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Finding Our Way: Urban Waterway Restoration and Participatory Processes

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In this paper, we explore some of the challenges encountered in organizing multiple stakeholders for purposes of revitalizing an urban waterway. Drawing primarily from positive experiences with a creek revitalization project in Syracuse, New York, we identify several factors concerning the context and challenges -- both material and social -- that have helped to shape the outcomes. Several of the popular models for engaging stakeholders in waterways projects are discussed, especially as they have been used communities in other parts of the U.S. that have faced related challenges. We seek to identify key points and lessons that can help inform others about participatory processes in communities coping with water-related environmental justice issues.

Introduction

Some of us remember growing up and playing near small creeks, streams and bayous near our backyards or just down the street, but today few of us rarely experience that kind of connection with a natural water resource. Yet it is these creeks, streams and bayous that are historically connected with development of our town's villages and cities. As a result of decades of development activity and mismanagement -- many of these same water resources are extremely degraded from many perspectives. Yet as some authors (Platt, 2006, Spirn 1998) point out -- restoring such water features can lead to more sustainable urban places.

As Platt points out "Dozens (and possibly hundreds) of small urban watersheds in the United States and around the world... are the focus of multifarious 'restoration' strategies under complex institutional arrangements" (Platt 2006. p. 29). We know that negative impacts from urbanization accumulate within watersheds as small tributary streams contribute higher peak flows and lower base flows to waterways downstream. In many instances, like our own Onondaga Creek in Syracuse, New York -- the main channel has been straightened and 'hardened' moving higher flows faster through the settled areas without flooding. These same channels in many cases are lined with sanitary sewer overflows (SSO's) and combines sewer overflows (CSO's), which may dump raw sewage plus street drainage during storm events thus severely degrading the urban waterway.

As we move to restore and/or revitalize such urban creeks, streams and sloughs -- we often are within poor neighborhoods of highly diverse populations and across multiple jurisdictions. Such examples are Wildcat Creek in North Richmond/San Pablo, California (Riley 1989) and Onondaga Creek in Tully, Lafayette, Onondaga Nation, Nedrow and Syracuse, NY (OEI 2008).

¹ This is in fact, one of the key issues facing state environmental review of non-conventional permits.

In such areas we may not have agreement as to what should be done and then we have different agencies and priorities, e.g., flood control vs. water quality improvement vs. habitat restoration.

There has been an incredible amount of research and demonstration projects (Bernhardt et al 2005), which have attempted to restore segments and functions of small creeks, streams and bayous, but we maintain that a major challenge for the urban waterway restoration/revitalization is gaining consensus about what to do and how to do it. We have discovered this during the three years of working on the Onondaga Creek Conceptual Revitalization Plan (OCCRP) in Syracuse, NY and others have found this to be a major challenge as well (Platt 2006, Riley 1998).

When we say restoration we are speaking mainly from a biophysical restorative functional capacity, e.g. hydrology, water quality, aquatic and riparian habitat. When we use the term revitalization we mean that in a social and economic sense or revitalized creek neighborhoods and economically sustainable land use patterns as well as some level of biophysical restoration of the water body.

Given the different waterway objectives for both restoration and /or revitalization – there is a need for a collaborative social process for developing such projects and plans. For urban waterways such as rivers, creeks, sloughs, bayous that fall within multiple jurisdictions and affect diverse stakeholders- this is especially challenging as pointed out by Platt (2006), Riley (1998) and Smardon et al (1996). So the question is where are the social process models for either urban waterway restoration and/or revitalization? We maintain there is very little guidance in this regard if one looks at the most accessible sources. So the dilemma is that we have much technical information about urban waterway restoration/revitalization, but not much social guidance if we are serious about involving multiple stakeholders in the process with varying levels of knowledge about waterway restoration/revitalization.

As we have found from our experience with the Onondaga Creek Revitalization Planning effort in central New York – watershed wide planning process transcends political and economic stratification of a metropolitan region, including both rural and urban stakeholders, and even a sovereign nation. We also found that building public awareness of rehabilitating a long neglected urban creek – can foster sense of place and community as found by others (Hopkins 2005, McGinnis 1999, Otto et al 2004). For us the Onondaga Nation, in the middle of the Onondaga Creek watershed, certainly had a deep symbolic and spiritual relationship to the Onondaga Creek and Onondaga Lake watershed.

Given these social participatory process challenges, there is little work in Europe or North America, which provides practical or theoretical process guidance. When we first started the Onondaga Creek outreach process we ‘flew by the seat of our pants’. In the latter stages of the conceptual revitalization planning process, we discovered work in Europe (Eden & Turnstall 2006, Eden et al 2000, McDonald et al 2004, Petts 2006, 2007, Tunstall et al 2000) and North

America (Carrol and Hendrix 1992, Daniels and Walker 1996, Kondolf 1998, Lubell et al 2002, McGinnis 1999, McGinnis et al 1999, Walker et al 1999).

Environmental Justice and Urban Waterways

To date much of the emphasis on stream restoration has been targeted toward rural streams, including those where specific fisheries are amenable to restoration. However, this can sometimes mean that certain streams will be simply being 'written off' and not even considered for improvement (Moran 2010). No community deserves to be discarded, and this is likely to happen to the same places that have already been subject to other forms of marginalization and injustice. The phenomenon of erasure is even more poignant in cases where public monies are used to fund projects, as it constitutes yet another transfer out of community resources.

The project, in Syracuse, was informed by perspectives from political ecology, helping to shape the process in important ways. It was acknowledged that the various dimensions of the problems in the waterscape were inter-linked, and project specialists were aware of the need to establish the project accordingly (Perreault, Wraight, and Perreault 2012). Environmental injustice signifies "compounded disadvantage at the community level," (Wakefield and Baxter 2010, 95), and part of the challenge in the project in Syracuse a matter of balance, requiring participants to stay alert to it without being overwhelmed by its scope.

The project in Syracuse illustrates how stream restoration projects can be carried out differently, bringing important ecological and social benefits to urban, nonwhite, and low-income communities. Overall, projects seeking to restore or re-naturalize waterways (or other degraded environments) have a special appeal in that they resonate with themes of 'recovery' and 'redemption,' (Light and Higgs 1996; Moran 2007).

These projects might: (a) provide amenities, including open space, green space, fishing, clean water, healthier ecosystems, and increased property values; (b) advance socio-ecological relationships by helping engage people in understanding their own community's environment, both built and natural; and (c) advance justice issues through continued interrogation of disparities in outcome and in process.

Despite the efforts of governmental grant programs, many barriers still limit the achievement of environmental equity (Riley 1989). One factor is the limited institutional capacity of many community organizations. The grant programs that typically fund stream restoration projects solicit proposals from these community groups, and while that seems positive in terms of stimulating creative initiatives and stretching limited funds, the approach also has some inherent problems. First, it usually requires a multi-partner, teaming strategy, which makes accountability for overall outcomes much more diffuse, and this dilutes and confounds efforts to achieve environmental justice. And second, since paying staff through grant-based projects requires unique skills and experience, it favors groups that have already had considerable organizational capacity. For this reason, one environmental justice scholar (Sylvia Washington) has advocated the creation of alternative institutions that allow full integration of several kinds of specialists (environmental and otherwise); she advocates "...the creation of US EPA [Environmental Protection Agency] funded Sustainable Justice Institutes at land grant universities," (Washington 2010).

Although the need to expand public participation around environmental justice is widely acknowledged (Bullard 2002), there continues to be a dearth of support for such initiatives and few models to follow. A recent study of EPA's environmental justice small grant program evaluated 736 awards made over a seven-year period, exploring the types of projects that received support (Abel and Stephan 2008). The authors found that only 7% of the funded projects were seeking to expand public participation and deliver on the democratic and communitarian goals of remedying environmental injustice with engaged communities (*ibid.*); much more typical were projects with a managerial orientation and using an information transfer approach (*ibid.*). Thus the need for meaningful participation is clear.

The project planners were concerned about the structural factors that tend to shut out local residents. These factors include processes where public input is obtained after a plan is developed, public meetings held during daytime hours, and elevating various kinds of professional expertise over experiential, local knowledge. These things mediate against meaningful participation narrowing options and reducing quality of environmental decision making for the public good. As one theorist has observed, "the regulatory ideal of formal expertise promotes exclusion of those whose lives are most affected by environmental hazards," (Guana 1998, p. 72).

Background: Onondaga Lake and Creek

Syracuse New York is in the middle of a massive cleanup of the Onondaga Lake Watershed including a half billion dollar effort to upgrade to tertiary treatment of the main sewage treatment plant emptying into Onondaga Lake, but also another half billion dollars to remediate mercury contaminated sediment in the bottom of the same lake. As part of the water quality cleanup there is the issue of combined sewerage overflows (CSO) along Onondaga creek that dump raw sewage plus street drainage any time there is a major rainstorm. This is typical of many northeastern and Great lakes urbanized areas. EPA has called CSOs "...remnants of the country's early infrastructure," (U.S. EPA 2001). Combined sewer systems serve upwards of 772 communities, which are home to more than 40 million people (*ibid.*). For example, in Massachusetts, there are two-dozen communities that have CSOs, including all of the older urban area (Boston, New Bedford, Worcester, and Springfield).

In addition in the Syracuse city area there has been a history of "redlining" for the lower income residents living along the creek on the City's south side that are subjected to both the CSO's plus a history of major floods. As a result of this flooding the perceived solution along the creeks length within the city was channelization, which results in massive flow rates during major storm events. The creek within the city limits is fenced off because of safety reasons due to storm events thus limiting greenway access.

In the upper middle portion of the Onondaga creek flows through the Onondaga Nation and the whole watershed is part of their original territory and is sacred to them. Both the south side and the Onondaga Nation historical significance constitute environmental justice issues, which are described in detail by Perreault, Wraight, and Perreault (2012).

Learning From Other Urban Waterway Examples

We have examined a number of urban creek revitalization projects across the county, as part of this project and found highly varied organizational models with lesser and greater participation in decision-making (see Table 1). On one end we have large amounts of participatory efforts in the Bronx River, Onondaga Creek, and Wildcat-San Pablo Creeks. For the South Platte, Guadalupe River and Tennessee River Greenway we have periods of participatory activity, but much is done by strong leaders/facilitators. The Milwaukee River greenway is just starting so it is difficult to evaluate at this point.

We also have differences in focus, e.g., restoration vs. revitalization goals. Clearly the Guadalupe River in San Jose, the South Platt River in Denver and the Tennessee River in Chattanooga has economic development as the major driver. Whereas the Wildcat –San Pablo Creek, Milwaukee River greenway and to some degree Onondaga creek are more habitat preservation/natural river focused. Social equity is a major issue for the communities involved with the Bronx River, the Milwaukee River and the Wildcat/San Pablo creeks in the way that all creek communities receive benefits and none are disadvantaged.

Finally we have different organizational schemas throughout all these projects. We have many public-private partnerships, not-for-profits that bridge over time with different city or county administrations; urban land trusts or such organizations that raise, acquire land and/or easements and pass them on to public agencies, and organizations that organize events and activities leading to more consciousness raising and use of urban waterways. We have organizations that perform many functions and some organizational schema that separate functions among many organizations.

Methods & Results: The Process for Developing the Onondaga Creek Plan

We think it is worthwhile to describe the OCRP process to illustrate how participatory planning was used to provide ‘voice’ and inclusion of the diverse communities along the creek throughout the process. The Onondaga Environmental Institute (OEI) was responsible for compiling stakeholder goals and issues relevant to the revitalization of the Onondaga Creek watershed, under the advisement of the Working Group (See Figures 1-3). Public input is essential in any community development project, of course, but for us, a couple of practical concerns shaped our approach. First, we wanted to be realistic about public participation in what was bound to be a lengthy process: few citizens would be willing or able to fully participate in years of meetings for plan development. However, many more people could be reached in one-time meetings in formats designed for larger groups. Therefore, we organized meetings in ways that would be least burdensome for community members, and still allow many opportunities for developing visions and priorities (Innes and Booher 2004). Second, as in many plans to revitalize waterways, implementation of this one would be voluntary. Voluntary plans need support and involvement of stakeholders throughout the process, both to develop a sense of ownership and to increase the chance of implementation (Scholz et al. 2002, Smolko et al. 2002).

The OCRP Project Team, included four other organizations plus OEI, devised ways to gather concerns from both individual citizens and also organized groups; these two approaches, “community forums” and “stakeholder organization meetings” are detailed in the sections below. The overall goal was to assess the larger watershed community’s visions and concerns for Onondaga Creek, which in turn would assist the Working Group in their development of the

revitalization plan. Gathering public input prior to the development of the plan allowed themes and goals important to the community to be incorporated into the plan (Firehock et al. 2002). Figure 2 was used at the community forums and stakeholder organization meetings to explain what would happen to the input of meeting participants.

The core leadership, for the project was provided by the Working Group. The Working Group participants were recruited to represent a variety of interests and geographic areas of the Onondaga Creek watershed, and they met monthly from February 2005 to 2008. Meeting minutes document extensive detail about forming the Working Group, interaction between the Working Group and scientists and practitioners specializing in Onondaga Creek, and each step of the OCRP development process. All of the Working Group meetings were open to the public; outreach efforts were extensive and included several avenues of notification, digital and otherwise. Types of notifications included: monthly emails sent to a 300-person list (based on sign-up sheets from the community meetings described above), flyers posted in public libraries in the watershed, and newspaper announcements. The website of the local newspaper (Syracuse.com) included announcements, as did the website of several organizations including the Center for Nature Education, Onondaga Lake Partnership (OLP), and the WRVO (radio station) on-line community calendar. Informal methods of notification about Working Group meetings were used on occasion, particularly handouts and posters at local environmental events and meetings. SUNY-ESF sponsored a website which served as an additional source of information to the public.

As preparation to development of the revitalization plan components, the Working Group engaged in a learning process about the Onondaga Creek watershed; members informed each other as they shared information and experience. Additionally, the Working Group added to their existing knowledge by learning from guest speakers at Working Group meetings, selecting and participating in creek-themed field trips, participating in the goals and issues solicitation process and reviewing the Onondaga Creek ‘fact sheets.’

Technical information and mapping process

Before the public input was solicited, several kinds of technical background information were developed (Figure 1 illustrates the components that make up the OCRP project.). One element, called the ‘fact sheets’ was produced to summarize the current situation and to be used as an interactive planning tool. These fact sheets, prepared by OEI staff, described the current state of Onondaga Creek, primarily in descriptive, technical terms. To develop the fact sheets, the OEI staff did literature searches and compiled relevant information, organized into several topical headings. Once in draft form, the fact sheets were revised following consultation with the Working Group, and they were made available for use starting in January 2007.

Another element of background information was a report, “The Case Studies Guide: Conceptual Alternatives to Onondaga Creek.” This document (also prepared by OEI staff and reviewed Atlantic States Legal Foundation) was developed to help provide the community and decision makers learn from various examples of stream revitalization around the country. With details and specifics from a total of twelve cases, the guide described salient points for consideration in the Onondaga Creek planning process. This work was done concurrently as the citizen participation process was occurring.

After the fact sheet review, the Working Group developed the components of the OCRP. First, the Working Group developed and refined *drivers*, the driving forces or motivators, for revitalization. The Project Team invited local scientists and practitioners as resource experts in each topic area to advise the Working Group on possible directions for change. Next, revitalization options for Onondaga Creek were developed through a series of meetings devoted to specific topics: hydrology, biology, and land use/access/recreation. With options complete, the Working Group completed a *design charrette*, a planning exercise where ideas for revitalization were placed on a series of maps over two intense sessions.

The mapping process made the groups learning, discussion of options, and the technical information into a more tangible product. To facilitate the Onondaga Creek Working Group's design charrette, OEI created a set of planning maps, 8-10 feet in length, from aerial images of the Onondaga Creek corridor and its tributaries. OEI also developed a set of 40 cards with graphic representations (symbols) of creek revitalization options. The symbol cards were based on options discussed by the Working Group, gleaned from community input, local experts, and the literature on stream restoration practice (Center for Watershed Protection 2004, FISRWG 1998, Kloss et al. 2006, Pinkham 2000). In addition to the symbol cards, the Working Group used blank cards and markers to customize maps.

The Working Group worked on the maps over two meetings. They split into three teams: urban, rural, and 'mixed' or transitional. The urban team placed their ideas on maps of the creek corridor from the Inner Harbor to Ballantyne Avenue. The transitional team placed ideas on two planning maps that represented the residential outer edge of the city and near suburbs. The rural team covered the remaining segments. Three team facilitators with community design experience were invited to facilitate each mapmaking team. The resource experts that assisted earlier in the project were invited to return and advise the teams. For the planning map representing the Onondaga Nation territory area, the Director of the Onondaga Communications office facilitated input from citizens of the Onondaga Nation.

Once developed, the large planning maps were converted into digital representations by OEI. Symbols, notes, and additional drawings were reproduced on the digital versions as placed by the Working Group on the original planning maps. Working Group members each received a tabloid-sized set of the planning maps, to verify and review. The Project Team grouped revitalization map ideas into project areas. The bundles represent future potential project areas for potential implementation of revitalization projects. OEI developed themes for each project area based on symbol groupings. To establish priorities the Working Group reviewed and voted on their preferred potential project areas. The revitalization maps are the final products, illustrating the Working Group's symbols, bundled into potential project areas.

The Onondaga Creek Community Forums: Generating Goals

The Forums were designed to draw goals and issues from watershed residents and other interested individuals. The meetings were open to the public, and outreach strategies were inspired by the US. EPA's *Getting in Step: A Guide to Watershed Outreach Campaigns* (U.S. EPA 2003) and tailored to the needs of our local community. A communications plan was prepared for the OCRP project in 2005, outlining procedures for communicating with the media and the public. The community outreach efforts included public service announcements,

newspaper stories, flyer distribution in targeted neighborhoods, via community groups and libraries, notifications to local organizations, and media kits to the local press. Several Project Team members visited the editorial board of the local newspaper, presented the project, and requested coverage and support for the project. Project Team members also gave several television and radio interviews in order to publicize the project and the community forums.

Forum locations were distributed within the watershed geographically and according to population density. Five forums were held in the City of Syracuse, two were outside of the city. Multiple types of verbal and written input were collected from participants at the forums and scribed to flip charts collected on question cards, and then entered into a Microsoft Access database.

Topics most frequently mentioned in aggregate for the community forums were obtained from written cards completed by participants at each meeting. All written input, catalogued according to goals or concerns, was analyzed and assigned a one or two word code, identified as a key word that captured the contextual meaning. Key words were generated based on review of the data, rather than created beforehand. The input was grouped by key word for each forum and sorted by frequency. Frequencies were aggregated across forums. Input was then graphed by most frequently occurring key word. This process was influenced by two primary methodologies for analyzing qualitative data: content analysis and grounded theory (U.S. EPA 2002, Silverman 2003, Strauss 1987).

The Stakeholder Organization meetings for Inclusion

The Stakeholder Organization meetings were intended to draw goals and issues from members of organizations, institutions, and businesses. A total of eight meetings were held to help learn from specific groups and organizations that would have an interest in Onondaga Creek revitalization. To determine meeting format and groups to approach, OEI staff gathered advice from several community leaders, in government, non-profit and business roles.

Most of the meetings took place in the first half of 2007. To help encourage participation, we sought to coordinate with existing meeting schedules to the extent possible. More than 120 individuals attended the largest meeting, representing over 60 organizations; the Working Group was satisfied with the turnout, given that they had invited over 600 diverse organizations to attend. Another one of the larger stakeholder organizations was the Onondaga Creek Government Workshop, which targeted elected officials and government agency employees for their revitalization goals and concerns.

At the stakeholder meetings, written responses on questionnaires provided the primary form of input. In addition, verbal comments (scribed to flip charts) were collected to the extent practical at each meeting. Treatment of the data followed the same methods described under the Community Forums process. Finally, the input from both kinds of meetings was pulled together and integrated by the staff of OEI. Together with the Working Group, the data was categorized into themes. The majority of Working Group members gained first-hand experience with community's goals and concerns by attending both types of meetings. Subsequently, the Working Group and Project Team incorporated community input into the plan development

process, as described in the next section. Figure 3 illustrates the goals and issues solicitation process.

Final Stage of Plan Development

One of the last steps for the Working Group was to develop goals for revitalization over a series of meetings. The Working Group already clarified their goals by going through the process of developing input process (Smardon, pers. comm.). Next, based on the Working Group's plan components, the Project Team then developed the text for the OCRP. As part of the Plan, the Project Team developed specific action items and pilot projects to support the Working Group's goals and to make recommendations for future steps in creek revitalization. The goals, action items and pilot projects were presented in the final plan.

The Working Group's last responsibility was to review and make revisions to the conceptual revitalization plan document. Since the OCRP must reflect the ideas and intentions of the Working Group, this last step was an important final review before release of the plan for sponsor and public review.

Summary and Conclusions

In terms of inclusion or 'finding voice' for communities, not usually participating in such projects, we had a fair representation of urban minority groups within the city, particularly benefiting from the assistance and participation of the Partnership for Onondaga Creek, an environmental justice organization based in the south side of the city. For the Native American community, the Onondagas – this was one of the very few planning exercises that they had fully participated in. The degree of inclusion of the Onondaga Nation is documented in a master's thesis by Barnhill (2009). In terms of process – we extensively utilized co-production with the working group and the project team throughout the planning process. This co-production is emphasized by other work in Europe (Petts 2006 & 2007) as well as North America (Carrol & Hendrix 1992, Daniels and Walker 1996, Firehock et al 2002, Lubell et al 2002, McGinnis et al 2006, Smolko et al 2002, and Walker et al 2006). From an environmental justice perspective, such a process is critical in overcoming previous real and perceived injury to the communities previously impacted (Gottlieb 2009, Light & Higgs 1996, Moran 2010, Perreault et al 2012 and Riley 1989).

As discussed, other projects for restoration and revitalization displayed a range of approaches that helped inform how we chose to structure OCRP. Differences in project goals and community context were significant but we gleaned useful perspectives from them, as discussed previously. Concerning the creation of the Onondaga Creek Revitalization Plan, we were extremely fortunate in that our community had committed people, sound institutions, and a shared vision that helped people transcend many of the problems that have challenged other communities. Some of the projects envisioned have moved forward to completion, such as the creek walk extension within the City of Syracuse from Armory Square to Onondaga Lake, use of green infrastructure to reduce storm flow to the CSO's as well as actual storm flow treatment facilities, and upstream water quality and access improvement projects. All of these projects were subject to higher levels of quality control as well as multiple functionality, due to the participatory nature of the Onondaga Creek Conceptual Revitalization Planning Process.

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Table 1: Restoration Projects Informing the Onondaga Creek Revitalization Planning Process

	Location	Size	Time Period	Initiating Factors	Number of Orgs.	Extent . Of Public Planning Processes	Other Points
Bronx River	Bronx, NY						
Guadalupe River	San Jose, CA		1992 - 2005	Endangered trout	<5	+	Uses adapt. Manag. effectively - Greenspace expanded
South Platte River	Denver, CO		1995 -?		5-10	++	
Wildcat-San Pablo	San Pablo, CA		1980 -?	Flood planning	?	++	Strong advoc. impt.
Milwaukee River Greenway	Milwaukee, WI			CSOs			
Tennessee River	Chattanooga, TN	27 K acres	1986 - 2005	Dev. pressure	>10	+	-private funding -riverfront access -commercial dev.
Onondaga Creek	Syracuse, NY	21 miles (?)	2004 - present	CSOs	5-10	+++	

Extent of Public Participation Planning: (0 = none, + = basic, ++ = moderate, +++ = extensive)

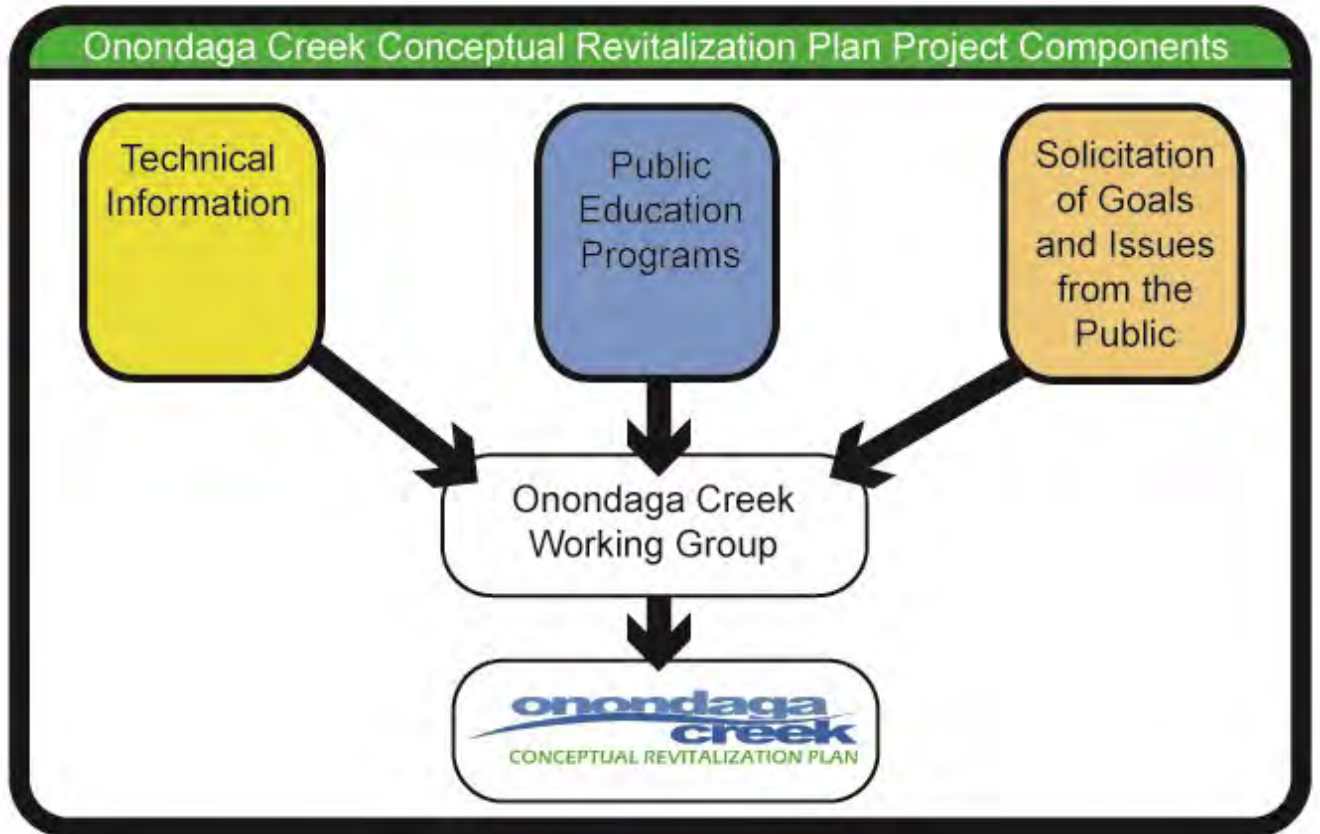
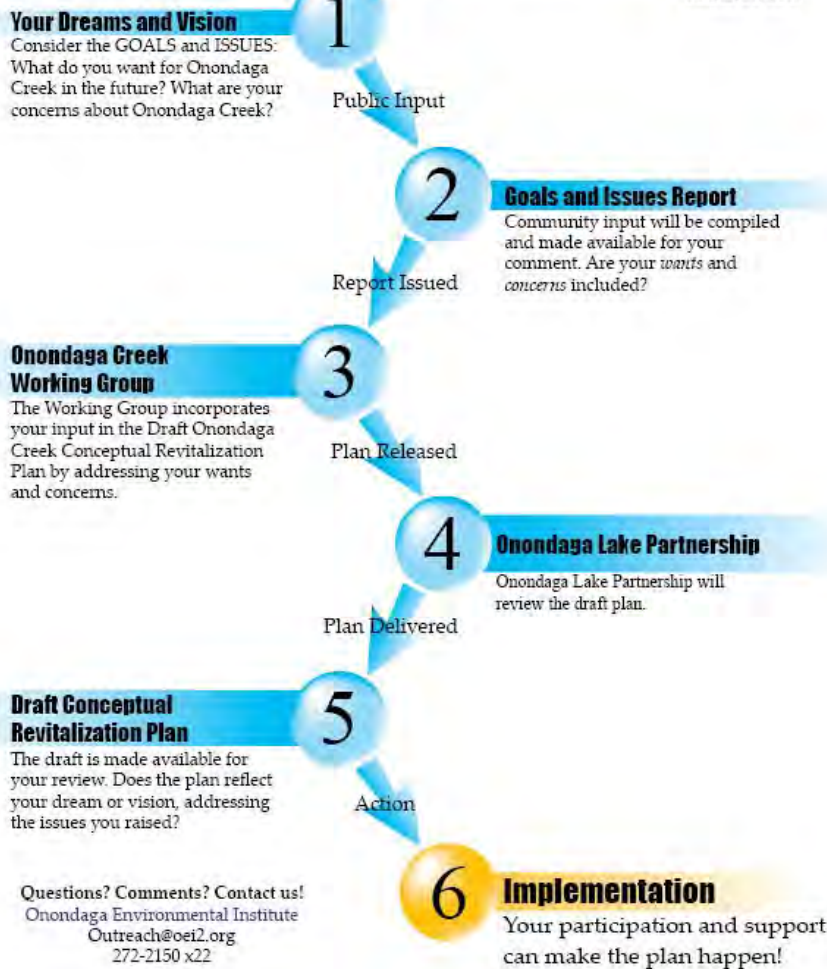


Figure 1: Project Components and Relationship to the Working Group. Source: Onondaga Environmental Institute, 2008, Onondaga Creek Revitalization plan, p.27

What Happens to My Input?

onondaga creek
 CONCEPTUAL REVITALIZATION PLAN
 OCRP Stakeholder Meeting
 March 20, 2007



www.esf.edu/onondagacreek

Figure 2: What Happens to My Input. Source: Onondaga Environmental Institute, 2008, Onondaga Creek Revitalization plan, p.30

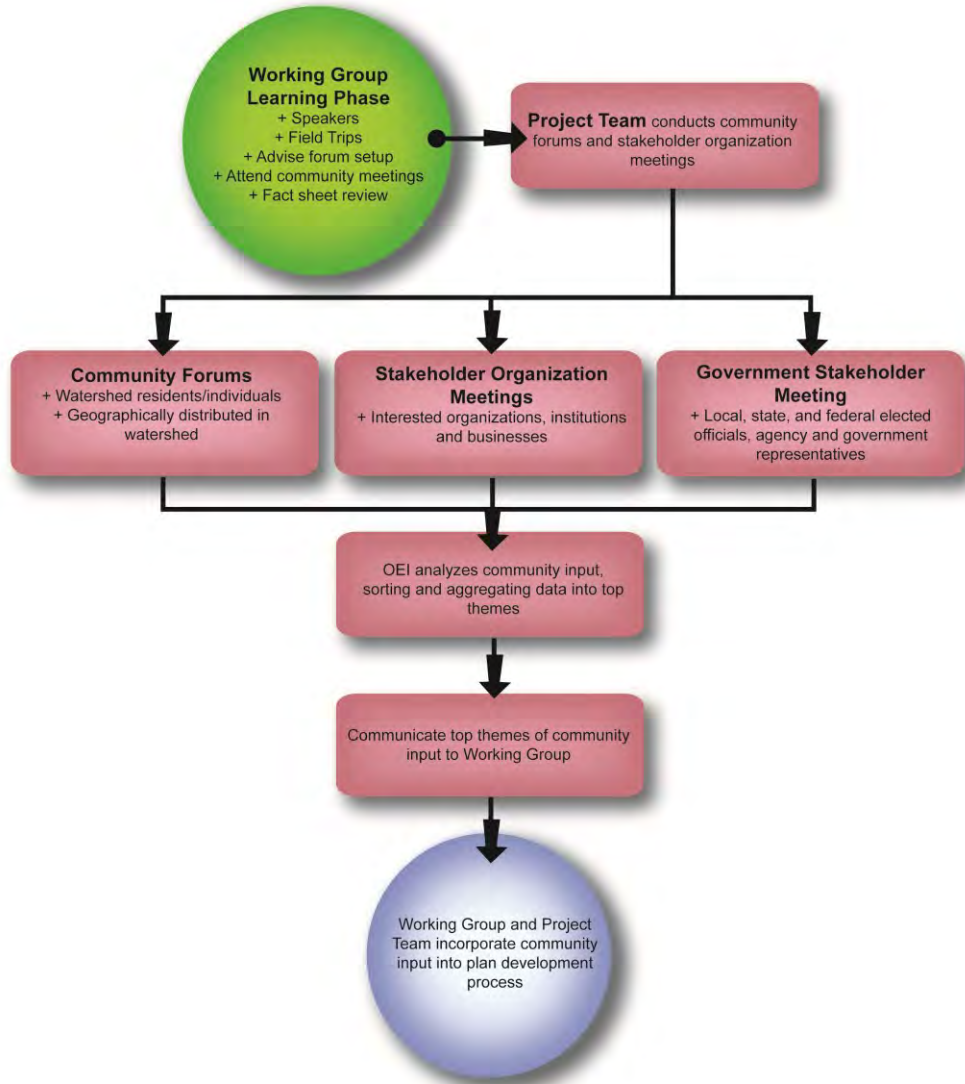


Figure 3: Solicitation of goals process. Source: Onondaga Environmental Institute, 2008, Onondaga Creek Revitalization plan, p.32