

THE SIGNIFICANCE OF POLITICAL TRUST IN MINED LAND RECLAMATION AND REFORESTATION EFFORTS¹

Darren A. Wheeler² and Stacy E. Wheeler

Abstract: Mined land reclamation and reforestation issues traditionally have been viewed in scientific and regulatory terms over the last thirty years. However, in this paper we explore levels of political trust among stakeholders -- the coal industry, regulators, scientists and environmentalists -- in the coal mining states of West Virginia and Wyoming who are responsible for designing and implementing the scientific and regulatory terms of reclamation pursuant to the Surface Mining Control and Reclamation Act (SMCRA). Survey data collected from 400 stakeholders and in-depth interviews document stakeholder attitudes about trust in the reclamation process (i.e., planning process through implementation) and in other stakeholders. Preliminary findings indicate that many SMCRA stakeholders (including scientists) hold pessimistic views about the fairness, legitimacy and inclusiveness of the reclamation process. We also find that a sizeable number of stakeholders have a substantial lack of trust in other stakeholders, results which lend support to historical and anecdotal accounts of dissension among SMCRA stakeholders. Our study suggests that even if the best reclamation/reforestation science is implemented correctly, key stakeholders responsible for designing and implementing it may not view on the ground results of reclamation as a success because they lack trust in the reclamation process and in each other. In other words, the significance of political trust should not be undervalued. Recent reclamation efforts by members of the Appalachian Regional Reforestation Initiative (ARRI) illustrate this point. Despite an aggressive scientific and technical outreach by ARRI's leaders, they report that serious "cultural barriers" remain pervasive in the Appalachian coalfields. Political trust issues are likely limiting the benefits that ARRI's scientific advances can achieve.

Additional Key Words: Empirical measures of stakeholder attitudes, cultural barriers of coal surface mine reclamation.

¹ Paper was presented at the 2010 National Meeting of the American Society of Mining and Reclamation, Pittsburgh, PA *Bridging Reclamation, Science and the Community* June 5 - 11, 2010. R.I. Barnhisel (Ed.) Published by ASMR, 3134 Montavesta Rd., Lexington, KY 40502.

² Darren A. Wheeler, Assistant Professor and Stacy E. Wheeler, Affiliated Researcher, Department of Political Science, Ball State University, Muncie, IN 47306.

Proceedings America Society of Mining and Reclamation, 2010 pp 1337-1363

DOI: 10.21000/JASMR10011337

<http://dx.doi.org/10.21000/JASMR10011337>

Introduction

There are good reasons to suspect that political trust is an issue that affects the implementation of mine reclamation and reforestation programs. The process surrounding the very passage of the Surface Mining Control and Reclamation Act (SMCRA) in 1977 has often been described as “bitter,” “acrimonious,” and “contentious” (Desai 1993). Coal executives and operators, agency regulators, scientists, and environmentalists are all important stakeholders in the area of SMCRA reclamation. In many ways they have been forced to work together to implement reclamation and reforestation programs within the framework created by SMCRA. While there have been advances made in reclamation science in the decades following the passage of SMCRA, the political marriage among these SMCRA stakeholders has not always been a happy one. The battles between these stakeholders that almost prevented the passage of SMCRA at the outset have continued into the implementation process (Hayes 1992). These battles have been fought in the courts, in state and national regulatory agencies, congressional and state legislative oversight committees, and in public hearings across the land (Shover, Chelland and Lynxwiler 1986). These battles have also left their scars on stakeholders, scars which have the potential to affect the implementation of on the ground reclamation and reforestation success (McElfish 1993).

While descriptive accounts of disagreements among stakeholders are legion, few attempts have been made to empirically measure the views that SMCRA stakeholders have toward each other and the implementation of reclamation science itself (See Scheberle 2004). Likewise, only a handful of scholars have attempted to look at the social and political elements of the SMCRA reclamation (Cairns 1988; Maguire 1988).

Literature Review

Early SMCRA researchers such as Thadis Box argued that good land use practices should be dependent on 1) the scientific understandings of the ecological potential of the area, and 2) the social and political understandings of reclamation. Successful reclamation would need to be integrated and implemented by all of its stakeholders in order to allow individuals to “get what they want from the land” while keeping the land “within its carrying capacity for that particular use” (Box 1978: 9-10). Similar ideas about early reclamation efforts are seen in the works of Vogel and Curtis (1978) and Mertes (1978).

A decade later, John Cairns (1988) recognized that there was still a need for consultation with the key stakeholders involved with reclamation, despite the fact that these stakeholders were often antagonistic towards one another. Cairns argued that open discussions among these stakeholders would ultimately determine what kind of ecosystem recovery would be ecologically possible and socially/politically feasible (Cairns 1980, 1988, 2000). He strongly believed that if reclamation science and its related politics could be “understood from the perspective of all of the major contending groups this would do more for the environment as a whole than any course of action that could be taken” (Cairns 1988:7).

Similarly, Maguire (1988) contended that the science of reclamation would benefit from clearer protocols for gathering and processing information from all the stakeholders involved. Earlier attempts, she argued, had been “frustrating” because she and others had failed to capture “the complexity and uniqueness” of all the reclamation decisions put forth by SMCRA stakeholders. The primary goal of Maguire’s earlier research was to collect relevant ecosystem information, including the ecosystem functions valued by coal operators, agency regulators, scientists, and environmentalists. Maguire (1988) stated that the inclusion of these diverse stakeholders was necessary for improving the understanding of the ecological processes of reclamation, but “valuable” only if the resulting information could address the wants and needs of all the stakeholders involved in this social and political process. The barriers to reclamation quickly became “both ecological and sociopolitical.” She concluded that SMCRA stakeholders, with multiple and sometimes conflicting land use goals would always affect the implementation process of good reclamation science (Maguire 1988: 106, 120-121). As such, reclamation would ultimately be determined by its protocols for gathering and processing reclamation decisions.

Unfortunately, little in the way of similar work exists in the area of SMCRA reclamation in recent years despite some evidence that such integrated efforts are needed. One recent reclamation effort that illustrates this need is the Appalachian Regional Reforestation Initiative (ARRI). ARRI is a broad-based program that brings together “citizen groups, university researchers, the coal industry, corporations, the environmental community, and local, state, and federal government agencies that have an interest in creating productive forestland on reclaimed mine lands” (Angel et. al. 2009: 1). Between 2005 and 2007, ARRI has seen the number of trees planted on Appalachian coal sites rise from 9.4 million to 12.8 million. Still, problems remain. One report concluded that “despite an aggressive [scientific] technical outreach by ARRI, serious

cultural barriers and other impediments to proper surface mine reforestation remain pervasive in the Appalachian coalfields” (Angel et. al. 2009: 1). ARRI’s members believe that the technology to make significant advances in SMCRA reclamation is there, but various political trust issues may be a key factor limiting the benefits that these scientific advances can achieve.

Our study builds on these ideas and explores the levels of political trust among SMCRA stakeholders who are responsible for designing and implementing the scientific and regulatory terms of reclamation. We hypothesize that many SMCRA stakeholders lack trust in the reclamation decision making process (i.e., planning process through implementation) - both in terms of its fairness and legitimacy, and in the inclusiveness of the process. We also hypothesize that many SMCRA stakeholders lack trust in other SMCRA stakeholders. Testing these hypotheses may provide some insight into the levels of trust that exist among SMCRA stakeholders and how these trust levels may affect reclamation and reforestation programs. In devising these hypotheses we are cognizant of the fact that there are no technical requirements to be found in SMCRA that mandate trust among stakeholders. However, we argue that one must look beyond “letter of the law” compliance with SMCRA regulations and build a reclamation process that is viewed as both legitimate and inclusive by major stakeholders. Political trust plays an important role in the development of such a process and is, in turn, a key component of successful reclamation.

Measures of Political Trust

The most widely used index of trust in the policy studies literature originates from a set of questions included in the 1964 American National Election Studies (ANES) developed by researchers at the University of Michigan (Citrin and Muste 1999). One of the questions, for example, refers to “the government in Washington,” asking how often it can be trusted “to do what is right.” More recently, scholars have successfully reformulated the original ANES political trust questions to fit their specific research interests while maintaining reasonable levels of validity and reliability (Parker and Parker 1993). The present study uses a modified version of the ANES index, drawn from several studies that have developed more recent and relevant measures of political trust.

The policy studies literature divides the concept of political trust into two main dimensions: process and people (Easton 1975). In our study, the political trust index is made up of a set of

three items designed to capture both dimensions. The first and second trust questions measure the respondent's *trust in the reclamation decision making process*. The first item was developed from the findings of Leach and Sabatier (2005) that show the importance of measuring stakeholder's perception of the "*fairness and legitimacy*" of the decision-making process. Hibbing and Theiss-Morse (2001, 2002) also concluded that people's attitudes of political trust are driven primarily by their satisfaction with *how* government operates, focusing on the decision making process rather than particular political institutions and policy actors. Likewise, other scholars have suggested that the related item of "*inclusiveness*" is thought to be another good indicator of political trust (Wolfe and Bjornstad 2002; Yang and Holzer 2006). Thus, the second question examines "*inclusiveness*" as it relates to political trust by measuring the respondent's perception of how often the viewpoints of all interested parties are included within the decision-making process of reclamation.

Table 1. Dimensions of Political Trust

Process	How often do you think decisions are made in a fair and legitimate manner?
	How often do you think decisions have included the viewpoints of all interested parties?
People	In general, how often can you trust particular stakeholders to do what is right?

The third political trust question measures how often a respondent could *trust key policy actors* "to do what is right" about reclamation and included a list of key stakeholders (e.g., coal company executives and operators, federal and state surface mine inspectors, state legislators in West Virginia/Wyoming, etc.) to be evaluated by the respondent. Findings from several studies have suggested that survey results are more reliable when respondents distinguish level of trust in a specific type of political actor rather than using the more general attitude of trust in "the government" that the original ANES items sought to capture (Citrin and Muste 1999; Fenno 1978; Miller 1974; Parker and Parker 1993).

Lastly, the survey asks an open-ended question that looks to measure the respondents' personal experiences with reclamation in the framework of these political trust measures. Specially, the open-ended question asked respondents, in their own words, to describe and define how one achieves reclamation success. We did this for two reasons. First, an open-ended question allows us to capture opinions that the other measures fail to fully capture. Second, these

responses begin to give us some insight as to why specific stakeholders hold the opinions they do (Dillman 2000).

Because no tested measures were available specific to the theories of political trust in the context of SMCRA reclamation, an initial pilot test of the survey was conducted June through August 2007 with SMCRA stakeholders from other states that were not part of the sample. Several survey piloting techniques known as “concurrent” and “retrospective” interviews were used to determine whether participants comprehended the survey questions as intended. Both techniques are effective in identifying if standing questions need to be revised or eliminated (Forsyth and Lessler 1991).

The piloting process did lead to a few minor revisions of the political trust questions. For example, respondents stated that adding the phrase “in general” at the beginning of the political trust questions would help them select only one response per question as the survey intended. One participant stated: “I was conflicted when trying to answer the question dealing with how often I could trust coal operators to do what is right about reclamation. As a regulatory enforcer, I personally know of some coal operators that I can trust *all of the time*. However, there are definitely coal operators I know that I can *never* trust based on past experiences. On the whole, I’m guessing you want my general attitude towards coal operators.”

Also, several questions on the pilot survey were designed to test the performance of the political trust response categories and to see how participants would respond to similar questions with different response scales. The results were interesting. Questions with a three-point and four-point Likert-type response scales (which are commonly used for political trust questions) were found to be restrictive and tended to cluster the participants’ responses toward the middle category. In contrast, the five-point Likert-type response scale (i.e., 1= all the time, 2=most of the time, 3=some of the time, 4=seldom and 5=never) performed well and distributed the participants’ responses across the assorted categories. As a result, we revised the survey and amended the political trust response categories to the preferred five-point scale.

The initial pilot survey also established the value of the open-ended question. Nearly all participants took time to complete the question and were suitably descriptive in their written response, often exceeding 250 words. As intended, the open-ended question was used to clarify an individual’s political trust responses and in some cases stakeholders felt strongly enough

about their views that they expressed an interest in having additional opportunities to communicate these views to the authors.

Survey Design

The study specifically targeted SMCRA stakeholders who were knowledgeable about mining and reclamation processes on active working surface coal mines sites (not abandoned or underground coal mines). Therefore, the study purposely excluded the general public from the sampling population and instead aimed to survey and interview individual stakeholders who are primarily responsible for designing, studying and implementing mining and reclamation policies. Our selection of SMCRA stakeholders was further limited to those addressing reclamation issues in the states of West Virginia and Wyoming. These states have the most active surface coal mines in the country. The mining methods commonly used in Wyoming and West Virginia are also known to cause some of the largest environmental land disturbances that require reclaiming (EIA 2009).

We recognized early in our study that individuals in our sample could have multiple stakeholder affiliations (e.g., a reclamation scientist who is also member of a local environmental organization) creating possible overlap. To correct for this, we characterized individuals according to their primary role in implementing SMCRA reclamation. For example, a scientist who conducts reclamation research professionally or in an academic setting was identified as a “scientist” while only the director, committee members and staff of an environmental organization were classified as “environmentalists”.

At the time of the study no centralized directory of SMCRA stakeholders existed, so the study draws on many sources to create the sampling frame. Specific contact information such as a person’s name, mailing address and email account was compiled from organizational directories and online databases. In most cases the contact information was obtained directly from the stakeholders (i.e., the coal industry, state regulatory agencies, and environmental groups). We obtained the contact information for reclamation scientists by using Internet searches of conference attendance lists, professional directories, and academic departmental web pages. It should be noted that the federal regulatory agency declined to participate in the study. While a number of Office of Surface Mining regional employees personally indicated a willingness to participate in the survey (some even provided assistance in designing the survey

instrument), the Acting Director of OSM decided that the agency would not participate in the project. This official response was likely due to the political and legal climate that existed at the time.

Efforts were made to draw a representative sample by dividing the population into non-overlapping strata defined first by a specific region (i.e., West Virginia and Wyoming) and then by a classification of the different stakeholders of SMCRA (i.e., coal representatives, agency regulators, scientists and environmentalists). After the population was stratified into distinctive strata, a simple random sampling procedure was used. This sampling strategy commonly known as “stratification” is traditionally used when the population under investigation is dissimilar and certain homogenous sub-populations can be isolated. The desired outcome is to represent not only the overall population, but key features of the population (Fowler 1993).

The survey was administered using a mixed-mode approach, via internet and postal mail (Dillman 2000) starting in mid-October 2007. In the first contact, each stakeholder was sent a personalized email containing a unique URL link to the online survey. Respondents who completed the online survey usually did so within the first few days after receiving the email invitation. Stakeholders who failed to respond to the first contact within ten days were sent by first class mail a paper copy of the survey along with a personalized cover letter and a pre-stamped return envelope. Reminder postcards were mailed ten days later. In a final attempt to contact nonrespondents, a replacement copy of the survey was delivered by postal mail to those individuals who had not replied after seven weeks.

Response Rates and Survey Bias

A total of four hundred survey responses were received (172 by internet, 228 by posted mail) from a starting sample of 978 SMCRA stakeholders, resulting in a response rate of 41 percent. Mirroring the sampling frame, most of the respondents were college educated, middle-aged males with diverse political ideologies. Of those who reported their gender, there were 321 male respondents (eighty percent) and 76 female respondents (twenty percent). The respondents also varied in age, ranging from 24 to 88 years of age with a mean of 52 years of age. Nearly all of the respondents reported having completed a four-year college degree (ninety-one percent), with only a small number of respondents with some or no college experience (eight percent and one percent respectively). Of the college-educated respondents, over two-thirds reported having

completed a master's or doctorate degree. As expected, the respondents' political ideologies were diverse. Forty percent of the respondents reported that they were "conservative" or "somewhat conservative" in their political views. Thirty-three percent of the respondents identified themselves as being politically "liberal" or "somewhat liberal" and twenty-seven percent reported having a "moderate" political ideology.

We further assessed the potential for survey bias by examining the character of the survey responses. Upon examination, the sample data did not appear to be overly biased or skewed. Stakeholders responding to the survey clearly articulated both strengths and weaknesses of current reclamation efforts. The survey captured a broad range of perspectives – some contrary to those held by the majority within their respective agencies and organizations. Respondents were candid and at times surprisingly critical of their past actions. Semi-structured interviews conducted several months after the survey were used to confirm the diversity of views held by the stakeholders in the sample. Based on this overall evaluation, the likelihood of bias seriously affecting the outcome of the survey is low.

We also examined the distributions of the responses to identify other possible sources of survey bias. Typically researchers will compare the distributions of the known population to the actual stratified sample data. If the responses are distributed disproportionately to how stakeholders are distributed in the known population then it raises the possibility of bias as a result of a skewed dataset (Fowler 1993). Naturally, survey participation will vary and different types of stakeholders are likely to be overrepresented and underrepresented in the sample data creating some bias. In order to check the extent of the bias researchers will take the size of the known population and mathematically divide it into the proportion of the responses in the stratified sample. See Table 2. If the resulting quotient closely approximates 1 and does not exceed 2, the effects of bias are assumed to be negligible (Miller et. al. 2002). Based on this evaluation, Table 2 - Column E shows the response distributions in our sample closely approximate the known population. In cases where the response distributions were slightly different, a corrective weight commonly known as post-stratification weighting was used to bring the sample data more closely in line with the characteristics of the population's parameters (Groves et. al. 2004). Only slight adjustments were made to the sample data suggesting that the effects of bias were minimal.

Table 2. Response Rates and Survey Bias

a. Stratified, Overall	Column A	Column B	Column C	Column D	Column E
	Known Population	Proportion of Population <u>Column A</u> 1,060	Sample Responses	Proportion of Sample <u>Column C</u> 400	Calculated Weight <u>Column B</u> <u>Column D</u>
WV state agency employees	107	0.1009	66	0.1650	0.6115
WY state agency employees	42	0.0396	31	0.0775	0.5109
WV surface coal mining operators	142	0.1339	36	0.0900	1.4877
WY surface coal mining operators	91	0.0858	47	0.1175	0.7302
WV reclamation scientists	224	0.2113	93	0.2325	0.9088
WY reclamation scientists	150	0.1415	49	0.1225	1.1551
WV envir board/staff members	200	0.1886	55	0.1375	1.3716
WY envir board/staff members	104	0.0981	23	0.0575	1.7060
Total	1,060		400		

b. Stratified by Stakeholder Type	Column A	Column B	Column C	Column D	Column E
	Known Population	Proportion of Population <u>Column A</u> 1,060	Sample Responses	Proportion of Sample <u>Column C</u> 400	Calculated Weight <u>Column B</u> <u>Column D</u>
State agency employees	149	0.1405	97	0.2425	0.5793
Surface coal mining operators	233	0.2198	83	0.2075	1.0592
Academic reclamation scientists	374	0.3528	142	0.3550	0.9938
Envir board/staff members	304	0.2867	78	0.1950	1.4702
Total	1,060		400		

c. Stratified by Location	Column A	Column B	Column C	Column D	Column E
	Known Population	Proportion of Population <u>Column A</u> 1,060	Sample Responses	Proportion of Sample <u>Column C</u> 400	Calculated Weight <u>Column B</u> <u>Column D</u>
West Virginia	673	0.6349	250	0.6250	1.0158
Wyoming	387	0.3650	150	0.3750	0.9733
Total	1,060		400		

Results and Discussion

This section presents a basic analysis of the survey data on SMCRA stakeholder attitudes as a way to measure political trust.

Hypothesis One: SMCRA stakeholders hold negative views of the reclamation process.

The first question measuring stakeholder attitudes about the reclamation process asks “In general, how often do you think decisions about reclamation are made in a fair and legitimate manner?” As reported in Table 3, just over a quarter of all stakeholders thought that decisions about reclamation are seldom or never made in a fair and legitimate manner. Perhaps more disturbing is the fact that less than half thought that reclamation decisions are made fairly all or most of the time. The data indicate that a sizeable number of stakeholders have serious reservations about the “fairness and legitimacy” of the reclamation process. This would appear to lend support to the many historical and anecdotal accounts of stakeholder dissatisfaction with the reclamation decision-making process (Desai 1993; Scheberle 2004; Hayes 1992).

Coal industry respondents and agency officials exhibited the most positive attitudes toward the fairness and legitimacy of the reclamation process. Even when we analyze the responses by region, the responses of these stakeholders are quite comparable. It is likely that these stakeholders believe the reclamation process is fair in part because it often reflects their particular views on reclamation.

In contrast, environmentalists were clearly the most pessimistic about the fairness of the reclamation process. However, our survey data suggest that we take caution in grouping all environmentalists together. It is worth noting that we can see regional differences. While the Wyoming environmentalists generally held a negative view about the fairness of the reclamation process, their levels are not nearly as extreme as those held by their counterparts in West Virginia. Over eighty percent of West Virginia environmentalists responded that decisions about reclamation are seldom or never made in a fair and legitimate manner.

Perhaps somewhat surprisingly, many scientists expressed a belief that the reclamation process lacked fairness and legitimacy. Twenty-two percent of West Virginia scientists and eighteen percent of Wyoming scientists responded that decisions about reclamation are seldom made in a manner that is fair and legitimate. These numbers don’t approach the more pessimistic attitudes held by many environmentalists, but they do appear to be somewhat higher than the

levels we see from the coal industry and agency stakeholders. For example, responding to the open-ended question on the survey, one Wyoming scientist who did not view the reclamation decision-making process favorably contended that reclamation success could be best achieved “by allowing *the scientists* to design, implement, and verify the process.” Several West Virginia scientists also commented that the reclamation process is sometimes viewed as not being fair and legitimate because the *process was easily distorted* by “emotional third party persons” whose desire for power corrupted any effort towards good reclamation science.

The survey responses also indicated that scientists are frequently confounded when their scientific studies are injected into the policy process and they become only one voice among many stakeholders who seek to shape reclamation. A West Virginia regulatory official who was interviewed asserted that scientists were great at identifying reclamation problems but far less helpful in developing regulatory solutions to the problems they identified. To the degree that scientists are more aware of and familiar with the political/policy side of the reclamation process, they can find better ways to communicate the scientific side of reclamation to other SMCRA stakeholders (Keller 2009).

The second question measuring stakeholder attitudes about the reclamation process asked “In general, how often do you think decisions about reclamation have included the viewpoints of all interested parties?” While many respondents concluded that the reclamation process lacked an important degree of fairness and legitimacy, even more thought that it was not inclusive of all viewpoints. Over one third of all respondents thought that the viewpoints of all stakeholders are either seldom or never considered (See Table 4).

The central finding here is that environmentalists strongly believe that the reclamation process is not inclusive. An overwhelming eighty-six percent of West Virginia environmentalists thought that the viewpoints of all parties are seldom or never taken into account. Their Wyoming counterparts held slightly more positive views about the inclusiveness of the process. Still, roughly forty percent of Wyoming environmentalists thought that the viewpoints of all parties were seldom taken into account. This tells us that many environmentalists have serious reservations about the reclamation process.

Table 3. In general, how often do you think decisions about reclamation are made in a fair and legitimate manner?

	Total N=383	West Virginia Stakeholders				Total WV	Wyoming Stakeholders				Total WY
		Envir	Sci	Coal	Agency		Envir	Sci	Coal	Agency	
All the Time	3.3%	0.0%	3.3%	8.8%	6.5%	4.1%	0.0%	0.0%	8.9%	0.0%	2.4%
Most of the Time	32.8%	1.9%	25.3%	55.9%	64.5%	34.4%	13.6%	29.5%	60.0%	67.7%	40.9%
Some of the Time	36.4%	16.7%	49.5%	26.5%	24.2%	32.4%	68.2%	52.3%	22.2%	25.8%	43.3%
Seldom	23.1%	59.3%	22.0%	8.8%	4.8%	24.1%	18.2%	18.2%	8.9%	6.5%	13.4%
Never	4.3%	22.2%	0.0%	0.0%	0.0%	5.0%	0.0%	0.0%	0.0%	0.0%	0.0%

**Totals may not add up to 100% due to rounding.

Table 4. In general, how often do you think decisions about reclamation have included the viewpoints of all interested parties?

	Total N=378	West Virginia Stakeholders				Total WV	Wyoming Stakeholders				Total WY
		Envir	Sci	Coal	Agency		Envir	Sci	Coal	Agency	
All the Time	2.2%	0.0%	2.2%	9.1%	1.6%	2.6%	0.0%	0.0%	4.4%	0.0%	1.2%
Most of the Time	30.0%	3.9%	25.6%	51.5%	59.0%	33.2%	13.6%	20.0%	55.6%	51.6%	33.9%
Some of the Time	30.8%	9.8%	35.6%	24.2%	29.5%	26.8%	45.5%	51.1%	22.2%	38.7%	39.4%
Seldom	27.3%	41.2%	33.3%	15.2%	9.8%	26.4%	40.9%	24.4%	17.8%	9.7%	24.2%
Never	9.7%	45.1%	3.3%	0.0%	0.0%	11.1%	0.0%	4.4%	0.0%	0.0%	1.2%

**Totals may not add up to 100% due to rounding.

Other stakeholder views that we saw in the responses to the first reclamation process question continue to hold when we turn to the issue of “inclusiveness.” Environmentalists hold the most negative views about the reclamation process, both in terms of its fairness and its inclusiveness. A considerable number of scientists also view the process negatively, while coal industry and agency stakeholders are most likely to have the favorable opinions of the reclamation process.

Hypothesis Two: SMCRA stakeholders hold negative attitudes about each other.

Our survey question designed to test this hypothesis asked “In general, how often can you trust the following stakeholders to do what is right about reclamation?”, and it lists nine sets of stakeholders to assess. See Table 5. It is worth noting that all stakeholders held very favorable opinions of themselves when responding to this survey question.

Table 5. In general, how often can you trust the following stakeholders to do what is right about reclamation?

	All the Time	Most of the Time	Some of the Time	Seldom	Never
1. Coal Executives	2.6%	27.0%	31.3%	25.8%	13.3%
2. Coal Operators	1.9%	38.1%	29.7%	20.2%	10.1%
3. Federal Mine Inspectors Office of Surface Mining (OSM)	5.6%	42.2%	35.4%	12.1%	4.7%
4. State Mine Inspectors from West Virginia/Wyoming	6.5%	42.9%	33.8%	12.4%	4.4%
5. Environmental Group Leaders and their Members	10.0%	29.8%	36.6%	18.2%	5.4%
6. Civil/Mining Engineers	4.1%	40.6%	41.1%	10.0%	4.2%
7. Environmental Science Researcher from Universities	8.8%	62.1%	25.4%	3.7%	0.0%
8. Members of Congress	<1.0%	6.6%	43.3%	40.4%	9.5%
9. Member of State Legislatures	<1.0%	14.3%	35.7%	36.0%	13.5%

**Totals may not add up to 100% due to rounding.

Contrary to our hypothesis, the data show that some stakeholders are trusted by others. The stakeholders that are clearly the most trusted are academic researchers from universities (e.g., biologists, ecologists, and soil scientists). Over seventy percent of the survey respondents thought that environmental science researchers could be trusted to do what is right about reclamation all or most of the time (See Tables 5 and 6). This relationship holds across all stakeholder groups - environmentalists, coal industry stakeholders, and agency officials. Moreover, not one *single* survey respondent thought that scientists could *never* be trusted to do what is right about reclamation. This might stem from a perception that scientists are perceived to be above the politics that permeates the reclamation process.

However, survey respondents reported a substantial lack of trust in three sets of stakeholders: legislators, coal industry officials, and environmentalists. The least trusted stakeholders—by far—were federal and state legislators (See Table 5). Only about seven percent of all respondents thought that members of Congress could be trusted to do the right about reclamation most or all of the time. Almost half of the respondents thought that members of Congress could seldom or never be trusted to do the right thing about reclamation. Their state legislative counterparts received similar marks.

Coal executives and coal operators were the next least trusted. Almost forty of all respondents thought that coal company executives could seldom or never be trusted to do what is right about reclamation (See Table 5). Coal operators scored slightly better than their executive counterparts. A closer look at the responses shows us these negative attitudes toward the coal industry primarily emanate from environmentalists (See Tables 7 and 8). Ninety-three percent of West Virginia environmentalists thought that coal executives could seldom or never be trusted to do the right thing about reclamation. Almost eighty percent had similar views of coal operators.

Survey respondents also indicated a lack of trust in environmentalists. Roughly a quarter of our respondents thought that environmentalists could seldom or never be trusted to do what is right about reclamation (See Tables 5 and 9). As might be expected, coal industry stakeholders lacked trust in environmentalists. Two-thirds of West Virginia coal stakeholders and almost half of Wyoming coal stakeholders said that environmentalists could seldom or never be trusted to do what is right about reclamation. Even scientists and West Virginia agency officials lacked trust in environmentalists though to a lesser extent than coal industry stakeholders. A majority of

agency officials and scientists thought that environmentalists could be trusted only some of the time or less.

Agency officials, specifically state and federal mine inspectors, were trusted by roughly half of all respondents to do the right thing about reclamation most or all of the time (See Tables 5, 10 and 11). Moreover, respondents didn't appear to differentiate (at least in terms of trust) between state and federal officials. This is notable given the complex regulatory arrangement in SMCRA which envisions roles for both OSM on a national level and state agencies on a local level. These results don't speak to the quality of any particular state or national regulatory scheme, but they do appear to support the conclusion that state and federal mine inspectors engender about the same level of trust from SMCRA stakeholders participating in the survey. It is important to note, however, that coal industry stakeholders trusted agency officials the most while environmentalists, especially West Virginia environmentalists, trusted agency officials the least.

Conclusion

Since 1977 SMCRA has governed the design and implementation of national and state reclamation processes associated with coal mining. Our paper has examined the processes and actors that populate this policy arena with a specific focus on the role that political trust plays in the SMCRA reclamation. More specifically, this paper marks an initial attempt at measuring the attitudes of SMCRA stakeholders in order to determine the degree to which these stakeholders have trust in the SMCRA reclamation process and in other SMCRA stakeholders. Our data offer some support for the position that political trust is an important component of the SMCRA policy making process. If stakeholders lack trust in the reclamation process and in each other the quality of reclamation can suffer even if the best reclamation science practices are in place.

Our survey results revealed that a substantial number of SMCRA stakeholders lack trust in the fairness and inclusiveness of the reclamation process. However, this lack of trust is not evenly distributed among stakeholders. Coal industry and state agency stakeholders expressed the most trust in the process while environmentalists expressed the least amount of trust in it. We also discovered that a considerable number of scientists have reservations about the fairness and inclusiveness of the process. Our open-ended question and interviews have allowed us to

offer some initial thoughts on why these patterns emerged but future research is needed to help explain why stakeholders in these particular groups hold the views they do.

We also explored levels of trust that SMCRA stakeholders held in each other and found empirical evidence to confirm the many historical accounts of conflict among stakeholders. Virtually all stakeholders surveyed reported a lack of trust in federal and state legislators. Very high numbers of coal industry stakeholders and environmentalists expressed a lack of trust in each other. Additionally, environmentalists had the lowest trust levels of any stakeholder group. In other words, they are the least trusting of all other SMCRA stakeholders. Scientists, as a group, are trusted the most, a result that they may be able to use in future efforts to influence reclamation policy. Finally, state and federal regulators were generally trusted at similar levels by all stakeholders.

Our findings in this paper should be read with some caution. They only begin to tell the full impact of political trust in the SMCRA policy arena. Future research should explore the underlying reasons for these opinions in greater depth and assess their impact on the reclamation process. The answers to these questions can have important ramifications for the development and implementation of future reclamation efforts.

Table 6. In general, how often can you trust environmental science researchers from universities (e.g., biologists, ecologists and soil scientists) to do what is right about reclamation?

	Total N=386	West Virginia Stakeholders				Total WV	Wyoming Stakeholders				Total WY
		Envir	Sci	Coal	Agency		Envir	Sci	Coal	Agency	
All the Time	8.8%	10.8%	9.6%	8.2%	5.3%	9.0%	13.5%	3.8%	6.1%	6.3%	7.2%
Most of the Time	62.1%	54.1%	68.7%	49.0%	55.3%	58.2%	86.5%	67.3%	69.7%	43.8%	70.3%
Some of the Time	25.4%	28.4%	20.5%	36.7%	36.8%	28.7%	0.0%	26.9%	21.2%	43.8%	20.3%
Seldom	3.7%	6.8%	1.2%	6.1%	2.6%	4.1%	0.0%	1.9%	3.0%	6.3%	2.2%
Never	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

**Totals may not add up to 100% due to rounding.

Table 7. In general, how often can you trust coal company executives to do what is right about reclamation?

	Total N=386	West Virginia Stakeholders				Total WV	Wyoming Stakeholders				Total WY
		Envir	Sci	Coal	Agency		Envir	Sci	Coal	Agency	
All the Time	2.6%	0.0%	0.0%	14.7%	0.0%	2.1%	0.0%	0.0%	6.5%	3.2%	2.4%
Most of the Time	27.0%	0.0%	22.8%	61.8%	27.0%	24.3%	9.5%	28.9%	65.2%	16.1%	31.7%
Some of the Time	31.3%	7.4%	33.7%	23.5%	60.3%	33.3%	42.9%	37.8%	19.6%	61.3%	38.4%
Seldom	25.8%	46.3%	32.6%	0.0%	12.7%	25.9%	38.1%	26.7%	6.5%	19.4%	22.6%
Never	13.3%	46.3%	10.9%	0.0%	0.0%	14.4%	9.5%	6.7%	2.2%	0.0%	4.9%

**Totals may not add up to 100% due to rounding.

Table 8. In general, how often can you trust coal operators who supervise the daily operations of a mine to do what is right about reclamation?

	Total N=386	West Virginia Stakeholders				Total WV	Wyoming Stakeholders				Total WY
		Envir	Sci	Coal	Agency		Envir	Sci	Coal	Agency	
All the Time	1.9%	0.0%	1.1%	5.9%	1.6%	1.6%	0.0%	0.0%	8.7%	0.0%	2.4%
Most of the Time	38.1%	1.9%	30.4%	82.4%	47.6%	35.8%	19.0%	37.8%	67.4%	64.5%	46.3%
Some of the Time	29.7%	18.5%	38.0%	8.8%	44.4%	31.3%	38.1%	42.2%	17.4%	35.5%	32.9%
Seldom	20.2%	40.7%	22.8%	2.9%	6.3%	19.8%	38.1%	17.8%	4.3%	0.0%	15.9%
Never	10.1%	38.9%	7.6%	0.0%	0.0%	11.5%	4.8%	2.2%	2.2%	0.0%	2.4%

**Totals may not add up to 100% due to rounding.

Table 9. In general, how often can you trust environmental group leaders and their members (e.g., Sierra Club and local citizen groups) to do what is right about reclamation?

	Total N=384	West Virginia Stakeholders				Total WV	Wyoming Stakeholders				Total WY
		Envir	Sci	Coal	Agency		Envir	Sci	Coal	Agency	
All the Time	10.0%	29.6%	5.4%	0.0%	0.0%	8.7%	23.8%	4.4%	2.2%	0.0%	7.9%
Most of the Time	29.8%	53.7%	33.7%	6.1%	17.7%	30.3%	42.9%	24.4%	13.0%	22.6%	25.6%
Some of the Time	36.6%	11.1%	41.3%	27.3%	56.5%	36.5%	28.6%	53.3%	39.1%	71.0%	46.3%
Seldom	18.2%	3.7%	15.2%	45.5%	21.0%	18.3%	4.8%	15.6%	39.1%	6.5%	17.7%
Never	5.4%	1.9%	4.3%	21.2%	4.8%	6.2%	0.0%	2.2%	6.5%	0.0%	2.4%

**Totals may not add up to 100% due to rounding.

Table. 10. In general, how often can you trust federal surface mine inspectors from the Office of Surface Mining (OSM) to do what is right about reclamation?

	Total N=383	West Virginia Stakeholders				Total WV	Wyoming Stakeholders				Total WY
		Envir	Sci	Coal	Agency		Envir	Sci	Coal	Agency	
All the Time	5.6%	0.0%	3.3%	17.6%	16.1%	7.9%	0.0%	2.3%	2.2%	9.7%	3.1%
Most of the Time	42.2%	9.3%	42.9%	55.9%	46.8%	38.2%	23.8%	61.4%	69.6%	61.3%	54.0%
Some of the Time	35.4%	42.6%	42.9%	14.7%	27.4%	34.9%	66.7%	29.5%	19.6%	29.0%	36.2%
Seldom	12.1%	25.9%	9.9%	11.8%	9.7%	13.7%	9.5%	6.8%	6.5%	0.0%	6.1%
Never	4.7%	22.2%	1.1%	0.0%	0.0%	5.4%	0.0%	0.0%	2.2%	0.0%	<1.0%

**Totals may not add up to 100% due to rounding.

Table 11. In general, how often can you trust state surface mine inspectors in (West Virginia or Wyoming) to do what is right about reclamation?

	Total N=376	West Virginia Stakeholders				Total WV	Wyoming Stakeholders				Total WY
		Envir	Sci	Coal	Agency		Envir	Sci	Coal	Agency	
All the Time	6.5%	0.0%	2.2%	17.6%	23.8%	9.7%	0.0%	2.3%	2.2%	16.7%	4.4%
Most of the Time	42.9%	7.8%	38.2%	52.9%	68.3%	41.8%	25.0%	56.8%	66.7%	73.3%	54.7%
Some of the Time	33.8%	39.2%	44.9%	23.5%	7.9%	30.8%	60.0%	29.5%	31.1%	10.0%	34.0%
Seldom	12.4%	29.4%	14.6%	5.9%	0.0%	12.7%	15.0%	11.4%	0.0%	0.0%	6.9%
Never	4.4%	23.5%	0.0%	0.0%	0.0%	5.1%	0.0%	0.0%	0.0%	0.0%	0.0%

**Totals may not add up to 100% due to rounding.

Working Bibliography

Angel, P.N., J.A. Burger, V.M. Davis, C.D. Barton, M. Bower, S.D. Eggerud, and P. Rothman. 2009. Measuring Success of the Forestry Reclamation Approach in Appalachia, Proceedings America Society of Mining and Reclamation, 2009 pp 18-36
<http://dx.doi.org/10.21000/JASMR09010018>

Box, Thadis. 1978. The Significance and Responsibility of Rehabilitating Drastically Disturbed Land. eds. F.W. Schaller and P. Sutton. IN: Reclamation of Drastically Disturbed Lands. American Society of Agronomy. Madison: Wisconsin. Pg. 1-10.

Cairns, John Jr. 1980. The Recovery Process in Damaged Ecosystems. Ann Arbor Sciences Publishers. Ann Arbor: Michigan.

Cairns, John Jr. 1988. Rehabilitating Damaged Ecosystems: Volumes I and II. CRC Press. Boca Raton: Florida.

Cairns, John Jr. 2000. Setting ecological restoration for technical feasibility and scientific validity. Ecological Engineering 15: 171-180.

[https://doi.org/10.1016/S0925-8574\(00\)00068-9](https://doi.org/10.1016/S0925-8574(00)00068-9)

Citrin, Jack, and Christopher Muste. 1999. "Trust in government." In *Measures of political attitudes*, 465-532. San Diego, CA US: Academic Press, 1999.

Desai, Uday, editor. 1993. Chapter 1, Policy Implementation and the Surface Mining Act. In: Moving the Earth, Cooperative Federalism and Implementation of the Surface Mining Act. Westport (CT): Greenwood Press. p 1-14.

Dillman, Don. 2000. Mail and Internet Surveys: The Tailored Design Method. John Wiley & Sons, Inc. Hoboken: NJ.

Easton, David. 1975. A re-assessment of the concept of political support. British Journal of Political Science 5(4): 435-457.

<https://doi.org/10.1017/S0007123400008309>

U.S. Energy Information Administration (EIA). 2008. Annual Coal Report.
<http://www.eia.doe.gov/cneaf/coal/page/acr/acr.pdf>. Accessed April 5, 2010.

Ehrenfeld, J.G. and L.A. Toth. 1997. Restoration Ecology and the Ecosystem Perspective. Restoration Ecology. Vol. 5, No.4, pp. 307-317.

- Fenno, Richard F., Jr. 1978. *Home Style: House Members in Their Districts*. Boston (MA): Little, Brown.
- Forsyth, B.H. and J.T. Lessler. 1991. Cognitive Laboratory Methods: A Taxonomy. In: *Measurement Error in Surveys*, ed. Paul P. Biemer, Robert M. Groves, Lars E. Lyberg, Nancy A. Mathiowetz, and Seymour Sudman. New York: Wiley.
- Fowler, Floyd., Jr. 1993. *Survey Research Methods*. Newbury Park (CA): Sage Publications.
- Groves, R., F. Fowler, M. Couper, J. Lekowski, E. Singer, and R. Tourangeau. 2004. *Survey Methodology*. John Wiley and Sons, Inc. Hoboken, NJ.
- Hayes, Michael T. 1992. *Incrementalism and Public Policy*. White Plains (NY): Longman Publishing Group.
- Hibbing, J.R. and E. Theiss-Morse. 2002. *Stealth Democracy: American's Belief about How Government Should Work*. Cambridge, UK: Cambridge University Press.
- Hibbing, J.R. and E. Theiss-Morse. 2001. Process Preferences and American Politics. *American Political Science Review*. Vol. 95, No. 1, pp. 145-153.
- Keller, Ann Campbell. 2009. *Science in Environmental Policy*. Cambridge (MA): MIT Press.
- Leach, W.D. and P.A. Sabatier. 2005. To Trust an Adversary: Integrating Rational and Psychological Models of Collaborative Policymaking. *American Political Science Review*. Vol. 99, No. 4. Pg. 491-503. <http://dx.doi.org/10.1017/S000305540505183X>.
- Maguire, Lynn. 1988. *Decision Analysis: An Integrated Approach to Ecosystem Exploitation and Rehabilitation Decisions*. ed. John Cairns. IN: *The Recovery Process in Damaged Ecosystems*. Ann Arbor Sciences Publishers. Ann Arbor: Michigan.
- McElfish, James M. 1993. Chapter 5, The Surface Mining Control and Reclamation Act and Environmental Groups. In: *Moving the Earth: Cooperative Federalism and Implementation of the Surface Mining Act*. Westport (CT): Greenwood Press.
- Mertes, James. 1978. Criteria for Selecting Lands That Are Not to be Disturbed. eds. F.W. Schaller and P. Sutton. IN: *Reclamation of Drastically Disturbed Lands*. American Society of Agronomy. Madison: Wisconsin. Pg. 205-220.

- Miller, Arthur H. 1974. Political Issues and Trust in Government. *American Political Science Review*. Vol. 69, No. 3, pp. 951-972. <http://dx.doi.org/10.2307/1959140>.
- Miller, R. L., C. Acton, D. A. Fullerton, and J. Maltby. 2002. *SPSS for Social Scientists*. Palgrave Macmillan. New York, NY.
- Parker, Suzanne L. and Glenn R. Parker. 1993. Why Do We Trust Our Congressman. *The Journal of Politics*, Vol. 55, No. 2 (May, 1993), pp. 442-453. <http://dx.doi.org/10.2307/2132274>.
- Scheberle, Denise. 2004. *Federalism and environmental policy: trust and the politics of implementation*. Washington, D.C.: Georgetown University Press.
- Shover, N., D.A. Clelland, and J. Lynxier. 1986. *Enforcement or Negotiation: Constructing a Regulatory Bureaucracy*. State University of New York Press.
- Vogel, Willis G. and Willie R. Curtis. 1978. Reclamation Research on Coal Surface-Mined Lands in the Humid East. eds. F.W. Schaller and P. Sutton. IN: *Reclamation of Drastically Disturbed Lands*. American Society of Agronomy. Madison: Wisconsin. p. 379-398.
- Wolfe, Amy K; Bjornstad, David J. 2002. Why Would Anyone Object? An Exploration of Social Aspects of Phyto-remediation Acceptability. *Critical Reviews in Plant Sciences*. 21 (5): 429-438. <http://dx.doi.org/10.1080/0735-260291044304>
- Yang, K. and M. Holzer. 2006. The Performance-Trust Link: Implications for Performance Measurement. *Public Administration Review*. Vol. January/February: 114-126.