# Community Responses to Government Defunding of Water Projects:

# A Comparative Study in India and the USA

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**Abstract**: Decentralization is not a binary phenomenon. When central governments decentralize natural resource management, they often retain an interest in the success of the local efforts to solve natural resource problems. As such, many communities have seen continued central government investments in "decentralized" programs. These outside investments can serve an important role in moving community-based efforts forward. At the same time, they can represent risks to the community if government resources are not stable over time. Our focus in this paper is on the effects of withdrawal of government resources from community-based natural resource management. A critical question is how to build institutional capacity to carry on when the government funding runs out. This study compares coping strategies used by community-based project leaders in two different contexts, India and the United States. Results indicate important differences linked to livelihoods, existing institutions, and community participation.

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1. Introduction

Decentralization of natural resources management has been occurring around the world. But it is important to recognize that when decentralization happens, that does not mean that higher-level governments divest completely from management efforts. In many cases they continue to give support and resources to steer community-based management. In the U.S., for example, collaborative watershed partnerships have received substantial federal funding from the Section 319 program of the Clean Water Act, as well as technical, financial, and personnel resources from most of the states (Hardy and Koontz 2008). In India, national and regional governments have carried out, as funders and implementers respectively, watershed development programs to help villages create and maintain natural resource based assets aimed at synergetic management of land, water and vegetation geared primarily towards water scarce regions.

While government resources can provide critical inputs to foster community-based natural resources management, they also may increase the vulnerability of local groups when such support runs out. In order to achieve long-term goals such as environmental protection and the provision of needed community infrastructure, there needs to be some continuity and stability over time. Thus accepting government resources such as grants is a double-edged sword: helpful in allowing the local organization to conduct activities, yet risky in creating dependence on outside funding that may be discontinued. This raises an important question: How do community-based management organizations cope with a decline in government funding?

We address this question in two contexts which are very different in many respects, Madhya Pradesh, India and Ohio, USA. In terms of governance of natural resource management (NRM) projects, both offer us important points of commonalities and differences. One of the major points of convergence in the experiences of the two contexts is that although natural resource projects receive financial and technical support of the government at the project-implementation stage, for maintenance and continuation of benefits of the projects, the government programs withdraw. The difference with respect to the latter aspect is that while in the USA, the *existing* community institutions are expected to take the NRM work forward, in India, these institutions are in most cases *created* by the government program. It can be argued therefore, that an analysis of situations in Ohio, USA and Madhya Pradesh, India offers us a platform to compare two types of cases with varying degree of government intervention in initiating and supporting collective action at the grassroots level.

2. Literature Review

Prior research on community-based nonprofit organizations in the USA has demonstrated the high reliance such groups often have on government funding. Cuts in government funding can greatly affect the group's activities. In response, organizations may creatively seek new funding sources, such as assessing fees for services, developing new for-profit business ventures, and engaging in commercial sales (LeRoux 2004). Social service organizations in the U.S. often respond by seeking new revenue sources from different levels of government, reducing staff, providing fewer services, and relying more on volunteers (Hadley and Culhane 1997; Liebschutz 1992; Alexander 2000; Gronbjerg 1988; McMurtry et al. 1991) One study of nonprofit organizations in Ohio, USA, found that federal funding cuts led the organizations to divert resources away from service provision and towards seeking funding sources (Randall and Wilson 1989). A study of children's services organizations in Ohio found that coping strategies included strategic expansion of services and client base, networking to stabilize revenue sources, and creation of outcome measures to generate an image of success to funders (Alexander 2000).

Our knowledge about organizational coping strategies in the U.S. comes from the human services context; little has been examined in the environmental and natural resources arena. This is an important knowledge gap, as environmentally-focused organizations may respond differently to government

funding. For example, a study of nonprofit watershed organizations in Ohio, USA, revealed that the organizations were able to maintain their mission and goals in spite of government grants that aimed to steer them in different directions (Nikolic and Koontz 2008). One suggested reason for this persistence was that, unlike social service agencies, there is no dependent client population at risk of immediate deprivation if funding falls short, so the organizations are less likely to prioritize receipt of government funds above adherence to mission.

Very little work has been done in India with respect to the impact of government defunding. The major issue here is how well the community can maintain the assets created by the implementing agencies and sustain benefits from them after the process of withdrawal of project funding. Most of the watershed projects in India are funded by the government, among which a significant percentage is implemented by the government agencies, the rest being implemented by NGOs. It has been found that while governement agencies are poor in terms of developing social organizations skills among members of the community, NGOs are not only better trained to do so, but also take this process far more seriously (Kolavalli and Kerr 2002). One of the challenges to community participation is that the benefits of watershed projects have an unequal spread and tend to leave out the poor, who only benefit from short term benefits like employment gains during asset construction. This is one of the major constraints in getting a holistic community support to continue program benefits after project defunding. Favorable conditions for better collective action seem to emerge both from a homogenous societal structure, and better biophysical conditions that increase visibility of benefits, which increases the chances of efficient collective action (Kerr et.al 2007).It has been pointed out that the implementing agencies also have inadequate focus on gender issues and pay inadequate attention to issues of equity, operation, maintenance and management, which make sustenance of benefits difficult once project funding ends.

Though systematic literature on post-project performances after withdrawal of government funding in India is not available, government reports indicate that they have been largely disappointing, to say the least (GOI, 2008). Far from the second expectation mentioned above being fulfilled, even the first ( repair and maintenance of the structures created during the project phase) have been far from satisfactory. The reason that this generates a great deal of concern is because one of the major constraints causing such inefficiencies is the inability of the community to use the watershed development fund (WDF) which is expressly created and maintained for this purpose. The inability to spend the fund could be due to various reasons. One of the important reasons could be because the benefits of the watershed programs have not been felt by the community and thus there has been no demand for maintenance of the structures and carrying on the benefits of the project. However, more crucially, this could be because the community based institutions that were responsible for ensuring the flow of benefits by maintaining the assets that were created have collapsed and thus the demand for maintenance of structures was not articulated.

Literature on watershed programs in India have more commonly focused on short-term impacts, rather than long term ones, which would reveal the status of the programs after the withdrawal of government funding (Sen 2008). In a number of cases, however, researchers have commented on problems of sustenance (Narayanmoorthy and Kshirsagar 2002; Joy and Paranjape 2004; Reddy and Soussan 2004), after the withdrawal of government funding. Two broad problems with regards to sustenance have been identified. In many cases it has been noted that the original structures created in the project have not been maintained after the project is withdrawn. Secondly, sometimes the initial enhancement of water resources has led to changes in cultivation practices in terms of switching to more water-intensive crops through unsustainable groundwater extraction (Narayanmoorthy and Kshirsagar 2002; Shah 2004). One issue that needs to be addressed thus is the distribution/access to recharged water, in particular, and legal aspects of property rights to common pool resources, in general.

In order to fill the knowledge gaps relating to government funding withdrawal from community-based natural resource projects, this study examines watershed programs and organizations in Madhya Pradesh, India, and Ohio, USA. It addresses two fundamental research questions:

(1.) What coping strategies are pursued by community-based watershed organizations in response to funding cuts from government programs on which they rely?

(2) How and why do the coping strategies differ between the Ohio, USA and the Madhya Pradesh, India context?

3.  Study Context: Ohio, USA and Madhya Pradesh, India

The implementation models of watershed programs in the two settings are extremely different and it is important to lay down the broad features of these two contexts (Table 1). Agriculture is the single-most important activity in India with 67 percent of its population depending directly or indirectly on this activity and this makes the issue of land and water more central to livelihoods. In USA, in comparison, around 2 percent of the population is dependent on this activity, although the land under this sector is far more.

The first difference of the watershed projects in the two countries is in terms of its expected outcome. In Ohio, the watershed programs focus primarily on water quality goals, while in India, since the programs are mostly in water-scare regions, the emphasis is on increasing water quantity. For this reason, the watershed programs in India have a strong livelihood linkage, while this linkage, though at times observed in the Ohio watersheds, is comparatively weaker.

Given the above, there is a difference in the technical approaches of the two types of watershed programs. The Ohio watersheds primarily focus on the water bodies in the downstream area which has poor water quality and work backwards to the pollution sources of the upstream areas. In India, there is a clear ridge to valley approach, in an attempt to 'capture' as much of the rain water as possible within the area.

Organizationally, the two models have significant departures. The demand for the project in Ohio comes primarily from the community organizations, whether they are government or non-government. The proposals for the programs are typically formulated at the local level and the grants come from the state Environmental Agency (OEPA), administered jointly by Ohio Department of Natural Resources and given on competitive basis. In contrast, in India, the approach is much more top-down, where the central government, on the basis of state government's proposal allocates resources for the watershed development programs. These resources are further transferred to the district (next administrative division) level, where the district agencies selects the meso-watersheds (on an average 5000 hectares in size), primarily on the basis of broad need-based considerations. Micro-watersheds (on an average of 500 hectares in size) are then selected by the Principal Implementing Agencies (PIAs), which could be led by government agencies or non-governmental agencies at the meso-watershed levels for project implementation and creation of community based institutions.

Though the approach towards project formulation is more bottom-up in Ohio compared to India, the direct involvement with the community members with the implementation process is much more visible in case of India, albeit through government intervention. Community level institutions are created in each of the micro watersheds in three forms, one watershed development committee (WDC) per watershed and a number of user groups (to look after the asset created) and self-help groups or micro-credit organizations. In Ohio, groups that function as the nodal points vary between governmental, quasi-governmental and non-profit organizations formed by members of the community, each watershed project being coordinated by a watershed coordinator. Though the visibility of community members in implementation of the projects vary among these three kinds of groups, tending to be more in case of the latter than the former, it stays limited even in terms of awareness of its activities, among relatively fewer community members than in the case of India. The two major reasons for this are firstly, the nature of the rural society in an underdeveloped Indian rural context is more cohesive than in the developed USA context, where societies tend to be more individualized, and secondly and probably more importantly because the projects in India are more directly related to livelihoods of members of the community.

Because the rural societies of India by and large are much more cohesive than urban areas or even rural areas of USA, the transaction cost of information flow or institution building is much higher in the latter context than in the former.

The nodal actor, i.e., the watershed coordinator, in the Ohio program is a paid employee, who is key to the sustenance of the project. The services of the watershed partners, however, which collaborate with the watershed agency, are voluntary in nature. In India, the WDC, the nodal grassroots institution responsible for running the project, consists of a few community members nominated by the Gram Sabha, a village level existing institution, where each member of the household of the village is a member. None of the members of the WDC, including the president or the secretary, are paid and their services are voluntary. The reason that this arrangement works is each member of the WDC is usually a direct beneficiary of the project.

*Table 1*
**Context-Specific Differences in the Watershed Management Programs**

| Madhya Pradesh, India | Ohio, USA |
|---|---|
| Aims at Livelihoods benefits through environmental sustainability. | The environmental benefits are not overtly linked with economic benefits. |
| Treats improvements of land, water and vegetation as inseparable and as the final outcome. For water, the desired outcome is increase in water quantity. | The expected outcome is improvement in water quality, water quantity being the only goal in some parts of the country. Land and vegetation management used as methods to achieve the outcome. |
| The technical approach for increasing water quantity has been working from ridge to valley of the watershed | The technical approach of enhancing water quality has been from downstream to upstream, working backwards from identification of the pollution to the source of pollution. |
| The government selects the areas to be funded. Priority given to backward water-scarce regions. | The local government or non-profit agencies apply for funding through competitive processes. |
| Uses new community-based institutions created by government agencies. | Uses primarily existing institutions, both government and non-profit. |
| Lower transactions costs for participatory processes. | Higher transaction costs for incorporating participatory processes, which are somewhat lower in rural areas. |
| The services of the nodal agency (WDC) responsible for implementation are voluntary and they continue to exist even after the withdrawal of government funding | The services of the nodal actor (watershed coordinator) are paid and the position cannot be retained without funding |
| The program is implemented only in rural areas | The program is implemented in all kinds of watersheds-rural, urban, and mixed. |

4. <u>Analytical Frame and Database:</u>

In this study, we compare the community based response of 26 watersheds in Ohio, USA and 47 watersheds in Madhya Pradesh, India. Due to the differences in the watershed management programs (see Table 1 above), adopting uniform research tools for looking at the issue of community response to government defunding would neither be possible, nor desirable. In Madhya Pradesh, the end of government funding through the five-year program means the project cannot gain additional government funding. Projects were intentionally designed to be self-sufficient following the grant period, drawing on a fund that was contributed by project beneficiaries. In contrast, the end of government funding through the Ohio watershed program does not foreclose opportunities for subsequent government funding. Ohio groups have been successful in obtaining additional government funding from the same state agency or other levels of government.

## 4.1. Ohio, USA

Over 120 collaborative watershed partnerships are thought to exist in Ohio. These groups are community-based in that they are comprised of citizens who care about a particular local waterway, as well as various members of governments (e.g., soil and water conservation districts, county departments, township trustees, state agencies). Partnership missions vary, but generally they focus on ensuring clean water in the river or lake that is usable for environmental services and recreational pursuits including swimming, fishing, and boating. This is typically done by actions to address pollution sources from agricultural land management practices, sewers, stormwater runoff in urban areas, and acid mine drainage. Many partnerships also focus on educating citizens about behavior that affects water quality.

A variety of funding sources are available to these partnerships, including from foundations, environmental interest groups, industry groups, individual businesses, citizens, and government programs at the federal, state, and local levels. It has been estimated that one federal program alone, the Section 319 program of the Clean Water Act, provides over $67 million to collaborative watershed groups annually across the country, including $3 million to such groups in Ohio (Hardy and Koontz 2008). In addition, many U.S. states provide grant opportunities to collaborative watershed partnerships. One of the leading states in this regard is Ohio, which established in 2000 the Ohio Watershed Coordinator Grant Program (OWCGP). This program provides multi-year grants for collaborative partnerships to hire a full-time watershed coordinator to help the group write a watershed action plan and then implement it. It aims to build capacity of community groups to plan and implement activities to promote sustainable use and protection of water resources. This program has led to the creation of many watershed plans and has funded much activity on behalf of watershed cleanup and protection (Ohio DSWR 2010).

While previous studies have examined the impacts of the OWCGP on watershed group activities and accomplishments (Schott 2005, Nikolic and Koontz 2008, Fleishman 2004), none has investigated the impact of the end of these grants on watershed partnerships. One interviewee knowledgeable about this program said that he believes about half of the partnerships who receive OWCGP funding continue to support a full time watershed coordinator after the OWCGP grant runs out. But he did not have any further information about how the support is able to continue.

For this study, we conducted interviews with key informants in 26 different Ohio watershed partnerships that have participated in the Ohio Watershed Coordinator Grant Program. Our key informants were watershed coordinators. In Ohio, the watershed coordinator is central for doing watershed work. The coordinator is not only responsible for bringing the partners of the watershed group together, but also for seeking funding for the implementation of the respective action plans. At the same time, he/she needs to plan ahead for funding his/her own position, since the Ohio Watershed Coordinator Grant Program is for a defined period of time (typically four or six years).

Between March and June 2010, one of the authors (Dr. Sen) completed interviews and canvassed structured questionnaires with the watershed coordinators. The interviews were semi-structured, with a set of interview questions to guide the discussion. Nearly all of the interviews were in person, with the remaining four over the phone. Each interview lasted between 1 and 2.5 hours, and follow-up phone calls were undertaken in nearly all cases, lasting about 20 minutes each. In addition, both of the authors separately conducted interviews with OWCGP personnel.

## 4.2. Madhya Pradesh, India

Watershed development is one of the major natural resource management programs in India and has been directed towards 'promotion of the overall economic development and improvement of the socio-economic conditions of the resource poor sections of people inhabiting the program areas' through natural resource enhancement (GOI, 2001:1). The watershed development program in India as it is conceived today, is increasingly understood as an integrated approach for rural development (Joy and Paranjape, 2004).

The reason that the expectations are so high from the watershed projects is because it is expected that with the help of peoples' involvement, such projects would continue to benefit the rural communities after the government or other implementing agencies withdraw funding, following the formal completion of the watershed activities after a period of five years. The way in which the rural community is expected to continue benefiting from watershed projects after their formal completion is two-fold. Firstly, the watershed structures that were created during the project duration are supposed to be maintained by means of the supervision of a user group aided by the watershed development committee, financially backed up by a fund known as the watershed development fund.  Secondly, the long term vision for these projects includes the possibility of creating new structures similar to those created within the project-period, due to the demands generated within the community and with funds mobilized primarily from within the community itself.

In India, we have selected 47 watersheds from the central state of Madhya Pradesh which are no longer funded and are expected to maintain the work that had been done in the project period. The survey was done in 2008 by a NGO, Development Support Centre, Ahmedabad in collaboration with one of the authors (Dr. Sen) as a part of a larger study conducted in India between November 2008 and March 2009 and the primary survey instrument was structured questionnaires and key informants representing government agencies and non-government implementing agencies. The questionnaire canvassing in India was done by field investigators of Development Support Centre (DCS) under the guidance of Dr. Sen and Mr. Rout of DSC.

5.  Results

*5.1. Ohio*

5.1.1 General Profile of the Groups

The 26 Ohio groups included in our study exhibit geographic coverage across the state of Ohio (see Table 2).  The core partners of the groups are most often governmental organizations, although quasi-governmental, nonprofit, and university organizations also play a role in a number of the groups. Among the 10 groups with government agencies at the core, 8 are soil and water conservation districts (SWCDs). This can be attributed to OWCGP funding decisions that tend to favor applicants with demonstrated capacity to use existing institutional structures put in place by the government to oversee issues related to soil and water, i.e. the SWCD.  Unlike in India, where our data come from efforts where government funding has ended, in Ohio, we have selected watersheds with varied grant dates, and only 9 out of the 26 surveyed groups are ones that have ended. Given this fact, most of the strategies or responses of the watershed coordinators specifically or the watershed group generally are *ex ante* in nature. The *ex post* strategies to defunding is hoped to be captured by the 9 watersheds where the WCG is currently inactive.

Table 2
Profile of Watershed Groups Interviewed in Ohio

| Regional Coverage | Number of Organizations Surveyed | Core Partner | Number of Organizations Surveyed | Last Grant Start Year | Number of Organizations Surveyed |
|---|---|---|---|---|---|
| Central Ohio | 4 | Dominantly Governmental | 10 | 2001 | 2 |
| Eastern Ohio | 2 | Governmental with Significant Presence of Non Profit | 2 | 2003 | 1 |
| Northern Ohio | 2 | Dominantly Non Profit | 5 | 2004 | 5 |
| North Eastern Ohio | 5 | Non Profit with significant presence of Governmental agency | 2 | 2005 | 1 |
| North Western Ohio | 4 | Switched from Non Profit to Governmental agency | 1 | 2006 | 7 |
| South Eastern Ohio | 3 | Quasi Governmental | 5 | 2008 | 5 |
| South Western Ohio | 3 | University/School | 2 | 2009 | 3 |
| West Central Ohio | 3 | | | 2010 | 1 |

Source: 2009-10 Annual Report, Ohio Watershed Coordinator Grant Program, ODNR and Field survey 2010.

5.1.2 *Ex-ante* Strategies of the Watershed Groups:  Preparing for Funding Withdrawal

*Ex ante* strategies are those that the watershed groups adopt to prepare themselves for securing extensions or renewal of government grants or alternate sources of grants before the end of the current grant period. The competitive nature of the watershed grants and the possibility for renewal of government funding makes the *ex-ante* strategies extremely important.

Results indicate groups with governmental partners at their core view their dependence on governmental funding different than do groups with non-governmental partners at their core.  Key informants were asked whether, once the watershed coordinator puts a system in place, the continued presence of a funded coordinator is crucial for group sustenance.  The coordinators housed with the SWDC and quasi governmental agencies (e.g., associations of local governments) largely felt that the work would fall apart completely without a full-time coordinator.  In contrast, the coordinators with the non-profit organizations felt that although the pace of the work would slow down, some elements of the work would likely follow through because the citizen based organization would remain. One interviewee from a non-governmental organization felt that somebody from the agency would take up the leadership to carry forward the work and get funds, while another felt that their group of volunteers are involved enough to take up some responsibility, albeit partially. The reason for the non-continuance of the work in

absence of the coordinator in the government-dominated partnerships was articulated by a coordinator lucidly, "Watershed approach is a holistic view and requires coordination and collaboration. The SWCD is demand driven and responds to requirement. The watershed coordinator has a different approach as they are pro-active and respond to environmental planning."

While governmental organizations see the role of a paid coordinator as more crucial for their survival (compared to non-governmental organizations), they also noted that having a government agency as a core partner helped to ensure the coordinator position. One of the coordinators, who is attached to a government health department said, "The only reason that I can continue is because I am a Board of Health employee and though I am funded through the end year, I am confident that the board of health would retain me in some other capacity in the event there is no renewal for funding". Similar sentiments were expressed by interviewees housed in SWCDs. One of the coordinators, whose grant has ended, retains his position in the SWCD, carries out similar work, and attempts to make watershed work more visible within the larger framework of SWCD. He believes that this would enable him to secure another WCG from ODNR. Another coordinator, who was associated with a non-profit group initially, stated that after the planning period, the group as a deliberate strategy got more linked with the SWCD, while the non-profit agency remained in an advisory capacity. Though one of the important reasons for doing this was because he believed that SWCD could carry out implementation work more effectively, this according to him was the only effective strategy to secure a renewal of funding from ODNR.

When asked to describe the strategies they adopt to secure continued funding, and possible renewal of grants that run out, six themes emerged: spending time on grant writing, taking advantage of lobbying strengths, working with elected municipal representatives, linking to liveelihood issues, and seeking media coverage.

One of the strategies that the coordinators were forced to adopt to secure a renewal of funding was allocating a majority of their time in writing grants, both for implementation work and their position. This is a double edged-sword, as it takes time away from spending time on other activities. One interviewee noted that her organization has focused its efforts on more community projects where funding is available, so they do less direct water quality work but are able to persist when a big grant runs out. In contrast, a nearby partnership focused its efforts on implementing direct water quality projects (including dam removal) instead of spending time on securing additional funding, so they accomplished a lot but then they stopped when funds ran out and they lost their coordinator.

Another strategy available to some coordinators is to take advantage of a lobbying strength, such as highly visible or resourced water quality issues in their watershed. Lobbying for an issue such as acid mine drainage or protection of water quality in a water-body with considerable tourism seems to be an important strategy of many coordinators. In Ohio, acid mine drainage cleanup efforts can tap into dedicated federal and state funds for that purpose. Similarly, linking watershed cleanup directly to human health issues can help the group achieve and maintain secure funding. Table 3 lists the 13 watersheds (exactly half our sample) that have used a visible issue as a lobbying strength. It can be observed that many of these have succeeded in getting the grant renewed for a second or even a third term. There is only one watershed in this list, which in spite of having the lobbying strength of draining to Lake Erie, is without a grant now. It may be noted here, that in the other half of the watersheds that do not have a particular visible issue to lobby for, in contrast, there are 8 watersheds that are without a OWCGP grant currently. Notably, the nature of the core agency does not seem to make a difference in either securing a renewal of grant, or working with a visible issue.

Table 3
Lobbying Strength and Renewal of Grants

| Watershed Groups | Lobbying Strengths | Core Partner | Number of Grants (renewed) for WCG | Last year of present Grant |
|---|---|---|---|---|
| Raccoon Creek | Acid Mine Drainage | School/University | 3 | 2010 |
| Monday Creek | Acid Mine Drainage | NGO | 3 | 2012 |
| Leading Creek | Acid Mine Drainage | Government + | 2 | 2011 |
| Portage River | Adjacent to Lake Erie | Quasi Government | 1 | 2010 |
| Maumee (Lower) | Drains to Lake Erie | Quasi Government | 1 | NA |
| Euclid Creek | Drains to Lake Erie | Government | 2 | 2011 |
| Rocky River | Drains to Lake Erie | Government + | 1 | 2010 |
| Chagrin River | Drains to Lake Erie, Institutional Service Provider | NGO+ | 1 | 2010 |
| Sandusky | Drains to Lake Erie, Large in Area | NGO | 2 | 2009 |
| Alum Creek | Water quality in Columbus | NGO | 2 | 2009 |
| Lower Olentangy | Water quality in Columbus | NGO | 3 | 2010 |
| Grand Lake St. Marys / Wabash River | Tourism | Government | 2 | 2011 |
| Indian Lake | Tourism | Government | 1 | 2012 |

Note: + indicates substantial presence of a second type of agency (government or non profit)

A third strategy *ex ante* is reaching out to elected municipal representatives. Five key informants described how the support of elected representatives of local government not only enables them to implement the watershed action plans better, but also helps the groups directly or indirectly to raise resources which enables them to continue their work in the absence of an ODNR grant. Availability of matching grants, in turn, facilitates renewal of funding from ODNR.

A fourth strategy is to relate the watershed work to livelihood issues. This strategy can help to garner public support, as well as resources from elected representatives. The example of Chagrin watershed partnership is a case in point, where flooding was a major problem, and the watershed partnership was created to solve this problem. Now the partnership has become an environmental service provider, and works on issues that have a direct bearing on people's day-to-day lives, and the partnership is financially supported by more than 95% of the communities living in its catchment. The Stillwater watershed partnership and the Indian Lake partnership, for example, have objectives that are strongly linked with farmers' livelihoods.

Finally, media exposure of the watershed work, particularly on issues that would get public support, can smooth access to various funding sources, local and state. Of the 26 watersheds in our study, 16 reported to have some kind of media coverage. Local newspapers are used by almost all that have

reported exposure in media, and four of the watersheds have publicized their work in more than two media outlets. Seven of the groups had low frequency of coverage (five times or less), seven had moderate frequency (six and above) and two has regular frequency of coverage. Media coverage has been reported by some to be an important instrument to remain visible.

5.1.3 *Ex-post* Responses to Defunding

The *ex post* strategies are adopted by groups after they are out of funding to continue their work. We have also analyzed the strategies they have adopted when their funding was stopped temporarily. Among the 16 partnerships that indicated they had coped or know how they would cope following a funding loss, we found five different coping strategies (see Table 4).

Table 4
*Ex Post* Strategies to Defunding

| Coping Strategy | Number of partnerships |
|---|---|
| Scaling up | 2 |
| Scaling down | 1 |
| Change funding sources | 6 |
| Merge resources with partner organizations | 1 |
| Rely on one key home organization to allow work to continue | 6 |
| Bringing about commonality of work of the watershed with the SWCD work | 2 |

Note: Since some groups have stated more than one strategy, the total adds up to more than the number of groups.

Scaling up entails shifting the geographic scope to a larger level. In one of our cases, this meant that a partnership losing its watershed coordinator became part of a larger scale effort by a regional organization that took over leadership for three formerly separate smaller watersheds. In our other example of this strategy, a watershed group that had started with a non-profit organization is now a part of a large regional land conservancy group which aims to protect natural resources in the Lake Erie catchment..

Scaling down entails a partnership losing funds that envisioned it would no longer operate, but some of the watershed functions it had performed would be picked up by existing administrative units of government and done piecemeal.

Changing funding sources involves searching for additional funds, even if that means shifting the organization's goals and activities. For example, one partnership reported shifting away from direct watershed restoration projects and towards opportunities to gain grants to conduct educational campaigns that were less likely to directly improve water quality. Another partnership had increasingly billed itself as a service provider for members – local governments – that needed work done on stormwater issues. The members paid dues and could expect services in return.

One partnership envisioned that in the face of funding cuts their group would merge resources with partner organizations to carry out some of its activities through others. This strategy is similar to the scaling down strategy except this group envisioned continuing to address broad-scale issues through existing organizations.

The reliance on key home organizations emerged as a strategy that many partnerships had already experienced or could foresee. For example, one partnership housed in a county health department could continue its efforts that were closely related to health (e.g., illness caused by bacteria in waterways) because the home organization had secure funding. Another group had lost substantial funding but continued its work focusing on the recreational and environmental protection goals it shared with its home organization, a local park agency.

It has been observed in two of the nine cases of watersheds without funding, that the coordinators work part time in the period without funding. They aim to strengthen their case in this transition period to seek out funding sources.

5.1.4 Comparison of *ex ante* and *ex post* Strategies to Defunding in Ohio

We have observed that the working focus, norms and patterns can be significantly modified in the case of Ohio watersheds as they adopt a host of *ex ante* and *ex post* responses to government defunding. Some of these can make them more efficient. In few cases such strategies may also lead to inefficiencies in carrying out their original objectives. Table 5 compares the two types of strategies that we have discussed in the preceding sections.

Table 5
Comparison of *Ex ante* and *Ex post* Strategies to Defunding

| | *Ex ante* Strategies | | *Ex post* Strategies |
|---|---|---|---|
| 1 | Shifting the core agency from non-profit organizations to government agency | 1 | *Scaling up* |
| 2 | *Spending a large percentage of work hours in writing grants* | 2 | *Scaling down* |
| 3 | Lobbying around issues that capture public interest | 3 | Change funding sources |
| 4 | Focusing on watershed work that is related to livelihood issues | 4 | *Merge resources with partner organizations* |
| 5 | Seeking exposure in Media | 5 | *Rely on one's key home organization to allow work to continue* |
| 6 | Involving Local elected representatives in the watershed work | 6 | *Bringing about commonality of work of the watershed with the SWCD work* |

From Table 5 it may be noted that some of the strategies in italics may bring about a reduction in efficiency of the watershed work, though not necessarily so. Spending a large percentage of work hours in writing up grants is seen to have taken the coordinator's focus away from the actual planning and implementation work. In adopting most of the *ex post* strategies, depending on their manifestations, the groups may experience a deviation, at best, and a blurring of focus and decline in efficiency, at worst. Scaling up may mean losing details while scaling down may involve a compromise in coverage. Merging resources with partner organizations may force the group to change their own focus or priority areas giving way to that of the partners. Our survey reveals that continuing to work in one's own key organization may take away the coordinator's interest from the watershed work permanently, particularly if there are promotional avenues in the home organization. Merging watershed work with the SWCD work may have similar effects mentioned above. In sum, the *ex ante* strategies to avoid defunding may in sum-total be a better set of strategies to adopt to retain the original objectives of the watershed work.

*6.1. Madhya Pradesh, India*

Unlike the Ohio, USA, case, watershed groups in Madhya Pradesh, India do not exhibit high rates of survival. Whereas the Ohio groups can contemplate *ex ante* strategies to prepare for government defunding, because they can seek funding from a wide range of government institutions, groups in Madhya Pradesh cannot readily seek further watershed funding sources once the initial grant runs out. What emerges instead is the continued existence of some groups who have maintained watershed projects through creative use of a government program designed for a different purpose, that of employment generation (the National Rural Employment Guarantee Scheme). A second strategy, the provision of private benefits, has not been successful in fostering project sustenance. These strategies are discussed following a description of the study area and the nature of the assets provided through the watershed program.

6.1.1. The Study Area and Nature of the Watershed Assets

Madhya Pradesh, our sample state in central India, covers a geographical area of 308252 sq km and the state is divided into 50 districts. The samples were drawn from 5 districts in the state, namely, Jhabua, Guna, Siddhi, Chindwara and Raisen (Fig I). Between 10 to 8 micro-watersheds each from these districts were selected, all of which were in their post project stage. In Madhya Pradesh, watershed development programmes are implemented in a mission mode-"Rajiv Gandhi Watershed Development Mission (RGWM)". The Central Funds flow to the state, and subsequently to the districts, then the PIA and finally to the micro-watershed level. The presence of non-governmental agency participation in watershed projects is extremely limited in the state, and in a randomly drawn sample of 47 watersheds, only two of the PIAs were non-governmental, while the rest were implemented by District of Rural Development Agencies, an extension of the Department of Rural Development of the state government.

> Figure I : Location of Sample Districts in Madhya



Till nearly taken than land of

recently the RGWM had covered 10,000 villages and and had treated more 240 thousand hectares of under a total 6799 micro

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watersheds were covered. Though the number of watersheds is much higher than in Ohio, the average watershed size of slightly over 350 hactares is much smaller than in the USA.

The community response to government defunding cannot be understood without understanding the nature of assets created during the implementation phase, which fall under two major categories in terms of their visibility. The first category includes structures like check dams or percolation pits that recharge the surface and ground water. These assets have a direct impact on livelihood through a higher increase of irrigated area. On the other hand, activities like bunding, though extremely important in natural resource management through reduced soil erosion and increased infiltration, probably are not seen as having direct targeted benefits of income increase to an identifiable group of people. More funds in the state have been spent for the first category of assets that are visible and are seen to have direct livelihood benefits.

Unlike Ohio in the USA, where most of the resources to be conserved and enhanced are common property resources, in India most of the treatment is done on private property, resulting in private benefits. It has been observed in the Indian context, that almost all the benefits have accrued to the cultivated and/or privately owned land. Failure to address degradation of common pastures and forests has significant negative impact on both integrated management of natural resources and on livestock economy and hence, the interests of the landless poor (Shah, 2004) Table 7 provides the type of land in which assets have been created vis-a-vis the type of benefit that has accrued to beneficiaries.

*Table 7*
*Extent of Use of Public Land and Common Benefits from Watershed Structures*

| Type of Work | *Percent of Work in Public Land* | *Percent of Work for Common Use* |
|---|---|---|
| Check Dam | 90 | 10 |
| Percolation Tank | 5 | 58 |
| Farm Pond | 2 | 35 |
| Contour Bunding | 7 | 67 |

Check dams, which is the structure where the largest investment was made, though mostly constructed on common land, have mostly private benefits. The other structures, though mostly constructed on private land, have varying kinds of common benefits. It needs to be mentioned here that the use for this structure, even when specified as 'public' is only loosely so (unlike in the case of contour bunding), as the field work observations reveal that the owner of the land is the 'primary' user, and in times of water shortages, the use is restricted to the owner of the land and his kin. This is particularly so in case of farm ponds. Though as per the guidelines, the WDF is meant to be used for the structures meant for common use, it was observed in the field that there is very little understanding and clarity about the exact modalities of use of WDF.

6.1.2. Survival of Watershed Development Committees and User Groups

The Watershed Development Committee (WDC) is an institution that has an extremely important role not only in managing the finances for repair and maintenance, but also in terms of acting as a node for other institutions like user groups. WDCs are of vital importance in terms of formulating and implementing projects during the project period, and subsequently acting as

coordinating and decision-making bodies to facilitate post-project management. It is difficult for the benefits of watershed projects to continue after the project period without an operational WDC in the watershed. Not only does the secretary of the WDC maintain the record of the Watershed Development Fund (WDF), meant for the repair of the projects, but also the role of WDC as a nodal institution is extremely significant with respect to any decision about allocation of funds for repair as the fund is limited. The norm about allocation of WDF is not clear even in the policy documents, and without a doubt developing some kind of consensus about it within the community is difficult without a functioning WDC in place.

The significance of user groups in efficient repair and maintenance of structures can hardly be over-stated. These groups are the groups of direct beneficiaries usually connected to a structure or in some cases plantations, which are clearly associated with economic benefits. It is the responsibility of the user groups to devise norms for raising funds for any repair and maintenance that the structure needed. The demand for fund for repair has to be made by the user groups of a watershed to the WDC and then follow up for the release of funds from the WDF. An attempt has been made here to compare the status of WDCs and user groups (UGs) before and after the withdrawal of Government Funding.

*Table 8*
*Survival of CBIs in Completed Projects*

| Whether WDCs are Surviving | Madhya Pradesh | |
|---|---|---|
| | No. | Percent |
| Yes | 10 | 21.3 |
| No | 37 | 78.7 |
| Total | 47 | 100 |

| | Formed | Now | % of formed |
|---|---|---|---|
| Mean UGs per Micro Water Shed | 10.4 | 4.3 | |
| Total | 333 | 139 | 41.7 |
| Microwatersheds with UGs | 32 | 24 | 75.0 |

As can be observed from Table 8, the survival rates of the CBIs (community based institutions) after the government funding withdrawal is poor, particularly for the WDCs. Less than one fourth of these CBIs survive. The state of the user groups is better, yet less than one half (41.7 %) of those formed during the initial period of the programs survive.

The poor response of the CBIs, particularly the WDCs, which are the nodal agencies for fund allocation and disbursal for repair and maintenance after the completion of the project period was investigated. Our analysis suggests the following points:

- Problems of sustenance of village level watershed institutions start from levels higher than the village and community. Among the different types of capacity building carried out by the PIAs in the different states, institution-building or community organization does not figure prominently. 10 out of the 19 capacity building training programs meant

to strengthen the CBIs, had no particular focus, where as only one focused on community organization.

- It was our contention that the composition of the WDC should be such that the 'community' is able to identify with it, notwithstanding the fact that the 'community' is not an undifferentiated unit. In other words, the members, particularly the leaders of the WDC, i.e. the President and Secretary, should represent the interests of the community, and hence belong to social, economic and occupational groups that represents the at least the numerically dominant groups. Our analysis, however, reveals that the majority of the WDC members are not representative of their community in terms of gender or social, economic, and occupational status. In fact most members have land ownership far higher than the average land ownership size in the village, and no WDCs in our sample watersheds had any women members. The share of existing leaders in the WDC's President's post is sizable. All the above indicates that the existing power relations within the fabric of rural society manifest themselves in the formation of the watershed institutions.

- Institution building processes such as mode of election, attendance in gram-sabha (village level institutions present in all villages that nominate or elect members for watershed CBIs) meetings and watershed characteristics like area and size of households have emerged as significant in determining the probability of survival of WDCs[1]. Age of project affects the probability of survival adversely.

- The key informants' interviews in the field reveal that since the WDF is typically not accessible, in many cases, the beneficiaries, who are organized as UGs take a joint decision to undertake minor repair works by providing their labour hours. Where the material need is substantial, the repair work in most cases have not been undertaken. The better survival rates for the UGs compared to the WDC also show that if the expected outcome of collective action is perceived in terms of direct livelihood benefits, the rates of survival are higher.

6.1.3 Strategies for Survival: Private Benefits and Other Government Programs

Policy design for the watershed program assumed that the private benefits accruing from water projects would motivate users to participate in ensuring the sustenance of the projects. Sustenance requires maintenance and repair over time. A total of 37 out of the 47 watersheds selected from the state of Madhya Pradesh reported repair needs. The repair needs to investment is high for percolation tanks and check dams, which are the two major structures on which a large chunk of investment was made (Table 9). The repair need per micro watershed for check dams is somewhat higher than percolation tanks. Note that more than 81 percent of the check dams require repairs.

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[1] The result reported here pertains to a larger Logit analysis of 4 states in India with 200 watersheds.

Table 9
Repair Need Status of the Major Watershed Structures

|  | Check Dam | Percolation Tank | Farm Pond | All Structures |
|---|---|---|---|---|
| Percentage of Repair to Investment | 34.56 | 46.7 | 2.24 | 23.21 |
| Repair Need per Micro Watershed in dollars | 2830 | 2438 | 1908 | 7176 |
| Percentage of Structure needing repair | 81.6 | 26.9 | 3.5 | |

Out of a total of 84 structures needing repairs, only 4 were attended to. This situation matches the overall rough situation reported in the government documents (GOI:2008). It may be noted that all the repairs had private benefits, but in spite of that, in 2 of the 4 repairs, funds have been sanctioned from the WDF (see Table 10). In none of the 4 repairs done, were the funds sanctioned/available as much as the repair needs.

Table 10
Details of the Repairs Done by Structures

| Type of Structure Repaired | Percent of repair needs available | Source of Fund | Person who applied for the Fund | Whether Formal Application was Done | Nature of Land on which structure is constructed | Nature of use of the Structure |
|---|---|---|---|---|---|---|
| Check Dam | 80 | WDF | Secretary - president | Yes | Public | Private |
| Check Dam | 30 | WDF | Beneficiary | Yes | Public | Private |
| Percolation Tank | 50 | PIA | Beneficiary | No | Private | Private |
| Farm Bunding | 40 | Any Other | Beneficiary | Yes | Public | Private |

Overall, these data indicate that projects are not being repaired as needed; private benefits have not been sufficient to mobilize project sustenance.

One strategy used in response to government defunding in watershed programs is the use of the funds available through the National Rural Employment Guarantee Scheme (NREGS), which is meant for employment generation at the village level, for repair and maintenance work of the watershed programs. Thus one way to deal with defunding of one source could be to treat all existing government programs in a holistic manner, and sequence these in a manner such that the benefits of one program are sustained by another. It has been argued that increased focus on productive assets actually increases community participation in the NREGS scheme (David 2008). In our study cases, 4 projects used this strategy to attain funding beyond the initial grant timeline.

6. *Discussion: Comparing contexts: US and India*

The contexts in US and India are extremely different starting with demographics, economics and social structure. It was our purpose to examine whether, given very diverse conditions, there are some

issues common to both contexts, where there is a possibility of learning from the experiences in these two different contexts.

The top-down approach in India seems to be less suited to participatory approaches, on which the sustenance of impacts of the watershed programs in India is based. The bottom up approach of USA, it could be argued, is more amenable to participatory processes from the grassroots, which also implies a smoother transition in the stage of funding withdrawal. For a start, the watershed projects that are conceptualized in the USA are demand-based, compared to a notion of 'perception' of demand by the government agencies in India, of what is essentially their understanding of need in the grassroots.

Yet, in terms of the mechanics of the institutions in both countries, participation of individuals of community in these natural resource management projects seem to have a wider base in the Indian context compared with that in the USA, where very few members of the community knew about the large scale watershed work that was going on to improve water quality that affect their everyday life.

It is probably simple to explain as to why this happens, given the socio-economic differences in the two countries (See Table 1). But the operative question to ask here is whether community participation is less important in the USA than in India success.  Probably not, given that the watershed coordinators interviewed in USA were unanimous about its importance in the success of the programs there. The attempts to increase visibility of the programs in terms of lobbying around issues that would garner public interest, supports this point.

One reason that community participation in terms of individual involvement is higher in India is probably due to the clear livelihood link with environmental programs. As Ostrom (1990) has argued, the likelihood that stakeholders will contribute to solving common pool resource problems is related to their level of dependence on the resources.  In rural India the connection is clear, while in the USA most watershed residents do not depend on the resource for their survival.

The institutional set-up in both contexts have something in common, when one takes a larger view. In the USA the watershed coordinators are central in the functioning of the watershed work, whereas in India it is the Watershed Development Committees (WDC). After the withdrawal of the government funding, the performance or even the survival of WDCs is low. On the other hand in the USA, many of the watersheds carry on their work where there is a public issue to rally around, in spite of having to compete for funding time and again. One of the major reasons of this is because the programs in USA work around existing institutions, whereas the ones in India are created with the program, and as our analysis shows, usually cease to exist after the official end of the program.

Renewal of funding in the USA is definitely an option, which is done through a competitive process, whereas India is currently moving towards this direction (GOI 2008). It appears that without continued support from the government, possibly at a lower level, the area covered by former projects will not sustain their benefits.

As we have seen in the case of US, there are hosts of *ex ante* strategies along with *ex post* ones that watershed groups may adopt. In India, the approach is primarily *ex post*  and as the US experience show us, these are strategies that tend to be qualitatively worse than the *ex ante* ones*.*

7.  Conclusion: Can we Learn from Each Other?

Decentralization has occurred in many commons management efforts around the world.  When central government resources are withdrawn, local groups are left to cope.  Sustenance of such efforts is by no means assured, and the groups can pursue a variety of strategies to survive.  In the Ohio, USA context, community-based watershed organizations undertook both *ex ante* strategies, to prepare for grant termination, as well as *ex post* strategies to respond when funding was withdrawn.  In most cases, the organizations managed to survive and continue their watershed management efforts.  In the Madhya Pradesh, India context, local Watershed Development Committees and User Groups most often failed to survive after the project funding ended. Moreover, the projects undertaken during the grant period often

failed to be maintained and repaired. This result was despite the policy design to encourage sustenance through the provision of private benefits.

Data collected in the two contexts provided additional insights about communities and watershed management, including livelihoods, existing institutions, and community participation. In Madhya Pradesh, India, watershed projects such as check dams, percolation tanks, and farm ponds are directly and visibly connected to livelihoods. This leads to a demand for the benefits these projects provide, but demand alone does not ensure their sustenance. In contrast, in the Ohio, USA context, watershed projects aim to improve water quality for ecological and amenity values not directly linked to livelihood. Nevertheless, watershed groups were largely successful in surviving and conducting water quality activities beyond the initial period of the Ohio Watershed Coordinator Grant Program.

Community participation rates correlate with connections to livelihood. In the Madhya Pradesh context, there was a relatively high level of stakeholder involvement in watershed infrastructure project, as community members saw direct connections to their livelihoods. In contrast, in the Ohio context very few of the watershed residents engaged in watershed management activities, largely due to lack of livelihood connections. Nearly all of the Ohio watershed coordinators indicated they valued stakeholder participation and wished for higher levels of it; some had used high visibility issues such as public health concerns to galvanize such participation. This raises the question of whether and how watershed coordinators in the USA can build better connections between citizen livelihoods and the health of their watersheds.

A key factor affecting survival and sustenance that differed across the two contexts was the role of existing institutions. This benefited groups in the Ohio context in two ways. First, funds were granted to existing watershed groups, so they did not have to spend energy creating a new institution from scratch. Second, watershed groups recognized that in addition to the Ohio Watershed Coordinator Grant Program funding, there existed numerous other institutions to whom they could turn if and when their primary funding ended. This raises the question of whether policymakers in India might successfully provide resources to existing local institutions, rather than creating new ones for the program. In fact the previous Central Government policy directed at watershed projects did just that. Issues arose in that approach relating to the exacerbation of existing power differentials in communities that hindered the ability to provide sustainable efforts (GOI 2001). A related opportunity for Indian watershed projects to tap into existing institutions would be to use a program such as the National Rural Employment Guarantee Scheme to fund ongoing work once a project has been started.

Understanding the factors that can help improve sustainability of community-based watershed projects is important for policy makers and community members. As indicated by our comparative study, these factors are likely to vary across contexts. While government involvement is not always positive, it can play an important role in providing resources for groups to plan and implement their work. When governments decentralize, there are opportunities for local efforts to try different approaches and, hopefully, learn from each other. As scholars, we also aim to learn from examining efforts in different contexts. We hope that this study can provide some useful insights and directions for future research.

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