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**Defining Sustainable Development:
Arkadelphia, Arkansas**

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INTRODUCTION AND REVIEW

This study examines one community's experience with the idea of sustainable development. On March 1, 1997, a series of F-3 to F-4 tornadoes cut a swath through the state of Arkansas. An F-4 tornado passed through a series of farm areas and into Arkadelphia's residential neighborhoods and downtown business district, devastating approximately 60 blocks of the community. Six people died, and almost 100 received injuries. The damage to property was tremendous for this small town of 10,000: 76 mobile homes destroyed, along with 70 single-family homes and 7 apartments. An additional 75 single-family homes received major damage, as did 10 apartments. In the downtown area the tornado damaged or destroyed 45 commercial businesses and 16 public buildings. The storm's intensity blew away street signs, uprooted trees, and pulled sewage and gas lines from underground.

As the community initiated recovery, leaders defined the rebuilding effort as creating a "sustainable" community. The City of Arkadelphia learned about sustainable approaches formally through the Department of Energy. Implementation subsequently focused on rebuilding a neighborhood with energy-efficient homes.

Literature Review

The idea of sustainability first arose at the turn of the century in utilitarian-conservation movements (Schnaiberg and Gould 1994). The idea resurfaced with the environmental movement of the 1960s, in part generated by the work of biologist Rachel Carson's book *Silent Spring*, which foretold the effects of chemical hazards and pesticides on future generations of plant, animal, and human life (Carson 1962). During the 1970s first assessment of natural hazards, Gilbert White and other disaster researchers expressed concern over the interrelationships of natural resources, natural hazards, and development.

In the 1980s, we saw a renewed emphasis on sustainability, linking economics, development, equity, and social institutions such as religion, political systems, and local cultures (Omo-Faduka 1993; Omari 1993). The end result of these efforts from the turn of the century has been that

sustainability has been invoked...to reassess socioeconomic and technological systems in terms of their long-term viability within the constraints of ecological limits (Schnaiberg and Gould 1994: 205).

Critics suggest, however, that "sustainable and development are a contradiction in terms, and therefore it is an oxymoron" (Nix, 1993: 2). Sustainable development activities should preserve and nurture societies (Nix 1993), but questions that remain include what types of societies are sustained, in what ways, by which groups, and with what consequences. Most recently, sustainable recovery has been promoted as holistic, involving environmental integrity, economic vitality, social and intergenerational equity, and disaster resilience as promoted through a participatory process (Natural Hazards Research and Applications Information Center 2002).

METHODS

We first entered the field on March 23, 1997, three weeks after the tornado and returned at five and twelve month intervals. Prior to going to Arkadelphia, we collected census data (for Arkadelphia and Clark County,) local, regional, and national newspaper articles, and general information provided by Arkadelphia's web site. Upon arriving in Arkadelphia, we used purposive and snowball sampling, and conducted open-ended interviews with 14 individuals. Interviewees represented organizations from the national level to the local level and ranged from paid staff to volunteers.

We also researched historical information on the community and on Clark County. We collected a variety of documents, including disaster plans, maps, minutes of Board of Directors and Recovery Task Force meetings, and other pertinent documents. We also documented the area visually with photographs and videotape. To analyze the data, we looked for themes connected to discourse surrounding sustainability. In order to contribute to existing literature on sustainability and disaster, we concentrated on the question of how this community learned about and defined sustainability and what conditions fostered their acceptance of the concept.

FINDINGS

Arkadelphia: Setting the Context

Arkadelphia is located in the south central part of Arkansas, just off I-30, about an hour's drive south of Little Rock and midway between Hope and Hot Springs. The area is adjacent to DeGray Lake, which provides residents and tourists with many recreational activities, such as fishing, golfing, and boating. Two universities are located within the community. Arkadelphia's slogan is "It's a great place to call home!" and is listed 50 Fabulous Places to Raise Your Family. The 1990 U.S. census data indicated a median income of \$25,598; the median age was approximately 26.

Arkadelphians pride themselves on their sense of community, or as they call it, the "Arkansas way." People know each other and rely on each other. Volunteerism is a way of life in the community; in fact, the town received state recognition in 1997 as a "Volunteer Community." Religious values are very strong in the community and tend to permeate relationships. Much of the networking in the community appears to come from associations within and between churches.

Local networking has made a difference in the city. In the 1980s, an economic recession hit Arkadelphia. Between 1984 and 1987, three large manufacturing plants closed, taking with them over 1,000 jobs. Unemployment rose from 7.2% to approximately 14%. In response, city officials formed a successful task force that redirected the community's economic well-being. This task force and its members came to serve as a resource for the post-tornado recovery effort, providing a known structure, experienced leadership, and a participatory process.

Introducing sustainability

For our purposes, understanding a community's grasp of sustainability calls for describing how a given community learned about, used and locally applied the concept. As we discovered, academic definitional debate may not matter since communities ultimately define and apply the concept within their own social, political, and economic contexts.

From March (impact) through the following year, we found that Arkadelphia's leaders endorsed and applied sustainability. Below, we describe how that happened.

March. President Clinton, who visited Arkadelphia soon after impact, promoted a future-orientation when he asked key leaders "what would you like this community to look like in 25 years?" The visionary question prompted leaders to form the Arkadelphia 2025 (as in the year) Commission. However, during our initial interviews in March and April of 1997, only two interviewees responded to our questions about sustainability: "there are a couple of good books that we got from the Alliance to Save Energy and the Department of Energy, on sustainable development. It talks about redeveloping destroyed cities."

We discovered a change by August, though: local leaders had endorsed sustainability as a guiding recovery plan principle. How did this transformation occur and what were the implications for disaster recovery? How did the leaders define sustainability? Who influenced the definition? Why did community leaders endorse sustainability as a foundational recovery principle?

July. On July 29, 1977, a representative of the U.S. Department of Energy's Center of Excellence for Sustainable Development gave a slide show to the Arkadelphia 2025 Commission. Four of those slides presented definitional or illustrative text on sustainability:

"What is Sustainable Development? Sustainable development meets the needs of the present without compromising the ability of future generations to meet their own needs."

"What is Sustainable Development? Then I say the earth belongs to each...generation during its course, fully and in its own right...no generation can contract debts greater than may be paid during the course of its own existence. Thomas Jefferson, September 6, 1789."

"What is Sustainable Development? Sustainability refers to a very old and simple concept-the ability to keep going over the long haul. Think of it as extending the Golden Rule through time, so that you do unto future generations as you would have them do unto you. Robert Gilman."

"Sustainable Development. You may understand it when you don't have it. Western Power Outage-July 2, 1996."

DOE presented sustainability as a "new way of thinking" aimed at "achieving a healthy community" through a "three pronged approach: economic, environmental, and quality of life." Additional slides illustrated benefits through a series of case studies. DOE tied sustainability to creating jobs, saving money, preserving environmental resources and improving quality of life in a "race for the green." For example, a slide labeled "Hot Community Trends for Applying Sustainability" included "economic development, buildings, land-use planning, industrial development, community energy use, and disaster recovery."

In particular, DOE suggested that economic losses could be mitigated through energy efficiency and used the term "green buildings." Real estate development might also benefit through applying the "Ahwahnee Principles: complete and integrated communities, essential destinations in walking distance, diverse housing & jobs, focused center & defined borders, ample open spaces, safe, interesting transit routes, natural features preserved and designed for resource efficiency." The sustainability slides claimed that "buyers will pay \$40,000 more for open space." Land use planning and urban sprawl could be "combated" and industrial development reinvigorated by viewing "wastes as resources" with "eco-industrial parks" participating in preventing pollution, minimizing waste and using "one industry's wastes" as another's resources. Sustainable recovery could result in "rebuilding communities stronger than they were before."

The final slides compared preferred scenarios (mixed use and mixed income, walking trails, narrow roads, 51% green space, solar orientation, and higher density to promote transit) to the "business as usual" scenario: 21% more green space, wide roads, large malls, cul-de-sacs, single-use zoning, and parking lots/garages. By transitioning to the preferred scenario, the presentation indicated a community could double its open space, increase households (by 10.5%), improve transit availability (by 48%), save energy (\$600 annually per person), and prevent pollution (five tons of CO2 per person per year). DOE then outlined several key programs that could assist communities including the office of sustainability, various community programs, and energy partnerships for affordable housing. DOE concluded that "sustainable development...is concrete and real, has multiple benefits, offers bigger bang for local dollars, [and] builds bridges between economy, environment and quality of life."

Arkadelphia defines sustainability

August. By late summer, leaders that we interviewed defined sustainability consistently with what DOE expressed. For example, when we asked, "what does sustainable development mean to you?," respondents said:

Not borrowing from tomorrow's generation to pay for the needs of today.

Environmental and economic implications of energy savings.

To me a sustainable community says I'm back to higher density, better land utilization so when we start running utility lines the cost for service is less.

It's basically rebuilding smart. Why wouldn't you build like that? It's a common sense approach. It's just stopping and thinking as we prepare for generations to come; to make some wise choices. So I really like that concept and it's been incorporated into our plan.

It makes a lot of sense to vote environmentally and economically for communities. We voted for Arkadelphia to pursue being a sustainable development community. There are so many advantages...save utility bills...that's money that stay in the community that turns over again.

However, not all respondents agreed, as one commission member said: "pretty words that three fourths of the population affected by the storm don't even understand." Or, as another stated, "we were visited by some of the Energy Department people, something about sustainable housing. They didn't have any money, but they would provide technical assistance."

November. The local newspaper, The Daily Siftings-Herald (11-20-97), defined a sustainable community as a "way to incorporate various energy efficiency and design techniques to provide a comfortable, cost-efficient, community-friendly home."

March, one year after impact. Arkadelphia's 2025 Commission found funding for a model house:

NIIt has transformed the way I think about building. We built a house over there that looks like the other houses in the neighborhood. It has front and back porches, it's going to have a little yard with trees, it's smart with the energy design of it, it has less than 13% windows, over 300 points above the required energy code. And now we have the building community excited. They are starting to see how they could make some money over there.

Commission leaders understood that buy-in could be a challenge: "our local builders were a little skeptical of this concept." To more fully integrate sustainability, the city brought sustainability experts back to the community and organized a workshop for builders and developers. The purpose of the workshop was "for community leaders, government officials, home owners and anyone who has an interest in learning more about energy efficient homes" and "sustainable development communities." Workshop topics included "effective energy and ventilation systems, practical construction techniques for insulation, air and vapor barriers, windows and foundations, and case studies of successful energy efficient homes" (Ledbetter 1998). Arkadelphia also hired a recovery architect (University of Arkansas Design Center), opened an office devoted to rebuilding downtown and residential areas, and built a model home based on sustainability principles.

Conditions favorable to sustainability

Certainly, DOE's efforts to introduce sustainability worked. In this section, we identify conditions that enabled sustainability perspectives to be adopted in Arkadelphia. We see those conditions as a collective (though not necessarily unanimous) ability to envision the future, prior experience with a comparable process, and a community orientation-the "Arkansas way." As with any public process, not everyone may concur with the process or outcome. We indicate a couple of ways in which sustainability was not necessarily endorsed.

A vision of the future and an organization to guide it are essential to sustainable development. Within 10 days after the tornado struck Arkadelphia, citizens formed the Task Force for Rebuilding, an organization whose goal was to rebuild both downtown and the residential areas. During the next six to eight weeks, the Task Force held weekly community-wide meetings, a day-long housing fair, and charettes in order to obtain input from citizens about Arkadelphia's future. Questions about what to make of the downtown area and the type of neighborhoods to rebuild became the center of conversation.

Design Center created a model for the downtown business district, geared toward making downtown the activity center of the community. Discussion also took place about the future of the destroyed neighborhoods: whether to rebuild the mobile home park or try to put more conventional housing in its place; how to make reconstruction affordable; and how to manage temporary housing issue. A common theme behind all the models was geared toward rebuilding a sense of community, or the "Arkansas" way.

Arkadelphia received input from several sources. Harry Thomason, a Hollywood producer and Arkansas resident, provided a model of a Victorian downtown, hoping to encourage tourism and

film productions. FEMA contracted with an outside design firm to provide a comprehensive recovery plan for both downtown and residential areas. The University of Arkansas (UA).

"In the next two years we're going to see a major rebuilding of the residential areas in downtown. I probably see us attaining a population in ten years of 15,000. Honestly, I think we'll end up being a better-looking city. We had a certain charm.

I think you'll see a whole colony of people living downtown. I think you'll see a great deal of pride in the community.

Ten years, I think we will have a major portion of what you see on that model the University of Arkansas Design Center created for us. I think you'll see a vibrant downtown, more service, and industry jobs.

The Task Force for Rebuilding evolved into a more permanent organization, the Arkadelphia 2025 Commission. Their mission was to assess community needs, set recovery goals, coordinate between local, state, federal, and private sectors, and serve as the lead agency in rebuilding Arkadelphia. The Commission included 25 members, with 11 permanent seats held by government officials, city and state educational leaders and 14 community-based, at-large seats. The Commission obtained state-legislated statutory power with the power to adopt and act on a vision for Arkadelphia's recovery.

Previous Experience as Guide. While not defining it as such, Arkadelphians have been practicing their version of sustainability for years. When economic problems surfaced in the 1980s, citizens responded. As one official stated, it taught them that they could work together on issues of economic recovery. Many of our participants mentioned that the community had survived hard times before and they could do it again. A number of familiar faces re-appeared on the Arkadelphia 2025 Commission: those who had led the city through the 1980s economic recovery:

It's interesting that you would ask it that way because the answer is yes. They have been at those meetings. Some of them aren't as active but they are there for support and they'll do anything they're needed to do. They're supportive, plus the folks who've come to town since then are out there.

The community had to pull together during the eighties, during the economic crisis. And we bounced back from that probably much better than we were before. I think we'll do the same thing with this tornado.

Opportunity to Transform. Disasters can provide a "window of opportunity" to change the direction of development. Our respondents shared their hopes:

I think Arkadelphia will be a better city as a result of the recovery and redevelopment effort. Maybe they were the older, frame buildings and they'll be replaced according to

the new codes. There will be improved housing and businesses as a result. I think that we're going to have a better community as a result of it.

Some also viewed transformation as a way to deal with perceived problem areas:

The concept of ownership is something that we hope will take off in that area, that people might do a better job of taking care of their property and improving the looks of their surroundings.

So we can build an area where folks that want to have houses and neighborhoods, rather than what we're seeing as far as mobile home parks. We're going to build this house and see.

Community orientation. Arkadelphians that we spoke to prided themselves on their sense of community, or as they called it, "the Arkansas way." We interviewed person after person who had experienced little sleep in the first month after the tornado. Few had been directly impacted at their home or business. Nonetheless, they saw participating as part of the "Arkansas way" and as an extension of their faith. Many of our respondents tied sustainable recovery to the "Arkansas" way as a way to promote community connections:

To promote neighborliness. Not just plot down houses and roads and sidewalks and everybody is separated by an acre of land. You know, rather we're trying for a mixed neighborhood. We're going to have a 25 unit apartment complex over there that's bordered by single-family tenancy, that's next door to the nice duplexes. So that you have a real mix of family structures and people: elderly, single, parents, and families.

Pursue a neighborhood of modest, energy-efficient cluster housing, constructed from recycled materials for both low and moderate-income families. Housing construction in Arkadelphia has tended to build increasingly larger homes, with increasingly more space between each home. This trend not only makes a dramatic impact on utility costs, but also damages the traditional sense of neighborhood community. We want to create a neighborhood that is more cost effective and energy efficient, but most important, we seek to re-instill a sense of community.

Problems. The vision for the neighborhoods also created some controversy, a typical post-disaster situation for any community. After the tornado, city officials decided to bring reconstructed and new buildings up to code. The 2025 Commission asked families to be patient until a plan for rebuilding the neighborhoods could be formulated. Some displaced families perceived the policies, ordinances, and requests for patience as roadblocks to getting back into their homes, a common complaint in other post-disaster locations. It appeared that some families moved away, primarily to surrounding communities. This may have been especially true of one neighborhood:

I think that a goal, certainly, is to have a diversified neighborhood. But, again, economic realities may dictate that more than our wish for it to be that way. Quite a few Hispanics and African Americans lived in those very low-income houses, very old houses in most

cases. Again, I don't know where they are, but they're here. I'm not aware of any particular focus on the housing issue to address an ethnic group.

In addition, pre-existing conditions exacerbated post-disaster housing, a problem seen in other communities not just Arkadelphia:

I know that there's already been a mass exodus of people moving to nearby communities or to the country. There wasn't alternative available housing here in the city. We were in a housing shortage to begin with that was really compounded and complicated by the storm. I think that the direction that the city takes over the course of the next year, a lot will hinge on that.

And not everyone agreed on sustainability as an approach:

I really believe the 2025 Commission is trying to make Arkadelphia a community of the future. But right now, it is at the expense of those who suffered losses in the storm. Most of the people see it as just another expense. These big words [sustainability], they just see it as more difficult for them to go back to the way they were. I don't totally disagree with what's going on, I just think that it's all being done too quickly and it's at the expense of the ones that suffered losses.

Some critics suggested that sustainable recovery necessitated a lengthy time period. "I don't see why we don't have four on the ground. I want to move quickly" said one respondent.

CONCLUSIONS

Who defines sustainability? What are the consequences? How do local citizens understand, implement and live with the way in which sustainability is defined? And, what are the implications of one key organization defining sustainability for a community?

Our research suggests that sustainability may be an exciting concept to a community. However, the way it is introduced is extremely important. Respondents in our study used DOE's definition to frame their recovery effort. DOE sold sustainability through an emphasis on energy efficiency, economic vitality, and environmental integrity. Other dimensions of sustainability, such as issues of social and intergenerational equity were more muted. Perhaps not surprisingly, then, equity issues surfaced as one disagreement with sustainability.

We also found that elected officials seemed most likely to endorse a sustainable recovery, perhaps because they looked at the situation strategically and over time. Community leaders and social service providers seemed less keen on the concept, perhaps because of their direct involvement with disaster victims in need of immediate housing. It may also be that the elected officials had more direct involvement with external organizations promoting sustainability in comparison to community-based leaders.

As much as Arkadelphia's leaders wanted sustainability to be a part of their recovery, they desperately needed funding to make it happen. Community leaders made trips to Washington D.C. to lobby for funds, wrote grants, and persevered in launching model homes. They put together multiple funding sources, an effort that took a considerable amount of time and energy. In short, federal efforts to promote sustainability must come with financial resources.

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