuming process of improving relationships between Rhodia and the community has proven to be critical to the success of the ReGenesis project.

Another critical piece of the project was improving the health outcomes of the Arkwright and Forest Park residents and providing them more opportunities to access health care. In 2003, a \$650,000 grant from the US Department of Health and Human Services funded the opening of a small community health center. Although this was conceived of as a temporary measure to increase residents’ access to health care, in the first 90 days of operation the center saw in excess of 2,000 patients. Based on the success of the health center, Spartanburg Regional Healthcare System provided a new state of the art facility in 2005. Relocated and expanded to triple its original size, the health center brought permanent medical services to underserved residents of Arkwright and Forest Park as a Federally-Qualified Health Center (FQHC). This was seen as a real breakthrough and one of the most critical aspects of revitalizing the community. Now people actually began to want to live in Arkwright and Forest Park.

Other alliances within the partnership leveraged further resources. The city entered into an agreement with EPA Region 4 to spend \$1.2 million for assessment of contamination and evaluation of risk to humans and the environment. These funds were also used for clean-up alternatives such as groundwater monitoring, remediation, and installation of a cover to contain contaminated soils.

Vigindustries, a subsidiary of IMC (now the Mosaic Company), which had bought back the IMC plant in 1999, started to work with EPA Region 4 and state agencies to clean up the site. The company committed \$1 million for EPA oversight costs and almost \$2 million for assessment and remediation. At the community’s request, Vig placed air monitors around the site and hired a technical advisor to assist with remediation.

At the height of the project, over 100 partners were involved and government and private foundation awards totaling almost \$1.7 million had been obtained. The work of leveraging funding in the most synergistic and efficient manner enabled ReGenesis to advance its work exponentially.

ReGenesis Funding Partners

Federal, State and Local Public Agencies

US Environmental Protection Agency
SC Department of Transportation
US Department of Housing and Urban Development
US Department of Energy and the SC Energy Office
US Department of the Interior
US Department of Justice
US Department of Health and Human Services
National Institute of Environmental Health Sciences
Agency for Toxic Substances and Disease Registry
SC Department of Health and Environmental Control
US Department of Labor
US Department of Education
US Attorney’s Office
SC budget and Control Board
County of Spartanburg
City of Spartanburg

Other Public and Private Funding Sources

Arkwright Fire District
The Ford Foundation
Mungo Homes
Mary Black Foundation
R.D. Anderson Career Center
Rhodia Inc.
Upstate Workforce Investment Board
Bo Welling Designs
Christmas in Action
VIG Industries
SC state legislative delegation

Multiple Goals, One Cause

The ReGenesis story is a story of many partners and multiple goals, but one overarching cause – Environmental Justice. All of the partners ultimately came together to advance this cause by mitigating the destruction to the community wrought by decades of exposure to environmental hazards, blight, disproportionate allocation of resources, and disenfranchisement.

As in so many other communities where people of color or low income are disproportionately exposed to environmental hazards, the environmental issues in Arkwright and Forest Park were linked to distress in health, public safety, housing, transportation, economic development, employment, and social services. In these communities, environmental issues are usually the tip of the iceberg; redress of inequitable environmental burdens alone will not “fix” the community. The ReGenesis partners understood that cleaning up the IMC plant and the Arkwright dump would not transform the community unless the other social and economic issues were addressed. Healing the community would require new vision and new hope and new expectations. With this understanding, the partnership embraced a holistic approach to community problem solving that included economic development, housing and transportation, health care, recreation, and generally improved quality of life.

It is a safe bet that, in 1999 when Harold Mitchell started to talk to them about their health concerns, the residents of Arkwright had never heard the term “environmental justice”. However, as ReGenesis took root in the community, everyone developed a certain awareness of what it meant. The partnerships evolved to address community needs, and by 2001, a core of three partners remained committed to overseeing the ongoing vision and development of the community: ReGenesis, EPA Region 4, and Rhodia.



The Government Partner: EPA

Since 1997, when Harold Mitchell initially contacted EPA to request testing of the IMC facility and the Arkwright Dump, the EPA Region 4 office in Atlanta has been closely involved in ReGenesis' community revitalization efforts. Since that time, several EPA programs have provided technical assistance, remediation, and revitalization to the Arkwright and Forest Park communities. The EPA's commitment to environmental justice was well-articulated through its support of ReGenesis' community-based planning process that led residents to develop a vision for revitalization of their own communities.

Over the years, dozens of meetings were held between EPA and the community about the IMC facility and the Arkwright Dump. Essentially, EPA was involved in all phases of revitalization.

Problem Assessment

In 1997, after initial contact with Harold Mitchell, EPA Region 4's Community Involvement Coordinator for Superfund conducted an informal site visit followed by a site assessment and sampling at the IMC site and the Arkwright dump. Emergency actions to address immediate, short-term threats were not indicated; however, after consultation with SC Department of Health and Environmental Control (DHEC) representatives, EPA elected to evaluate the sites under Superfund guidelines, using federal contract resources. In the spring of 1998, EPA Region 4 sponsored Superfund redevelopment workshops and meetings between ReGenesis and SC DHEC.

Early Involvement

When the owner of the IMC plant conducted illegal demolition of the facility in 1998, the EPA's Waste Division Environmental Justice Program became involved and ensured that SC DHEC conduct air and debris sampling to monitor community safety. Also in 1998, EPA and ReGenesis collaborated to interview over 30 former workers at the IMC plant and the

Arkwright dump. As a result, EPA was able to strategize sampling investigations.

In 1999 site investigations were completed and called for further assessment. At the same time, ReGenesis' efforts to build partnerships led to frequent consultations with EPA Region 4 officials (upper management, remedial project managers, community involvement coordinators, environmental justice officials, and legal personnel). Most of them were held at the EPA offices in Atlanta with Harold Mitchell driving the 350 mile round trip if he felt a face-to-face meeting would make a difference for his community.



The EPA Emergency Response division identified contaminants in two private water wells in the

community and arranged for residential connection to the Spartanburg municipal water supply for these homeowners. In November 1999, EPA Region 4 and the City of Spartanburg signed an Administrative Order on Consent (AOC) for a Remedial Investigation / Feasibility Study for the Arkwright Dump Site. To fund this consent decree, the EPA Region 4 Superfund attorney worked to secure the first of several Technical Assistance Project (TAP) Grants to ReGenesis which totaled \$75,000 between 1999 and 2005. In 1999, the EPA Environmental Justice Program awarded ReGenesis an additional \$20,000 competitive Environmental Justice grant.

The Partnership Strengthens

In January 2000, EPA Region 4 and ReGenesis organized the first revitalization forum for the community that brought together city, county, SC DHEC, Local Emergency Planning, and other local officials. Multiple stakeholders attended this workshop that featured brownfields and other revitalization fundamentals. Two other revitalization forums were held later that year.



At the May 2000 EPA Region 4 Interagency Working Group on Environmental Justice it was announced that Spartanburg was selected as one of 15 Environmental Justice National

Demonstration Projects. This designation led to many benefits over the next seven years, including another \$20,000 competitive Environmental Justice grant later that year. In 2000, Spartanburg was one of several stops on an Environmental Justice Tour for South African Delegates arranged by EPA Region 4. Harold Mitchell was presented with an Environmental Merit Award shortly thereafter. EPA Region 4 began to work with Spartanburg County after being awarded a \$100,000 Superfund Reuse/Redevelopment Pilot Project grant in July 2000. Because of the seriousness of contamination, the two Superfund sites were classified as “National Priorities List (NPL) Caliber,” or “Superfund Alternative” sites.

In 2001, EPA Region 4 continued to be involved in ReGenesis’ quarterly revitalization forums. A \$200,000 EPA Brownfields Assessment grant was awarded to Spartanburg County to target the ReGenesis project area. In July 2001, EPA Region 4 and IMC signed an Administrative Order on Consent (AOC) for a Remedial Investigation / Feasibility Study for the IMC Site. In November, EPA Region 4 wrote a letter of support to the US Department of Health and Human Services for ReGenesis’ efforts at community health revitalization. All partners viewed this as aligning with the goals of the partnership’s action agenda “to increase the coordination of federal agencies to enhance identification, mobilization and utilization of federal resources.” ReGenesis was the beneficiary of the first of several Health and Human Services Health resources grants later in 2002, totaling at least \$2.54 million.

The work continues

Also in 2002, the EPA Region 4 Superfund program continued environmental remediation and community involvement in Arkwright and

Forest Park. During this time, ReGenesis gained momentum to secure \$4.1 million in leveraged funding through several grants and congressional earmarks that allowed them to start purchasing properties around the 500-acre redevelopment target area.



Soon after, EPA Region 4 nominated Harold Mitchell for a national “Citizen’s Excellence in Community Involvement” award, and it was presented to him at EPA’s annual Community Involvement Conference. Harold was also one of 20 recipients of a 2002 Leadership for a Changing World Award from the Advocacy Institute and Ford Foundation. In December 2002, at the IMC facility site, the Region 4 Superfund program provided oversight on a \$1.7 million dollar focused source removal action by the potential responsible party, Vigindustries, Inc. It was in 2002 that EPA Region 4 became a partner with ReGenesis and Rhodia in the focused dialogue process that continues today. EPA’s contribution to the collaboration resulted in lowered tensions between residents and the responsible parties and more realistic expectations about the

cleanup process and land reuse / revitalization. Ongoing facilitation is provided by Tim Fields of TetraTech EMI. EPA Region 4 began to publish ReGenesis success stories in the agency’s official reports. In September, EPA Region 4 issued a Record of Decision (ROD) for the Arkwright Dump Site which included the installation of an engineered cap for contaminated soils (the secondary source of groundwater contamination), in-situ groundwater treatment for contaminated groundwater, institutional controls, and groundwater monitoring.

Superfund remedial work and community involvement continued in 2003. In August, a major revitalization forum with over 50 federal, state, regional, and local stakeholders was held. As cited in the 2003 Final Report, ReGenesis was a participant in the Congressional Black Caucus Environmental Justice Brain Trust. EPA Region 4 participated in Rhodia’s Emergency Response Drill, along with ReGenesis, various first responders, CSX Railroad, local media, and neighborhood residents. Neighborhood revitalization successes were documented in major publications such as *Towards an Environmental Justice Collaborative Model Evaluation Report and Case Studies*.

In 2004, the EPA Region 4 Superfund program continued its remedial and community involvement work and began to work with ReGenesis on two newly awarded \$100,000 Brownfields cleanup grants.

In 2005 EPA Region 4 began to be a participant in a “Critical Path” process for redevelopment and cleanup sponsored by ReGenesis and TetraTech EMI, along with multiple local, state, and federal stakeholders. Meetings were held regularly to cover updates on progress and organizational roles to advance five major

ReGenesis projects. The EPA Region 4 Superfund Program continued its remediation and community involvement work at the Arkwright Dump and the IMC plant. EPA Region 4 sponsored ReGenesis to speak at its 2005 Brownfields New Grantee Workshop, in which leadership shared success stories on leveraging and launching several revitalization projects to new grantees in attendance.

In 2006 and 2007, as an outgrowth of the “Critical Path” process forums, ReGenesis

benefited from pro bono design work by the internationally-known Tom Fazio Golf Course designers. As a result, a public golf course is planned over the two Brownfields sites and also over the two Superfund Alternative sites. To date, ReGenesis had leveraged over \$133.7 million in redevelopment dollars and \$9.1 million in cleanup dollars. The EPA Region 4 office worked with ReGenesis to release a DVD on the ReGenesis collaborative problem-solving model and to present a Revitalization Forum Update.

Even though remediation of the Arkwright and Forest Park communities is complete, EPA Region 4 continues as an active Dialogue Partner with ReGenesis and Rhodia to guide the community through the completion of its vision for revitalization.

EPA Honors ReGenesis with the Environmental Justice Award, April 2010



From left to right: Charles Lee, Director, Office of Environmental Justice; Robert King, Deputy Commissioner, South Carolina Department of Health and Environmental Control; Harold Mitchell, Executive Director, ReGenesis; Tim Fields, Senior Vice President, MDB; Cynthia Peurifoy, EJ Coordinator for Region 4; EPA Administrator Lisa Jackson; and Stan Mieburg, Acting Regional Administrator, Region 4.

The Industry Partner: Rhodia, Inc.

In 1977, a textile chemical manufacturing plant was built in Arkwright within what would become the ReGenesis redevelopment project area. Elderly Arkwright residents remember promises to build housing on the site, not an industrial manufacturing plant. This represented a significant breach of trust within the immediate Arkwright community that was later attributed to each successive owner of the plant property over the course of several decades. Underscoring the lack of effective zoning controls at the time, the facility was built in close proximity to residents with its fence line bordering a dozen homes.



The plant was acquired in 1982 by Borg-Warner Chemicals, which expanded its operations. In 1985, another chemical manufacturer, GAF, bought the facility, and in 1990 it was sold to Rhône-Poulenc, Inc., the U.S. based unit of a global French chemical company. In 1998, Rhône-Poulenc separated its chemical and pharmaceutical businesses, and the plant was acquired by Rhodia, Inc.

The Rhodia plant manufactures chemical surfactants used in everyday household products. These include ingredients for fabric softeners and detergents, baby wipes, cosmetics, paints, and lubricants. There are more than 100 different products made at various times at the plant by heating, mixing, and cooling chemicals. The US Environmental Protection Agency and the state of South Carolina closely monitor all activities at the plant, especially those involving three particular hazardous materials used in Rhodia's manufacturing activities: ethylene oxide, propylene oxide, and allyl alcohol.

Over the course of its first 20 years of operation, communication between Rhodia and its Arkwright neighbors was limited, and mistrust of the plant and its management continued among local residents. In 2000, shortly after Jim Trafton transferred to Spartanburg as Rhodia's new plant manager, ReGenesis requested that Rhodia close its operations in Arkwright. The company took this request seriously, but after researching its options, decided to stay. However, at that point, Rhodia made a public commitment to support the community's redevelopment efforts.

Rhodia chose to be one of the primary "dialogue participants", along with ReGenesis and the EPA Region 4. The partnership commenced officially in 2001 to deal with issues directly and indirectly related to the

environmental cleanup of the area. At that point, Rhodia began undertaking many actions to improve the health, safety, and quality of life in the community.

Air and Water Quality

In June 2001, Rhodia retained an outside company to do door-to-door surveys with 50 Arkwright and Forest Park neighbors to determine their concerns with the plant and what might improve conditions in the neighborhood. Neighbors candidly informed Rhodia that air quality and odors emitted from the plant were the greatest concern, followed by traffic problems and speeding, quality of roads, and lack of recreational facilities for neighborhood children. This survey became an important planning tool for Rhodia's community support and involvement.

In 2001 Rhodia voluntarily installed six groundwater monitoring wells around the perimeter of the plant to test the water flowing deeply underground for the presence of 100 different chemicals, including chemicals handled at the plant. Representatives from the EPA-funded Technical Outreach Services to Communities (TOSC) program at Georgia Institute of Technology came to work with ReGenesis to help its members understand the technical and scientific elements of the sampling. Members of the TOSC program also provided a third-party review of Rhodia documentation. Results confirmed that plant operations were not polluting groundwater. A seventh well was added and sampling was done again in 2005 with the same results.

In 2003, Rhodia began working with ReGenesis and the EPA Region 4 on developing state-of-the-art continuous air sampling to ensure that emissions from the plant did not pose a health

risk to neighborhood residents. The first round of air sampling occurred in 2003, and a second round occurred in 2005 at five air testing and analysis stations around the plant. Although air sampling was not required by law or governmental agencies, Rhodia volunteered to do it anyway and to engage the services of an independent engineering company to ensure transparency of the process. Rhodia also invited residents to come to the plant to observe monitoring practices. Ongoing monitoring showed that no emissions exceeded regulatory standards.



In response to neighborhood concern about odors, Rhodia invested over \$100,000 in improvements to its wastewater treatment facility. The project, completed in 2005, was approved by SC DHEC. In addition, Rhodia worked with residents to develop a formal process of odor reporting, investigation, correction, and follow up. Rhodia distributed refrigerator magnets to neighbors, with plant contact phone numbers and procedures to follow when they smell odors. As a result, when an odor is reported, Rhodia employees go quickly to the neighbor's home to investigate and to respond.

Safety and Emergency Preparedness

In the 2001 door-to-door survey, and in many meetings, residents expressed a major concern regarding the railroad line operated by CSX that crossed both access roads to Arkwright. Since trains often blocked both roads when long trains were metering in and out of the downtown CSX rail yard, neighbors felt vulnerable in case of a plant emergency. To help neighbors with this issue, Rhodia contacted CSX and involved them in the facilitated dialogue process. As a result, CSX took steps to improve train movement through the community. Equally as important, Rhodia partnered with ReGenesis to leverage grants money to construct a new access road in and out of the community.

Records show that, by 2003, Rhodia had released written information to community residents regarding the hazardous chemicals used in their manufacturing process, including how the chemicals are used, how they are stored, the particular dangers of the chemicals, and safety measures taken to ensure against contamination by these chemicals.

One of the first joint community / industry efforts undertaken by Rhodia in 2001 was a simulated emergency response training exercise at the plant involving three local fire departments, including 21 firefighters and emergency responders. As a follow up, in 2002, Rhodia invited the Spartanburg County Office of Emergency Preparedness and the local Fire Department and Emergency Medical Service to sponsor an emergency response field exercise in the community. Rhodia provided support by distributing shelter-in-place information to residents door-to-door. In 2003 and 2004, even larger community emergency drills were held in the community. In 2003 and 2004, even larger community emergency drills were held with

additional first responder organizations involved. Follow up drills, under the sponsorship of local emergency responders, have been held periodically since that time.

Rhodia has been vigilant in enacting a wide range of safety measures, many of which cannot be disclosed to the public because of the sensitive nature of the information. Other safety improvements include the installation of elevated fencing and new fence-top wire, controlled access to the plant property and enforcement of the policy that all vehicles entering and exiting the property are subject to inspection, engagement of an active surveillance system, and thorough background checks on all persons hired at the facility.

Jobs

With encouragement from Plant Manager, Jim Trafton, neighbors of Rhodia began applying for jobs at the plant. A number of qualified workers from the community have been hired, and Rhodia committed to expanding this effort by working with a local job training organization to better prepare candidates for employment. Beginning in 2003 and as a direct result of the ReGenesis-Rhodia-EPA dialogue, Rhodia sponsored a Summer Intern Program to employ two students living in the Arkwright community, giving them hands-on work experience in a variety of jobs from manufacturing to shipping.



Redevelopment and Beautification

The US Department of Housing and Urban Development awarded the Housing Authority of Spartanburg a \$20 million Hope VI grant to revitalize several Spartanburg neighborhoods, including Arkwright. The grant built 500 new housing units, most of which were sold to low and moderate income home-buyers. The balance of the grant targeted access to education, child care, transportation, financial planning, and job training. Rhodia contributed a total of \$50,000 in support of this grant.

In June 2002, Rhodia employees participated in Arkwright Cleanup Day, assisting neighbors in removing tons of trash and debris from the neighborhood.

As a result of requests from neighbors, Rhodia resurfaced the basketball court in Arkwright Community Park in July 2003.

In 2005, Rhodia responded to neighbors' observations that the view of the plant and periodic noise coming from it were intrusive. Neighbors and Rhodia agreed that the existing small trees should be removed from the fence line along Jackson Street, and Rhodia installed 140 larger holly trees more suited for screening purposes.

On April 16, 2005 a local nonprofit, Christmas in Action, partnered with ReGenesis for a community "Rebuilding Day", using volunteer labor to repair 39 homes and a church in the Arkwright community. Rhodia contributed \$10,000 to this effort and had a team of workers on the project all day.

Building Relationships

From the outset, Rhodia believed that it was imperative to build trust between itself and the

community through open and ongoing communication. Meetings between residents and Rhodia in late 2000 demonstrated that a high level of mistrust existed in the community and that something needed to be done to correct the situation. Rhodia and ReGenesis agreed that a facilitated dialogue process would be a good starting place. Beginning in May 2001, the primary partners met regularly to openly discuss issues and held weekly telephone conference calls. A paid, neutral facilitator led these meetings and conference calls. Periodically, a Dialogue Fact Sheet was written and approved by all three parties and distributed to the community to update residents on activities, accomplishments, and goals. The dialogue process has provided opportunity for community members to speak directly with Rhodia representatives and for all parties to work together to identify and build upon common goals

In October 2001, Rhodia hosted the community at an open house that included tours of the facility, a picnic lunch, and family friendly activities. The event was so successful that Rhodia hosted several more over the succeeding years.

In May 2003, Rhodia hired a community liaison to help maintain communications between the plant and the Arkwright community. She works closely with community representatives from ReGenesis, the Community Health Center, the Arkwright Sympathy Club, and Spartanburg County to identify ways that Rhodia can further assist the community.

Neighbors of Rhodia along the fence line started a community discussion group in 2006. Regular meetings were held with representatives from

Rhodia, ReGenesis, and EPA Region 4. The group worked with Rhodia to resolve a number of issues such as odor reduction from the plant's wastewater treatment, employment opportunities, etc. The company committed, in writing and verbally, to immediately addressing any problems brought to the company's attention.

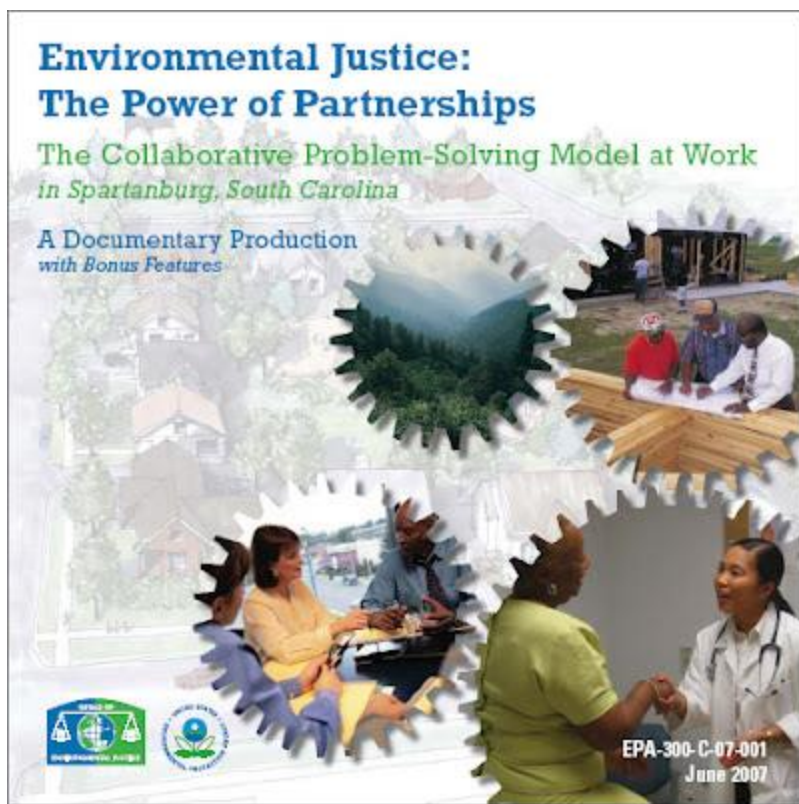
Annually since 2001, Rhodia has donated \$500 to "Feeding the Community Day", a program designed to provide a hot meal on Thanksgiving to those in need. Employees assist in spreading the word to neighbors by delivering flyers door to door. This, and a series of other events sponsored by Rhodia has improved relationships, and a mutual sense of trust has evolved.



Problem solving model

Distressed communities are usually characterized by a variety of deeply entrenched problems. The ReGenesis partners quickly realized that true change in the Arkwright and Forest Park communities would require a new way of thinking, new strategies, creativity and effective partnerships. As leader of the partnership, Harold Mitchell knew that focus must be on the residents – keeping them at the table was imperative to realizing true environmental justice, since the foundation of environmental justice is empowerment of the affected community. Through Harold’s efforts, residents were kept informed and engaged in the process. They were allowed to make the decisions that would affect them.

After the initial meeting of the residents, it was clear that no one entity had the entirety of resources and relationships required to meet residents’ expectations for community improvement. It was clear that resources from multiple partners would have to be leveraged. It also became clear, as ReGenesis formalized its goals, that if there was any hope of solving the community’s problems, a thoughtful approach to dealing with the issues would need to be applied. Working with different stakeholders and different attitudes in a positive, productive way would require persistence, open-mindedness, and lots of listening. It was a process that would take time to unfold. The partners invited anyone to the table who could give advice or insight.



The success of the ReGenesis partnership provides an excellent example of the EPA’s Collaborative Problem-Solving (CPS) model, a systematic community-based approach that facilitates lasting solutions to environmental and/ or public health problems using collaborative action. This model has been used in distressed communities to solve deeply entrenched problems by leveraging partnerships. What happened with ReGenesis fulfills the seven elements of the CPS model:

- Issue Identification, community vision and strategic goal setting: The community brought issues to EPA's attention, as well as to the attention of state and local officials. At meetings of residents, brainstorming exercises resulted in a vision of the community and a set of goals that would achieve the vision.
- Community capacity-building and leadership development: The ReGenesis partners were committed to finding ways to provide residents with the skills, resources and information they need to achieve their goals. They invested the necessary time it took to do this. Harold Mitchell evidenced the leadership skills from the outset that brought the community together to work on the issues; however, the partnership also nurtured and enhanced his skills by advising him and providing ongoing education relative to environmental justice. In fact, Harold was named to the National Environmental Justice Advisory Council for EPA and won the EPA's 2009 Environmental Justice Achievement Award. Other community leaders were identified, and partners built trust by listening to the community.
- Consensus building and dispute resolution: ReGenesis was committed to finding effective ways to make group decisions involving all appropriate parties. Disagreements were resolved through consensus, rather than through a top-down process. In fact, by investing in facilitated dialogue between Rhodia and the community, ReGenesis ensured that issues would be addressed with civility, giving both sides equal voice.
- Multi-stakeholder partnerships and leveraging of resources: At least 200 partners have examined the Arkwright and Forest Park community's problems together and have brought resources to the table to achieve common goals. The project mirrored the fact that obtaining one resource stream often leads to obtaining several others.
- Constructive engagement by relevant stakeholders: stakeholders other than community members and governmental entities were invited to participate in the project. Business, industry, academic, and other stakeholders were identified and recruited. These unlikely partnerships resulted in comprehensive "buy-in" for the project. For example, many of the community's issues would not have been resolved without the active involvement of Rhodia and Vigindustries.
- Sound management and implementation: As the ReGenesis project began to coalesce, EPA suggested that ReGenesis adopt a more formal organizational structure that resulted in the ReGenesis Environmental Justice Partnership. Primary and secondary partners were identified. Leaders, spokespeople and decision makers were later identified. Work plans were carried out with clear objectives, responsibilities, and time frames.
- Evaluation, lessons learned and replication of best practices: To this day, the ReGenesis project is evolving based on what has worked and what has not. The community looks for good models on which to design its infrastructure and programs. ReGenesis has also been identified as a best practice model itself for environmental justice and collaborative problem solving. The partners are always ready to tell the ReGenesis story!

Full implementation of the CPS model achieves community empowerment, strategic planning and action, community education, governmental commitment and citizen involvement, and sustainable use of resources. The ReGenesis project provides an excellent example of these outcomes.

“..... the CPS model was used effectively in Spartanburg, South Carolina, where a community-based organization called ReGenesis brought together the community, government, and industry to overcome tremendous obstacles to realize a vision of addressing long-standing local environmental, public health, and socioeconomic ills.”

- US Environmental Protection Agency



Fifteen Years Later

It has been fifteen years since Harold Mitchell first approached the EPA about his concerns for the Arkwright and Forest Park communities. In so many ways the communities have been transformed and environmental justice realized. In 2005 Harold was elected to the SC House of Representatives for SC District 31, where he continues to represent his neighbors more broadly than he could have as Executive Director of ReGenesis.

All in all, over 200 partners have been involved in the ReGenesis project. As the reach of the project has expanded, the community has lost count of the dollars directly or tangentially attributable to the vision of ReGenesis. New projects are emerging, and original projects are changing and expanding. Fresh ideas continue to surface.

New leaders have also emerged in the community, and residents remain active in improving quality of life for everyone. Arkwright and Forest Park are now seen as part of the

greater "Southside" area of the City of Spartanburg. Clearly, the progress that has been made in the two neighborhoods has expanded to contiguous areas. In fact, many of the programs in the Southside have been models for the Northside of the city where there is now an active Weed and Seed program and a new Promise Communities initiative. City leaders and other partners are putting much effort into Northside initiatives in hopes of achieving the successes realized in the Southside by the ReGenesis project.

ReGenesis Health Care Center continues to provide medical homes to underserved people in Spartanburg



and has expanded its services to neighboring Cherokee County. It now has several satellite office locations throughout Spartanburg County, including its newest location at Park Hills Early Learning Center where children, families and the community can access health services conveniently in a school setting. In 2010 it expanded its programs to include family

dentistry and an onsite pharmacy. There have been many other successes and new programs:

- By securing funding through a variety of public and private grants, ReGenesis Health Care now has a very effective doula program to provide continuous physical, emotional, and educational support to the laboring mother and family, before, during, and after childbirth. This program, called Birth Matters, is a doula network serving any pregnant woman. Those who are 20 years old and younger are served at no charge.
- A partnership with Merck Pharmaceuticals enables ReGenesis to offer free diabetes education to patients and to the community through twice monthly public events in Spartanburg and Cherokee counties.
- In December 2009, ReGenesis became the grantee for the South Carolina Migrant Health Program. Since that time, medical and interpretation services have been provided to over 405 farm-worker patients at two locations in an effort to improve the health status of the migrant and seasonal farm workers and their families through culturally and linguistically competent health care services. Seasonal health clinics operate from May through October.
- ReGenesis provides outreach services and health screenings throughout the area by participating in health events and programs. The outreach program also works with local businesses to provide health screenings for employees.
- Every year ReGenesis hosts an annual Back to School Health Fair. Over 5,000 people attend events in both Spartanburg and Cherokee Counties. Free health screenings, back packs and school supplies are provided to over 3,500 children. This program is made possible by community partners and other sponsors.

The community continues to pursue several of the redevelopment projects initially envisioned in the design charettes. Funding has not yet been obtained to construct the housing and amenities envisioned for the Page property, the trails along Fairforest Creek, the Bomar Avenue and Perry Parkway redesign, or the football field on South Liberty Street. However, the community is committed to making the redevelopment plans a reality.

When the residents of Arkwright and Forest Park first began to articulate their concerns in the mid-1990s, environmental justice was just beginning to be conceptualized in the national consciousness. Only shortly before, in 1992, had the EPA started working to advance environmental justice by creating the Office of Environmental Equity (later renamed the Office of Environmental Justice). Therefore, the

ReGenesis project was one of the first to be fully recognized as an environmental justice initiative. In 1994, President Clinton issued Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations", requiring that achieving environmental justice must be part of each federal agency's mission.

Today, it is generally recognized that members of disadvantaged, ethnic, minority or other groups suffer disproportionately from environmental risks or hazards and from the health problems associated with those hazards. Members of these groups often have low income and little power and political influence. Historically they have been denied access to information and participation in decision making in environment-related matters that affect them. Along with governmental agencies, many national and

international groups are working to rectify these historic problems by promoting the “fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies” (EPA, 2012).

Perhaps the most valuable outcome of the ReGenesis project is a renewal of the spirit of

Spartanburg. Its citizens have seen what can be accomplished when people and institutions come together in a spirit of cooperation and openness. Collaborative problem-solving has transformed the community in many ways and is now how business is done in Spartanburg. Thanks to the model provided by ReGenesis, many other entrenched problems throughout the county have been identified and tackled.

“This is a long-term project – not only to deal with the brownfield issues or the environmental issues of this specific site, but to really take this to a much different level; to have a vision that’s not just about fixing a brownfield site or an environmental problem, but rather, to open u p and area to economic development, to create a new set of expectation for a community. So we’re focused on rebuilding our neighborhoods, rebuilding our job market, getting people to really believe that this is a community into which they should invest jobs and dollars.”

- **Bill Barnet, Past Mayor of Spartanburg**



Resources Leveraged

Although it is impossible to identify the total number of resources that have been leveraged by ReGenesis, it is clear that the dollar figure for leveraged funding is in excess of \$270 million.



Environmental Justice Realized

In 1999 the people of the Arkwright and Forest Park neighborhoods were living between two hazardous waste sites and a chemical manufacturing plant. For decades, “normal” had been, first, air filled with dust and caustic odors that burned eyes and noses and lungs, then, abandoned and blighted buildings and homes, strewn garbage, and filthy, neon-colored streams and ponds. Just two years later, the community had found a vision for itself. It had organized to identify what was wrong and how it could be made better. Partners from federal and state agencies, local government and other organizations, businesses, nonprofits, and interested citizens had come together to help the community realize its vision. The hard work had begun. Time, energy, and resources had been committed to the project by multiple partners.

By 2003, transformation was truly obvious. The fertilizer plant and the dump were cleaned up, a community healthcare center was established, new mixed-use public housing was being built, blighted buildings were torn down, and job training and employment opportunities were brought to residents. It was already a different community. At the same time, new projects were emerging and community vision was changing and expanding.

The ReGenesis Project adopted seven project goals:

- 1) Create a comprehensive redevelopment plan
- 2) Clean up contaminated sites
- 3) Provide for public safety, education, and life skills
- 4) Ensure public health
- 5) Improve transportation access
- 6) Create open space and trails
- 7) Develop affordable and energy-efficient housing

All of these goals have been realized, at least to some extent. Work is ongoing toward complete fulfillment of the vision. Various impacts have resulted for the larger community as these goals have been achieved in the Arkwright and Forest Park communities.

Goal 1: Create a comprehensive redevelopment plan

Brownfields designation allowed ReGenesis to clean up abandoned industrial sites and dumps in the Arkwright and Forest Park communities and to redevelop them by improving infrastructure and designing sustainable communities targeted to the needs of residents. Redevelopment planning was done for Brownfields sites, transportation corridors, open spaces, trails, existing facilities, housing, and recreation venues. Specific accomplishments related to the redevelopment planning include:

The Bomar Avenue dump: This 64-acre Brownfield site was purchased by ReGenesis, assessed and cleaned up to remove blight and end drug activity and crime.

Bomar Avenue and South Liberty Streets: New and rehabilitated housing in this area replaced abandoned houses and eliminated drug activity and crime.

The Arkwright Mill Store: Although initially assessed for reuse, mold, asbestos and other factors required demolition.

North Street dump site: This site was assessed and cleaned up in late 2007.

Rhodia, Inc.: Facility wastewater pretreatment was upgraded, eliminating the need for off-site disposal of wastewater treatment by-products. An automatic shut-down system was installed to prevent release of airborne contaminants.

The Page Property: This site was assessed by ReGenesis and purchased by the Spartanburg Housing Authority in 2006. It is now a clean green space with plans completed for a \$18 million mixed-income housing, shopping, recreation and entertainment complex.

Economic Impact

The elimination of blight, crime, and drug activity in these Brownfields areas has created opportunity for new construction and small businesses. The national data show that as of 2000, every one public sector dollar invested in Brownfields remediation and redevelopment leveraged an additional \$2.48 in private dollars (Paul, 2008), with one-half of the public money coming from non-local sources. Public investment in Brownfields is generally recouped from local taxes generated by the project within about five years, although tax credits may extend this period. A survey by the U.S. Conference of Mayors found that redeveloped Brownfields in 62 surveyed cities had the potential of generating \$408 million in annual local tax revenue. Further, the survey found that redeveloping remaining Brownfields could generate between \$1.3 and \$3.8 billion in local taxes (Paul, 2008). The Northeast Midwest Institute has concluded that public investments in Brownfields leverage total investments at a ratio of approximately \$1 public investment to \$8 total investment.

The Land-of-Sky Regional Council in North Carolina estimated in 2005 that between \$350 million and \$500 million in economic benefits in the Councils' region have resulted from Brownfields cleanup and redevelopment (National Association of Development Organizations).

In addition to generating new sources of local revenue derived from previously unproductive land, redeveloping Brownfields reduces investment in infrastructure to accommodate growth, since Brownfields typically already have infrastructure in place. Thus, there is a cost savings in building and maintaining infrastructure relative to alternative new development, which adds to urban sprawl. The magnitude of this cost savings is uncertain, but one analysis pegged the savings at as much as \$1 for Brownfields vs. \$10 for new development (Paul, 2008).

Redeveloping Brownfields as urban centers of creative denser development supports a growing economic and political commitment to sustainable land use. However, the economic benefit of simply turning Brownfields into clean green space is recognized by organizations as diverse as the Urban Land Institute

and the Trust for Public Land. Since urban expansion is costly, there are broad economic benefits available from reuse and redevelopment of idle lands such as Brownfields, whether reuse is in the form of green space or otherwise.

Environmental Impact

Brownfields redevelopment, when compared to new development, saves land from the negative factors associated sprawl, reduces air emissions and greenhouse gases, improves water quality through reduced runoff, and generally accommodates growth in an environmentally responsible fashion.

One acre of redeveloped Brownfields has been estimated to conserve 4.5 acres of sprawl development (Paul, 2008). With Brownfields increasingly being used for dense residential and mixed residential redevelopment, Brownfield sites collectively represent a particular opportunity for environmentally responsible accommodation of population growth. According to the U.S. Conference of Mayors' 2007 report, 82 responding cities estimated that redeveloping Brownfields could accommodate 2.8 million households.

The findings from three case studies indicate that Brownfields projects, in comparison to alternative projects, save between 20 percent and 40 percent of vehicle miles traveled (Paul, 2008). This translates directly to air emissions reductions or savings of a similar magnitude.

Community Investment Impacts

The very presence of Brownfields can undermine the economic competitiveness of a region by damaging its image and making it less attractive than it otherwise would be. Brownfields redevelopment is frequently the catalyst or the linchpin that creates a positive environment for new investment and leads to transformation of entire neighborhoods and districts.

Although environmental design is often viewed as an unnecessary luxury, a loss-leader, or other marginal component of the built environment (Johnston & Braden, 2008), its real value lies in both the practical and the aesthetic benefits attributable to avoided costs for things like poor drainage and flood mitigation, as well as increased visual appeal. Well-designed neighborhoods have higher property value, lower potential for crime, fewer physical hazards, increased recreational opportunities, increased community involvement, and many other benefits.

According to Johnston & Braden (2008) improved design knowledge, and better planning are not an economic liability to the community, but rather may serve to add economic benefits on par with (or maybe even exceeding) many other economic development strategies currently pursued.

Goal 2: Clean Up Contaminated Sites

The ReGenesis project identified a number of sites potentially contaminated by hazardous waste, chief among them the Arkwright dump site and the IMC fertilizer site. Both of these sites were subsequently

designated as “Superfund” areas by the EPA and placed under clean up orders. ReGenesis led efforts to evaluate health risks to the residents of these areas and to conduct Potentially Responsible Party searches and enforcement. Specific accomplishments related to environmental remediation include:

Arkwright Mill: This 28-acre Brownfield site was purchased, assessed and cleaned up. Removal of petroleum and hazardous wastes was completed in late 2007, enabling reuse of the site for recreation.

Arkwright Dump: The City of Spartanburg cleaned up this former municipal landfill by capping solid waste and alleviating water contamination.

IMC Fertilizer Plant: This 46-acre site adjoins the Arkwright dump. Shut down since 1986, plant buildings were a center of crime activity. ReGenesis efforts resulted in deconstructed of the plant and removal of contaminated soil. This site is still undergoing soil and groundwater cleanup by its owner.

Economic Impact

According to Johnston and Braden (2008), to justify environmental remediation using economic criteria, the magnitudes of the benefits would have to exceed the costs of remediation. In their cost-benefit analysis of the cleanup of two Superfund sites in Woburn, MA, comparable to the sites in Spartanburg, Kiel and Zabel (2001) estimated that the benefits from cleaning up the sites were in the range of \$72 million to \$122 million (in 1992 dollars), outweighing the cost of cleanup. In addition to the increase in property values that result from cleanup, Kiel and Zable promote the idea that other factors should be included in the analysis, including “spillover” of improved property values to other proximate communities, health benefits resulting from remediation, and residents’ perceived risk from living in contaminated areas. Economic efficiency standards can be applied to the determination of whether (and when) a site should be remediated.

The benefits of improvements in the health of the ecosystem, including reduction of human health risk, are manifest variously. However, the reality is that people prefer to live in less degraded environments; thus, property values are higher in remediated areas and areas proximate to them. Studies have shown (Paul, 2008) that remediation leads to property value increases on the order of 5% to 15% for properties that are up to 3/4 mile from the remediated site. However, studies show that when remediated industrial sites change to parks or mixed use, there are much higher economic impacts, even exceeding 100%.

Social Impact

Degraded environmental conditions have real costs, not only in lost property value, but also in degraded sense of community. People with resources choose not to live in poor environmental conditions; therefore, these areas are characterized by high poverty and by attendant ills of blight, crime, and economic depression. Further, degradation affects not only those who are exposed to environmental problems in the conventional sense, but degradation also affects the larger community due to the extended social stigma effect of known pollution problems.

Goal 3: Provide for public safety, education, and life skills

In keeping with ReGenesis' comprehensive approach to community empowerment, new or additional public safety, education and life skills initiatives have been introduced in the community. Specific accomplishments related to these initiatives include:

Job training: Community remediation and development provided training and job opportunities for residents, including many who are chronically unemployed, in construction of new housing, asbestos abatement and other projects.

Increased Local Recruitment: Rhodia, Inc. partnered with neighborhood residents and the ReGenesis project to increase local recruitment and employment efforts.

Weed and Seed: A grant was awarded by the US Department of Justice for the community to “weed” crime and “seed” the community with opportunity. This community-based, multiagency approach to law enforcement, crime prevention and community revitalization in high-crime neighborhoods has been so successful that it has been expanded and extended to the Northside area of the city.

Volunteer Fire Station: Public referendum called for construction of a new fire station, now located on Highway 295, replacing the outdated facility on North Liberty Street.

Intersection at South Church Street and South Street: This formerly unsafe intersection was redesigned and signals were installed to increase traffic safety in the community.

Community Outreach Partnership Center (COPC): This partnership with The University of South Carolina Upstate provided a variety of education and life skills opportunities through the Healthy Living Initiative. These included global classroom opportunities, digital storytelling, youth leadership, health education, environmental testing and screening, a market study of community needs, and other programs and initiatives.

Matthew J. Perry Parkway: A design for this area from Highway 295 to Bomar Avenue was completed and provides alternative safe access to industries, improving safety for residents impacted by multiple railroad crossings. Once construction funds are secured, the design will be implemented.

CC Woodson Recreation Center: A new facility was constructed, replacing the outdated Center. The Center brings recreation, other services and programs to residents and is the site of a “safe haven” from crime created through the Weed and Seed grant.

New Football Field: ReGenesis purchased land on South Liberty Street for construction of a regulation-sized football field. Once funds are obtained, the field will be built.

Spartanburg Housing Authority: The former Mary H. Wright Elementary School was purchased by the Spartanburg Housing Authority, rehabilitated, and repurposed for administrative offices.

Economic Impact

Since the Weed and Seed initiative was implemented, crime in the Southside has decreased by 90%. Traditional economic impact studies assess the benefit of investing in additional law enforcement infrastructure (personnel, equipment, training, etc.); however, ReGenesis actually provides economic benefit by *reducing* the need for additional law enforcement services. With the removal of abandoned houses and the redevelopment of marginalized areas, crime has decreased. Tangible costs associated with crime, and avoided by crime reduction, include lost productivity (perpetrator and victim), lost wages, medical expenses, property damage or loss, costs associated with legal adjudication and correctional systems, jury compensation awards, victim services, and many others. There are also numerous intangible costs, not the least of which are pain and suffering of victims and their families.

Generally, the impact of new or improved fire stations include improved public safety through prevention of fire, fire deaths and injuries, as well as through municipal code enforcement and public fire safety education. Although improved fire safety results in obvious economic benefits, its social contribution, in terms of lives saved, cannot be ignored.

A study by Jones, Bumbarger, Greenberg, Greenwood, & Kyler (2008) found that life skills training for middle school students realized a \$25.72 return for every \$1 invested as measured by the program's likelihood to reduce substance abuse. Of this, 77% of the economic benefit was to program participants and 23% was to society / taxpayers. Although these findings were specific to the particular program studied, the literature is replete with positive economic impact findings for a variety life skills training. The Healthy Living Initiative provided life skills training and educational opportunities to school age and adult residents in the Arkwright and Forest Park communities.

In terms of employment, research (Paul, 2008) demonstrates that it takes between \$10,000 and \$13,000 of public investment to leverage one job. Jobs that arise from Brownfields remediation are leveraged at \$5,700 in public costs, a substantial cost savings to tax-payers.

Other Impacts

An evaluation of the Weed and Seed program in Spartanburg (Brady, 2009) found that neighborhood-based law enforcement efforts in the Northside community of the city have been successful. The study found that many of the negative elements that characterized the Northside neighborhoods have been improved or eliminated over the past two years. Residents' perceptions of crime, problems with youth, and the quality of their environment have improved. Residents had generally positive attitudes about their neighborhoods and neighbors, reporting a perceived decrease, over the last two years, in drug activity in their community, improved relations with law enforcement, and increased community empowerment.

Xu, Fiedler and Fleming (2005) have demonstrated that community disorder has strong direct, indirect, and total effects on crime and actually elicits more fear in neighborhoods than crime itself. The same

study demonstrated that community policing reduces crime, fear and disorder more than any other variable studied. Chaotic, crime-ridden neighborhoods lead to urban flight, leaving behind the poorest and most marginalized residents. These neighborhoods emit a message of apathy, and become more prone to vandalism, litter, graffiti, loitering, and crime. With neighborhood cleanup and reinvestment, these areas experience drop in crime, increased home ownership, and increased property values.

In terms of recreation amenities such as the CC Woodson Center and the new football field, it is generally recognized that recreation affords substantial benefits to the community that extend beyond the health benefits of recreation. In a nationwide study of the benefits of local recreation conducted at Pennsylvania State University, researchers compiled a listing of the benefits of local recreation and park services as perceived by the American public, both users and non-users of local recreation services. Even 71% of non-users said they received some benefit from their communities' parks and recreational services. Many of the benefits cited were related to keeping youth occupied and off the streets, a benefit thought to increase community safety and quality (City of Columbia, Mo, 1992).

Goal 4: Ensure public health

The initial focus of the ReGenesis project was to cleanup environmental hazards imposed by the abandoned IMC fertilizer plant and the Arkwright dump. However, Because residents of the Arkwright and Forest Park communities were medically underserved, yet exposed to significant environmental toxins, a health center was established in the community in 2003.

ReGenesis Health Care: Established in 2003, the center was expanded in 2005 as ReGenesis Health Care, a Federally-Qualified Health Center (FQHC). Since its establishment, it has grown significantly and continues to be an important and highly respected presence in Spartanburg, recognized as a model for reducing and eliminating barriers to wellness.

Economic Impact

According to the National Association of Community Health Centers (2007), FQHCs provide care at a cost of 41% less than equivalent care provided in other settings, saving the health care system between \$9.9 billion and \$17.6 billion each year. Much of these savings come through reduced uncompensated care and less cost to Medicaid and the State Children's Health Insurance Programs. Providing services in an ambulatory setting avoids costly emergency room visits, preventable illnesses, and debilitating complications from untreated chronic conditions.

Health economics demonstrate the advantage of preventive care through cost-benefit examples too numerous to list. The average cost per patient at ReGenesis during fiscal year 2008-2009 was \$468. Much of these costs were attributable to preventive care. Comparatively, the average cost for self-pay patients who are discharged from emergency room visits or from inpatient treatment resulting from emergency room visits in Spartanburg, was \$1,878 in 2008. The average charge for emergency treatment for patients with commercial insurance in 2008 was \$3,714, versus \$1,878 for self-pay patients. The fact that costs for emergency treatment for self-pay patients are significantly lower reflects the fact that the self-pay

patients who are treated in emergency rooms often seek treatment for conditions that are ambulatory care sensitive (non-emergency) and could be treated at a health center such as ReGenesis.

Health centers also provide 143,000 jobs nationally and generate \$12.6 billion in economic activity. They also bring additional professional and nonprofessional jobs to economically deprived neighborhoods, including those in Spartanburg. Direct economic benefits derive from payroll, taxes and operating costs, and numerous indirect impacts are generated by secondary spending in the local economy.

Other Impacts

Reducing health inequities is a primary driver of FQHCs. In addition to the economic impact of health centers, health outcomes of those served by FQHCs are often improved relative to similar populations not served by a health center. For example, communities with health centers have 10% lower infant mortality rates than similar communities not served by health centers (National Association of Community Health Centers).

Having a health center located in a marginalized area engenders community pride and empowerment. The fact that ReGenesis Health Care Center is a model program for the National Diabetes Collaborative is a source of pride for the patients who are served, as well as for the larger Spartanburg community. The Health Center now provides services to 14,000 residents who did not have medical homes. The toll of human pain and suffering that is alleviated by access to health care and disease prevention is inestimable both in terms of economic quantification and in quality of life.

Goal 5: Improve transportation access

The ReGenesis project identified the need to establish adequate and safe transportation routes into the Arkwright and Forest Park communities, especially for residents who are impacted by industrial traffic and railroad crossings. Specific accomplishments that maximized transportation capacity include:

Bomar Avenue realignment: The realignment design for this area was completed as part of the overall design of the Matthew J. Perry Parkway, providing improved safety for residents. Once construction funds are secured, the design will be implemented.

Sims Chapel Road: This was the main roadway into and out of the Arkwright and Forest Park communities. It crossed railroad tracks at Rhodia, Inc. and was often blocked by train cars and commercial truck traffic delivering goods to the facility. Through the ReGenesis project, it was identified as one of the worst roads in Spartanburg County. A \$2.2 million appropriation to the SC Department of Transportation funded study and construction of an alternate access roadway.

Highway 295 Improvements: This state road has been expanded and now provides access to the Page property and connectivity via sidewalks and bike lanes.

Economic Impact

Recent data (Weisbrod & Reno, 2009) show that the economic impact of transportation infrastructure improvements have a 4 to 1 benefit to cost ratio and a 3.8 to 1 ratio of value added (in terms of gross domestic product) per dollar of investment. Economic impact is realized in terms of added jobs, new business generated, increased tax revenues, and the like. The study, done under the auspices of the National Transportation Association, found that for every \$1 billion of annual investment, there is \$3.5 billion in gross domestic product generated per year. The study considered direct impact in terms of

- employment: jobs are generated by construction and public transportation operations activities
- wages: worker incomes are respent in throughout the economy
- business income: transportation improvements enable a variety of economic efficiency and productivity improvements

Other indirect economic impacts were not quantified, but have significant impact themselves. These include

- reduced traffic congestion for those traveling by automobile and truck, leading to further direct travel cost savings for businesses and households
- operational savings for business associated with increased worker reliability as a secondary effect of reduced congestion
- business productivity gained from access to broader labor markets with more diverse skills, enabled by reduced traffic congestion and expanded transit service areas
- additional regional business growth enabled by indirect impacts of business growth on supplies and induced impacts on spending of worker wages
- Cost savings and other productivity impacts can affect competitiveness in international markets.

Other Impacts

Other impacts, though difficult to quantify, include:

- Improved mobility of residents which increases access to needed and desired services (recreational, medical, shopping, etc.)
- Shaping of land use and development patterns
- Shaping of public policies regarding energy use and air quality
- Shifts in consumer spending from vehicle ownership savings

Goal 6: Create open space and trails

From the outset of the project, redevelopment was done with purposeful preservation of greenways and open spaces. Upstate Forever, a local conservation organization, assisted with remediation and redevelopment that brought greenways and greenway trails to blighted areas in Arkwright and Forest

Park, connecting those areas with non-marginalized areas of the community. Specific accomplishments related to greenway infrastructure include:

Link to the Palmetto Trail: Redevelopment provided opportunity for a greenway link, as a segment of the Palmetto Trail, between the City of Spartanburg and Camp Croft.

Fairforest Creek Trails: Fairforest Creek is the jurisdictional boundary between the City of Spartanburg and Spartanburg County. Environmental remediation and neighborhood cleanup provided a prime location for future walking trails along the creek.

The Page Property: The master plan for the Page property was completed and includes parks, walking trails, and water features.

Economic Impact

According to an analysis of the economic impact of parks and greenways on property values over the last two decades (Crompton, 2005), the evidence unequivocally supports the contention that parks and open space have significant economic impact. Properties that abut a passive park or green space area realize a 20% increase in property value for their close proximity. The higher value of these residences means that their owners pay higher property taxes, resulting in subsequent enlargement of the property tax base.

In addition to the private gains enjoyed by those living in close proximity to open spaces, the entire community indirectly profits from secondary economic benefits in terms of its comparative advantage in attracting future businesses and higher income relocators. Further, the increases in municipal expenditures and improvement in public services as a result of increased tax earnings may mean an increase in jobs and further increase in business development as higher wage earners are attracted to communities with amenities such as parks and green spaces.

Environmental Impact

Greenways offer routes for alternative means of transportation (especially walking and biking) which reduces emissions, especially in congested urban areas.

Open space preservation helps communities grow “smart”, preventing the higher tolls of unplanned development.

Open space conservation is often the cheapest way to safeguard drinking water, clean the air, and achieve other environmental goals.

Social Impact

Greenways and open space provide a calming effect, passive recreation, and educational opportunities, that expand ecological and aesthetic awareness.

Greenways and open space in city environments such as Spartanburg stimulate planned commercial growth and promote inner-city revitalization.

Goal 7: Develop affordable and energy-efficient housing

Key to ReGenesis' environmental justice efforts was following demolition of blighted housing by development of affordable, energy efficient upgraded and new housing for residents of marginalized neighborhoods. There are now 662 rental housing units and 36 home ownership units in 11 new neighborhoods in the ReGenesis redevelopment footprint. A total of \$102 million federal HOPE VI grant dollars have been leveraged 5 to 1 to accomplish this. Specific ReGenesis accomplishments related to housing include:

Collins Park: This mixed income community boasts 100 rental units and 36 home ownership units. New development replaced dilapidated public housing through a \$20 million HOPE VI grant to the Spartanburg Housing Authority.

Senior Housing: A new 48-unit complex for low income seniors was completed in October 2009. Fully occupied, the complex is part of the Bomar Street dump redevelopment. The rehabilitation of this area replaced abandoned houses and eliminated drug activity and crime.

Fuller Acres: This community was characterized by substandard housing prior to rehabilitation through the ReGenesis project. Several of these homes have been demolished and replaced. Many others have been rehabilitated.

Forest Park: Abandoned houses and other blighted structures were removed from the Forest Park neighborhood. Under redevelopment by the City, a total of 70 dilapidated housing units will be demolished and 50 new homes built to replace them by project completion.

Arkwright Mill Village: Abandoned housing units in this area were demolished. Several new homes were built for single family ownership. Five of these homes were built with by students and their advisors at the R.D. Anderson Career Center of Spartanburg School District Five.

Page Property: A completed master plan for the Page property, currently 100 acres of clean green space, includes an \$18 million mixed-income community with housing, retail establishments, entertainment, and a recreational complex.

Economic Impact

The National Association of Home Builders has developed a model to assess local economic impact of building single family and multifamily housing. Since 1996, this model has been applied to over 325 metropolitan areas, including Spartanburg County. A study done by the Association in 2009 considered income, jobs, and taxes generated to estimate the local impacts of building 100 single-family and 100

rental apartments in a typical U.S. metropolitan area, with the key inputs (new home prices, raw land values, and construction related fees) set equal to national averages. The model produces impacts on income and employment in 16 industries and local government.

Based on the model, widely considered to be reliable and valid, estimated one-year local impacts realized from the construction of 100 single-family units in the typical U.S. metropolitan area included:

- \$21.1 million generated in local income (both the direct and indirect impact of the construction activity itself, and the impact of local residents who earn money from the construction activity and then spend part of it within the local area)
- \$2.2 million generated in taxes and other revenue for local governments
- 324 local jobs generated

Additional annually recurring impacts that result from 100 new homes being occupied and the occupants paying taxes and otherwise participating in the local economy year after year, include

- \$3.1 million in local income,
- \$743,000 in taxes and other revenue for local governments
- 53 local jobs.

The estimated one-year local impacts of building 100 rental apartments in the typical U.S. metropolitan area include

- \$7.9 million in local income,
- \$827,000 in taxes and other revenue for local governments
- 122 local jobs.

The additional, annually recurring impacts of building 100 rental apartments include

- \$2.3 million in local income,
- \$395,000 in taxes and other revenue for local governments
- 32 local jobs

Social Impact

Social impacts of new and revitalized housing are difficult to quantify, but have direct and indirect quality of life consequences. Generally, good housing results in increased family and individual stability.

Families and individuals are less transient and more able to participate in the local economy and labor force; thus, they have increased financial stability. As a result, children are less likely to miss school, resulting in better performance and a greater likelihood of graduation.

Where new or revitalized housing has replaced substandard housing, blighted neighborhoods disappear, replaced by neighborhoods characterized by decreased crime, improved neighborhood cohesion, and increased property values.



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