Highly classified…public information?
Environmental racism in environmental impact statements

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Abstract Federal law requires environmental impact statements (EISs) for agencies involved in any action that could significantly impact the environment. Enacted in 1994, Executive Order 12898 required that EISs ensure that minority populations are not disproportionately affected by adverse environmental impacts. This study addresses environmental racism issues in the structure of California Department of Transportation (Caltrans) EISs, and how attention to these issues has changed with time and with proportion of minorities in the affected communities. I expect that the quality of all EISs has improved over the past 25 years, but that EISs for high-percentage minority communities are still of lower quality. Data was collected using a checklist, with criteria that check for environmental racism; documentation on publication year and demographic statistics was included. Higher scores denote better attention to potential environmental racism issues. N=40 for the years 1980-2004. EIS scores appeared to be highly correlated to the date of publication (ANOVA, α=0.05), but not to the percentages of minorities in the communities affected. Overall, EIS scores have increased over time. Score improvement since 1994 is increasingly greater (z-test, α=0.05) with a larger percentage of minorities in the affected population. Certain areas, such as inclusion of racial census information, and involving community members in developing mitigation measures, still need improvement. Caltrans has achieved equalization of environmental justice scores among different population types affected, although environmental justice scores were generally still fairly low. Attention to some specific issues, such as public access to the documents, was found to be insufficient.

Introduction

Scope of the Problem We, as Americans, live in a consumer society, valuing the taming of nature, progress, and materialism, often simply due to an insatiable appetite to "have it all" (Camacho 1998). In California, this insatiable appetite is apparent in our car culture. One need only try to find parking in our crowded cities or get on the freeway at rush hour to open our eyes to the magnitude of the Californian demand on the transportation industry. But is the benefits-to-pollutants ratio of the industry equivalent for all races? In other words, is the transportation industry both striving toward and achieving environmental justice? According to the Environmental Protection Agency (EPA), achieving environmental justice means, "no group of people, including a racial, ethnic, or socioeconomic group, should bear a disproportionate share of the negative environmental consequences." Environmental racism, a subtype of environmental justice, refers to any environmental policy that creates environmental injustices based on race or color.

In 1969 the National Environmental Policy Act (NEPA) was written to promote human cooperation with nature. It requires that an environmental impact statement (EIS) be written when an agency acts in a way that will significantly impact the human environment (Lindstrom and Smith 2001). Then, in 1994, in response to a 1992 accusation by Lavelle and Coyle that the EPA was discriminatory in its enforcement (Eady 2003), former president Bill Clinton signed Executive Order 12898. The Order requires that EISs address the problem of "disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations" (CEQ 1997). Unfortunately, even years after the Executive Order was signed, almost without fail, all studies of environmental hazards point to racial disparities in the locations of polluting facilities in the United States (White 1998). Many contend that environmental racism is a very real form of racism that has been a part of this country for centuries, is still alive today, and is vastly supported by many institutions (Bullard 2000 and Wright 2003). In fact, it is environmental *racism* that is the problem, in the sense that percentage of minorities in a population is the single most influential factor in the location of polluting sites (Bullard 2000). In Massachusetts, "a state with an award-winning definition of environmental justice and system for analyzing disproportionate impact," Faber and Kreig reported that in 2001, communities of color and low-income communities were still disproportionately burdened by noxious environmental pollutants (Eady 2003).

Is California any different? From the beginning, California was among only seven states (including Massachusetts) to be evaluated as having relatively advanced NEPA procedures (Enk and Hart 1978). All states are bound by the NEPA process, but California has created its own environmental procedural law as well, the California Environmental Quality Act (CEQA), which was initiated in 1970, one year following NEPA (ICF Consulting 2003). Also, the California Department of Transportation (Caltrans) has in recent years adopted its own environmental justice policy to keep California transportation at the vanguard of the environmental justice movement (Department 2001). Caltrans, with its own environmental justice policy, and being bound by the environmental justice policies of both NEPA and CEQA, must remain highly aware and sensitive of potential environmental racism concerns.

CEQA and NEPA CEQA refers to the state's requirements for environmental impact reports (EIRs), which are comparable to and modeled on the environmental impact statements required by NEPA. California agencies, such as Caltrans, receiving state funding are subject to the requirements of both NEPA and CEQA. It could be said, then, that one can expect transportation EISs in California to be doubly strict and doubly enforced, as both federal and state laws are consulted.

CEQA functions somewhat differently than NEPA. Under NEPA, the sections generally do not require a determination of the significance of the environmental effects that a proposed action will have on the human, physical, and biological environment. Under CEQA, though, such a determination of significance is required, with "significant effect on the environment" meaning:

> "A substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, mineral, flora, fauna, ambient noise, and objects of historic or aesthetic significance. An economic or social change by itself shall not be considered a significant effect on the environment…[but] may be considered in determining whether the physical change is significant" (Section 15382).

Although almost all environmental documents for projects receiving funding from the state of California are combined environmental impact reports/environmental impact statements (EIR/EISs), this project focuses on the requirements and recommendations for the NEPA process. The requirements and recommendations for CEQA, though similar, have not been explicitly addressed because of the added complexity that the CEQA process imposes. However,

the analysis in this paper can be useful in that California's environmental guidelines are clearly stringent, and one can assume that California's state agencies, such as transportation, must take the lead on environmental guidelines compliance. If California proves its transportation department to excel in keeping with environmental guidelines, then other states may use California as a role model. But if California does not prove to excel in environmental justice issues in transportation, other states that do not have dual enforcement policies might be far less likely to be up to par with environmental justice implementation.

Cumulative Impacts One of the less obvious environmental justice issues to be identified in EISs is cumulative impacts. CEQA and NEPA both require a discussion of cumulative impacts. These impacts can result from individual, minor impacts that, compounded together, create a significant effect on the environment. The agency must take into account separate but related projects in the past, present, and foreseeable future (SELHS 1999). These impacts are extremely relevant for environmental justice concerns because normally environmental justice problems alone cannot cause the rejection of a project. However, if the cumulative impacts of several projects combined, of several types of contaminants, or of the aggregate effects of pollutants over time can be shown to be significantly harmful, environmental justice complaints have far more weight in the EIS. The EPA is beginning to develop guidance on ensuring that cumulative impacts are not unfairly distributed among low-income and minority populations. One of the first California cases to win such support from the EPA happened in 1998, when an air emissions trading program would have greatly increased the company's already toxic emissions by recycling junk cars (the idea being that such an action would be beneficial for air quality in general), but the toxic emissions of the company were already concentrated near low-income and minority communities (Poremba and Yotter 1998). This posed an undue environmental justice problem due to cumulative impacts that the EPA is striving to improve.

Previous Studies Many authors have stressed the need for NEPA reform. Joffe and Sutcliffe (1997) contend that health impacts are rarely addressed, and should be, in EISs. Freudenburg and Keating (1985) express concern that the required social science input in EISs is rarely included. Hundreds of court cases have involved environmental racism in the NEPA process, and these have mostly dealt with the *effects* of discrimination (Eady 2003). Court cases widely report environmental justice issues, such as the Goshen Road Environmental Action Team alleging that the USDA sited a wastewater facility using discriminatory reasons (SCECU

1997 and 1999, NCELL 1999). In all, many scholars have admitted that the government treats racial minorities differently, because "procedural equity," in addition to proportionate polluting, has not been achieved in EISs (Kuehn 1996 and Bullard 2000).

Finally, a new type of NEPA case shed light on one more relevant problem. In 1997 a NEPA case hit the courts, in which a nuclear waste site was scheduled to open approximately one mile from two 97% Black Louisiana communities. The case had both discriminatory effects and an inadequate EIS (NRC 1997). Two researchers, Wigley and Shrader-Frechette, investigated the EIS and found that "risk assessors use[d] biased scientific methods whose policy consequences de facto result[ed] in unjustified discrimination against people of color..." The researchers studied seven aspects in which the EIS was structurally weak and unfair, causing discrimination against the Black communities. Throughout their paper, the authors assert that this is a clear case of environmental racism, and that such oversights would not have occurred in White communities. Unfortunately, they do not back up these assumptions with evidence. A systematic comparison of Environmental Impact Statements, then, would be useful in providing substantiation to the investigated issues.

Research Questions and Hypotheses My project focuses on EISs with clear social impacts for transportation projects in California. It compares EISs primarily affecting minority communities with those affecting White/Caucasian communities. The project then compares these disparities from before to after the move to environmental justice policies. The "big picture" question to ask is, how great, if at all present, are the disparities between CalTrans' EISs' consideration of social impacts on White/Caucasian communities as compared to social impacts on minority communities? In other words, are EISs structurally significantly weaker, as Wigley and Shrader-Frechette would argue, when the facilities predominantly adversely affect people of color? And have these disparities, if they exist, been minimized since the national move toward environmental justice? The disparities and the time comparison are equally essential for measuring how much success the government-imposed environmental justice movement has had. Since over time more legislation and directives have propagated the prevention and mitigation of environmental justice issues, I expect the disparities between racial groups described in EISs to have decreased. I also expect that EISs written for high-percentage minority communities have improved more over time than EISs written for largely

White/Caucasian communities, but that scores today are still lower on average for the former community than for the latter.

Methods

Environmental impact statements must be analyzed in a manner that lends itself well to easy comparison among documents. All environmental impact statements are taken from Caltrans highway building or improvement projects.

Variability in EISs I examined 40 environmental impact statements. Unfortunately, due to lack of attainability of EISs (described in Qualitative Discussion section), there was no randomization of sampling. For the same reason, the EISs analyzed include both final and rough drafts. The rationale behind this choice (though decided mostly based on necessity) is that the draft EIS is already a result of community review and input, and the considerations taken into account remain mostly the same in the final draft, although they may include more detailed analyses in the final. However, the lack of distinction, in the analysis section, between rough and final drafts could lend some bias. The opportunity arose to analyze a very recent EIS in both the rough and final draft versions. Both received the same score, and problems found in the rough draft were not necessarily fixed in the final draft. The final draft was only very slightly changed from the rough draft, and this pattern seems to be the rule rather than the exception among rough and final EISs.

Variability among EISs, too, is present whether due to the differences between rough and final drafts, or due to different styles and structures. Every effort was made to obtain systematically similar EISs. The EISs were only for California projects, for highway systems transportation projects, for the years 1980-2004, co-authored by Caltrans and the FHWA. Nonetheless, within the EIS parameters required by law, EISs were highly variable in their structure, location of types of information, length of the documents, and, of course, issues addressed.

Survey Structure In order to extract data from these documents, I have formulated a "literature survey," which is essentially a checklist to facilitate a comparison of environmental impact statements (Appendix II). I have recorded the socioeconomic statistics for the affected social environment and the year the EIS was published. In the case of EISs that did not include demographic information in the EIS, data was obtained, to the best extent of accuracy possible,

from the US Census Bureau, the date of publication having been rounded to the nearest ten years (e.g., an EIS published in 1987 will utilize demographic information from the 1990 census). The checklist is broken up into six sections. These correspond to five of the sections required of every environmental impact statement (Appendix I): scoping, alternatives, affected environment, environmental consequences and mitigation measures, and public comments. All of these sections have impacts on environmental justice issues. The sixth section of the survey (the first listed on the checklist) relates to the EIS as a whole, addressing clarity and language issues.

Beneath each section heading are one to eight criteria for evaluating the EIS. Each criterion relates to an area of the EIS where, if fulfilled, it shows the EIS to be more inclusive and informative for the community it will affect. The more areas in which the EIS has shown the agency to be helpful to the affected community, the better an EIS it is in terms of structural environmental justice (in this case, racism) considerations. The criteria check for environmental racial justice. In other words, if every single criterion were checked, the EIS would prove to be, according to my methods, most just in the way it treats its affected community members. Each of the six sections is then scored for the number of checks achieved in that section, and an overall score, out of eighteen possible data points, is thereby assigned.

Survey Sources I have derived the criteria in the EIS survey checklist from three different sources. The first is the aforementioned article that stated that one particular EIS, pertaining to a nuclear waste site in Louisiana, was environmentally racist for at least seven reasons (Wigley and Shrader-Frechette). Some of these reasons, such as lack of scientific risk assessments and up-to-date studies, have been incorporated into my checklist. Also, the U.S. EPA's "Guidance for incorporating environmental justice concerns in EPA's NEPA compliance analyses" (1998) gives the recommendations of the Council for Environmental Quality for ensuring that environmental justice is fairly and routinely addressed in EISs. Finally, a review of ways to incorporate environmental justice into general EISs (Environmental Law Institute) has been examined for further criteria to add to the checklist.

Legal Requirements vs. Recommendations Because the negative social effects alone of an environmental impact statement are not reason enough for permit denial for a transportation project, some of the checkpoints in the literature survey are based on recommendations, not requirements by law. However, many of the checkpoints are major or minor requirements by law – some have been met, while others have not. Possibly, projects have fulfilled requirements,

but not reported them in the EIS. For example, Caltrans may have held a scoping meeting for a project, but not described it in the EIS.

Public involvement is an important part of the NEPA process, and therefore scoping meetings with community members and a public comment period, which is later responded to by the agency, are some of the legal requirements. Scientific risk assessments of both individual and cumulative risks are necessary. A cumulative impacts section is now required by law, but has not always been – thus, some of the older documents do not include an analysis of cumulative effects. Also required is a statement of the impacts on residential, business, and public/recreational areas. Finally, since the initiation of Executive Order 12898, all EISs must describe the Order, and whether the project will result in disproportionate adverse impacts to minorities or low-income communities (ICF Consulting 2003).

Methods of Analysis The EISs are examined for correlation, using ANOVA regression analysis, between date of publication and minority percentage; between overall and also "environmental consequences" section scores and date of publication; and between overall scores and "environmental consequences" section scores and percentage of minorities in the communities affected by the described project. In the latter correlation, regression lines were analyzed separately for EISs published before 1994 and after 1994. I make the assumption that the scores should exhibit an increase around the year 1994, when Executive Order 12898 was established, and environmental justice became a legal prerogative for all EISs.

Next, mean scores from before 1994 vs. after 1994 are compared, using z-tests for sample means. I have looked at both overall EIS scores and "environmental consequences" section scores. For this purpose, the EISs were organized into four categories of percent-minorities, for each type of score mean compared, based on the populations affected in the community for which the EISs are written. The percentages encompass minority groups including Black/African American, Hispanic/Latino descent, American Indian/Alaskan Native, Asian, Hawaiian/Pacific Islander, or other race. The four categories are as follows: 0-25% minorities in the population, 26-50% minorities, 51-75% minorities, and 76-100% minorities. Therefore, the first two categories represent Whites/Caucasians as the majority in the population, whereas in the second two categories, Whites/Caucasians represent less than half of the population. The mean differences are calculated, and the difference in means for each category is checked for statistical significance using the z-test, at a level of $\alpha=0.05$.

Comparing scores quantitatively measures how different aspects of the EIS process compare among all environmental impact statements. Since each completed checklist also indicates the year published and the racial makeup of the community impacted, comparing EISs over time and over the number of racial minority people affected should give a quantitative way to compare the structural strength scores. Put simply, this comparison should lead to understanding whether the process, overall, is better informed (i.e., study area residents are better informed) when mostly White communities will be affected. Also, comparing EISs over time, and from before and after the move to environmental justice, may show how the environmental justice movement has affected these scores.

The quantitative analysis is followed by a qualitative analysis of the EISs. This qualitative analysis involves looking at some EISs in more depth, addressing EIS accessibility issues, and looking at other various qualitative aspects of this research.

Results

Overall scores and "environmental consequences" section scores were recorded next to minority percentage and date of publication information (Appendix III). These EISs were numbered and then analyzed for significant trends.

In order to establish that scores (overall and "environmental consequences" section) can be plotted without bias against both minority percentage and date published, I first check for any correlation between minority percentage and date, and find that no correlation exists (ANOVA, $N=40$, $\alpha=0.05$, $p=0.481$).

Scores are, however, very strongly related to date of publication. The newer EISs have significantly higher scores. Overall scores are related to date of publication (Figure 1) at a level of $p=0.000821$ (ANOVA, $N=40$, $\alpha=0.05$), and environmental consequences scores are related to date of publication (Figure 2) at a level of $p=0.000271$ (ANOVA, $N=40$, $\alpha=0.05$).

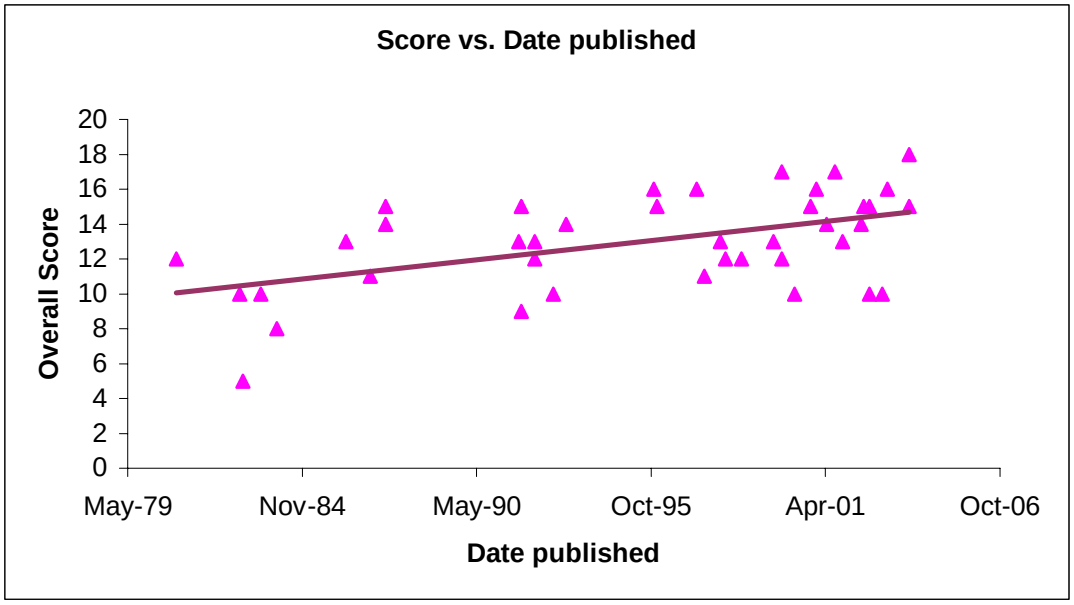

Figure 1. Overall score vs. date published. ANOVA, N=40, , α=0.05, p=0.000821.

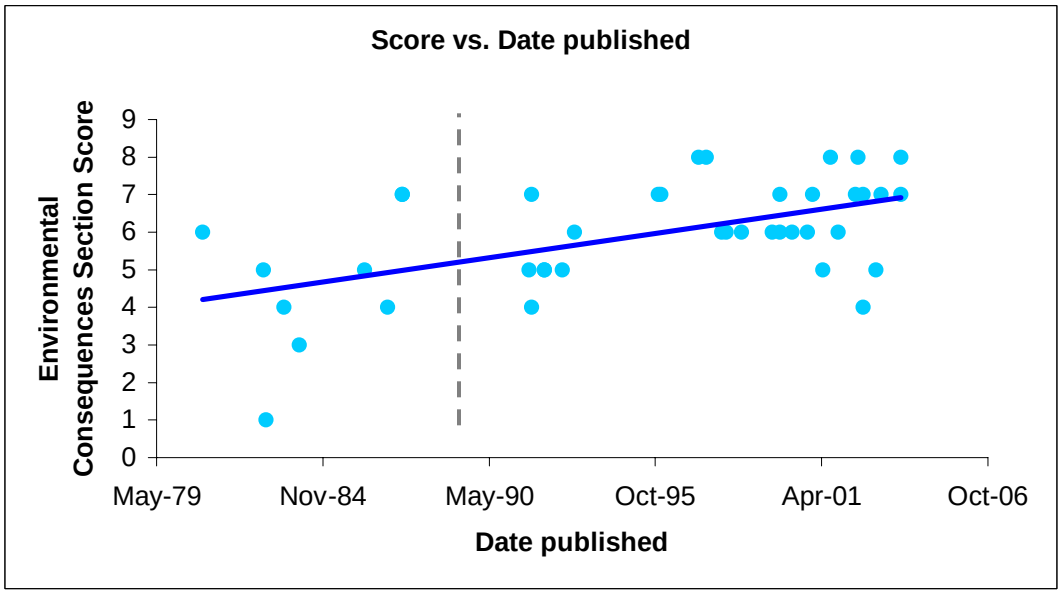

Figure 2. "Environmental Consequences" section score. ANOVA, N=40, α=0.05, p=0.000271.

In (Figure 2) it is also possible to see that after 1994 the scores level out, tending less toward an increasing trend, and more toward consistency.

However, I have found the scores to exhibit no correlation with percent minorities, even when separating the points from before to after 1994. Overall score (Figure 3) is not

significantly related to percent minority before 1994 (ANOVA, N=16, α=0.05, p=0.757), nor is it significantly related after 1994 (ANOVA, N=24, α=0.05, p=0.926). The "environmental consequences" section scores (Figure 4) are also not significantly related to percent minority before 1994 (ANOVA, N=16, p=0.240), nor are they related to percent minority after 1994 (ANOVA, N=24, α=0.05, p=0.734).

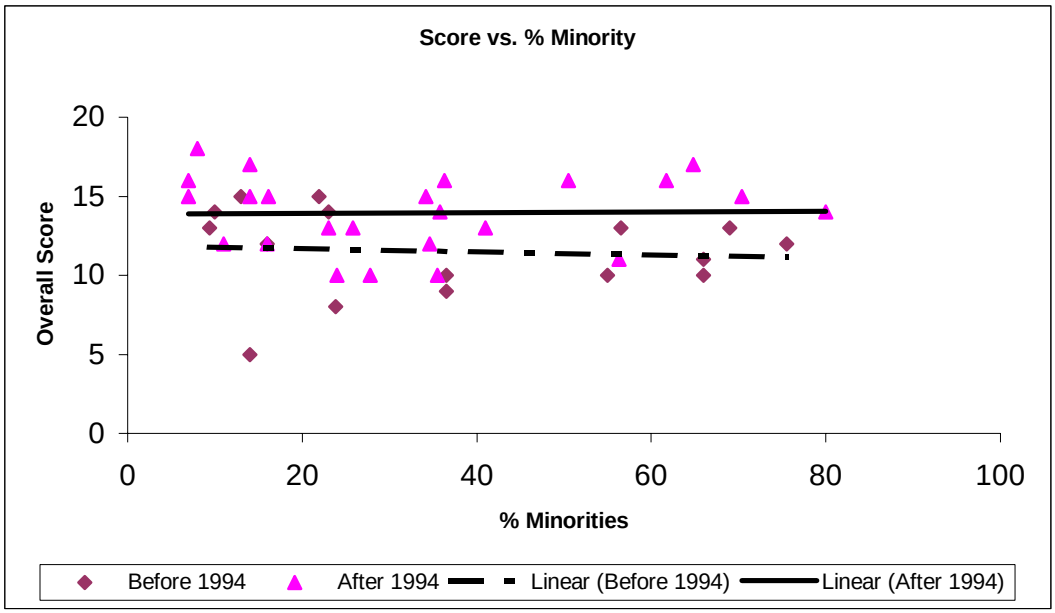

Figure 3. Overall score vs. percentage of minorities, before and after 1994. ANOVA, α=0.05, Before 1994: N=16, p=0.757; After 1994: N=24, p=0.926.

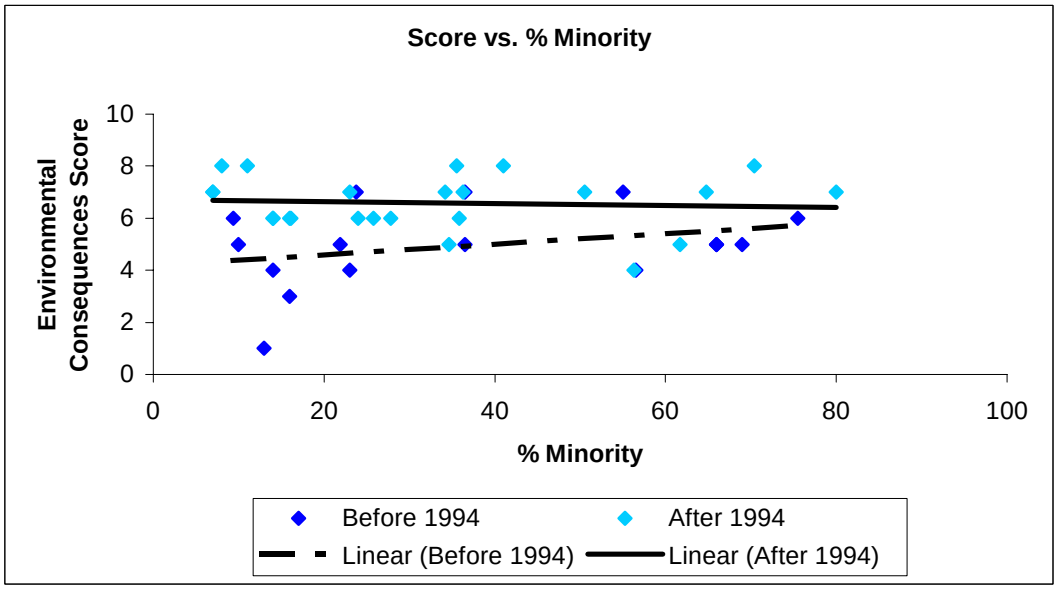

Figure 4. "Environmental consequences" section score vs. percentage of minorities, before 1994 and after 1994. ANOVA, α=0.05, Before 1994: N=16, p=0.240; After 1994: N=24, p=0.734.

Although the trend is purely quantitative, both scores in both figures after 1994 have an almost totally flat regression line (Figures 3 and 4), signaling that they have not been as subject to change as the scores from before 1994.

Finally, score differences were significant from before to after 1994, when Executive Order 12898 was enacted, if minority percentage is split into categories: 0-25% minorities, 26-50% minorities, 50-75% minorities, and 75-100% minorities (for the last category, N=2, and thus the scores are not displayed in the graphs). Z-tests, at a level of α=0.05, on the means before and after the Executive Order showed that (with the exception of the difference in average overall scores in the 0-25% category) the average scores significantly differed (improved) after 1994. Overall average scores improved by 2.3 for the 0-25% minorities category (z-test, N=18, p=0.0634 – almost significant); 3.375 for the 25-50% minorities category (z-test, N=10, p=0.000113); and 3.6 for the 50-75% minority category (z-test, N=10, p=0.00197). "Environmental Consequences" section scores improved by 1.475 for the 0-25% minorities category (z-text, N=18, p=0.0369); 1.75 for the 25-50% minorities category (z-test, N=10, p=0.00245); and 2.8 for the 50-75% minorities category (z-test, N=10, p=3.33E-16). A clear-cut trend exists for the improvement in score over the different minority percentage categories. The higher the percentage of minorities in the community, the more the EIS scores have improved. This trend is obvious both for the overall scores (Figure 5) and the "Environmental Consequences" section scores (Figure 6).

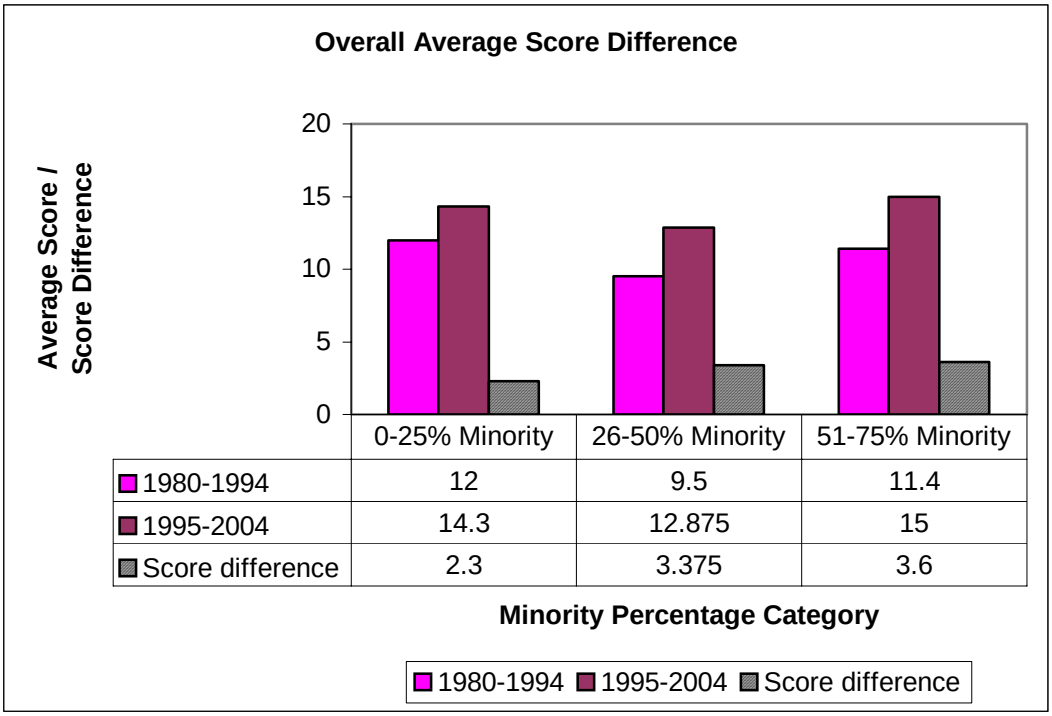

Figure 5. Overall average score differences from before to after 1994.

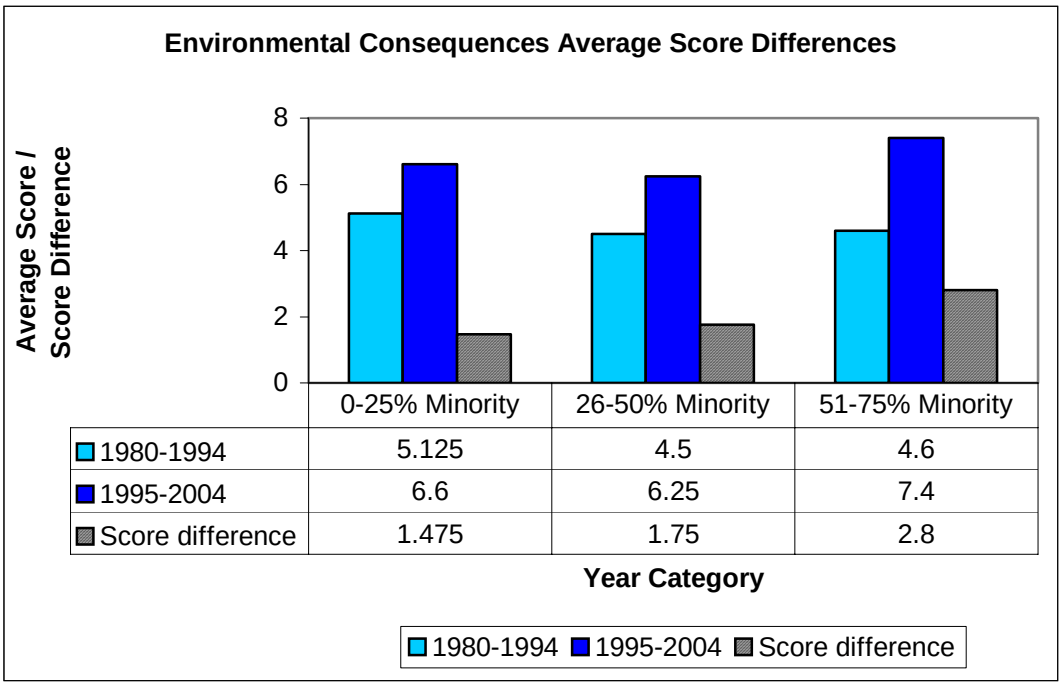

Figure 6. "Environmental Consequences" section average score differences from before to after 1994.

Discussion

Although unexpected at the time of initiation of this project, both qualitative and quantitative discussions are relevant to this research. Some significance was found in the quantitative analysis to answer the research questions. In addition, the surveys yielded interesting results regarding specific criteria in the survey. Finally, EISs were found to be largely unattainable, and some important information was almost consistently missing.

Quantitative Analysis The concept guiding the analysis of this data is that environmental racism scores may be related to date of publication of the environmental impact statement, to percentage minorities in the affected community, or both. First, then, I have shown that minority percentage and date of publication are unrelated, independent entities. Date of publication and minority percentage can then be checked for correlation with scores.

The correlation between the date of publication of the EISs and both sets of scores is highly significant (Figures 1 and 2). Over time, with increasingly stringent environmental legislation, and with the implementation of environmental justice policies into federal law, racism-free scores have significantly increased, both overall and in areas considered in the "environmental consequences" section.

However, scores have proven to be unrelated to minority percentages. Although visually the post-1994 trends seem to show that scores do not change as much across the minority percentages as they do before 1994, these trends are purely visual, not statistically significant. Date of publication, then, seems to be the important factor here. My first hypothesis, that environmental racism scores would depend on percentage of minorities in a community, has proven untrue in both the case of overall scores (Figure 3) and the case of "environmental consequences" section scores (Figure 4).

However, my second hypothesis has certainly proven true. Instead of all scores, of all EISs across the board of minority percentages, improving over time, increased sensitivity to minority needs has improved scores for largely minority groups much more than for largely White/Caucasian groups (Figures 5 and 6). Ignoring the score trends (since there are no clear trends) in the columns of the charts, a clear trend exists in the difference between the scores, from before to after 1994. The difference]increases with the increased percentage of minorities in the affected population. This means that, although largely-White communities do not overall have significantly higher scores (post-1994) than do largely-minority communities, these same

largely-White communities have actually shown very little improvement in EIS structural environmental justice scores. On the other hand, largely-minority community-impacted EISs are improving more to catch up with largely-White EISs, resulting in some higher mean and median scores for the former group.

Since the year 2001, with Caltrans having adopted its own environmental justice policy, and with federal environmental justice codes in place for seven years, the mean overall racism-free score is only approximately 14.4. Unfortunately, this is only about 1.5 points higher than the 24-year average. Scores could still be improved further. A score of 14.4 out of 18, for an exemplary state agency subject to the environmental regulations of both state and federal law, is still too low.

Environmental Racism Criteria Although as a whole, the overall scores and "environmental consequences" section scores do not have strong trends with minority percentages, one particular criterion for environmental racism in EISs does have a correlation with the percentage of minorities in a community. Very few EISs involved the affected community in developing mitigation measures. Only 13 out of all 40 EISs examined checked off for this criterion, and these tended to be the higher-scoring, largely White community EISs. Furthermore, having checked off this criterion was not related to the date of publication, therefore strengthening the aforementioned correlation.

Other criteria were correlated only to date of publication. For example, the newer EISs were much more sensitive, overall, to taking public/recreational areas into consideration when evaluating their environmental consequences. Caltrans has, over time, apparently found the issue to be of greater importance. This correlation is strong because although date and overall score are correlated, consideration of effects on public/recreational areas was not correlated to overall score.

As discussed in the introduction, cumulative impacts are an extremely important consideration in environmental justice issues, and they are currently required in EISs. I have found cumulative effects to be strongly correlated to date of publication. Although before an analysis of cumulative impacts was required, many EISs included these in their publications, after cumulative analysis became a requirement by law, all EISs began to include a cumulative impacts section.

Lastly, consideration of labor or employment changes is highly correlated to the overall score of the EIS. Again, although date and overall score are highly correlated, date is *not* correlated to labor/employment consideration. The EISs that are stronger in terms of social impacts consideration are more sensitive to changes that might occur in labor or employment in a community affected by a highway systems project.

Qualitative Analysis I have taken the opportunity to add a qualitative, largely anecdotal, analysis section because of the sheer difficulty I have had in finding environmental impact statements to examine. EISs are meant to be available and accessible to all members of a community who wish to become involved in what is occurring around them. For this reason, environmental policy makers and environmental justice groups have recommended measures for involving communities, and giving special attention to minority, low-income, and disabled groups.

But no amount of clear language, translation, and simple good intention is enough if EISs are not publicly accessible. Although I have done significant background research to learn about the NEPA and CEQA processes, EISs, and Caltrans, I was not prepared for the large challenge I was facing for gaining access to the actual EIS documents. Although I have been fortunate to work with a resourceful mentor, I spent a great deal of time trying to find EISs, sitting in unfruitful meetings, and talking on the telephone to locate EISs, only to be repeatedly disappointed. The U.S. Environmental Protection Agency was, as the name suggests, protective over their EISs on which they had commented. With few exceptions, transportation EISs are not maintained in local public or university libraries, or on Caltrans district websites. At the District 4 Caltrans office, environmental planning experts apologetically told me that with the California budget cuts and lack of space, what was left of archived EISs was at some point thrown away, without so much ceremony as placing them in a recycling bin. Environmental justice activists should be concerned, then, about the less educated individual, having fewer resources and knowing little, if anything, about the NEPA process and residents' rights in the matter, trying to find out about the environmental happenings in his or her community.

Other facets of the process of analyzing the EISs have been telling as well. For example, some EISs did not include population statistics on the racial makeup of the community affected. Predictably, over half of these EISs had a higher percentage of minorities than the national average. Since the social environment must be recorded in all EISs, asserting in the document

that no substantial percentage of minority groups will be affected, without giving the population statistics for that community, is only a half-truth.

EIS Scores: A Further Look To give a deeper understanding of the criteria lying behind "strong" vs. "weak" EISs, I have qualified some of the EIS scores. State Route 118 Through Saticoy (Caltrans and FHWA 1987) supports a population that is 34% White, 64% Latino, 1% Black, and 1% other. Considering the high percentage of minorities, coupled with the early date of publication, the EIS might be expected to have a low final score. However, for the date published, its overall score, 11 out of 18, is about middle range. The EIS is strong in that it is very clearly written and is inclusive of the mandatory information. However, it is missing some of the more commonly missed checkpoints, and is therefore a good standard case to study. The EIS makes no mention of community involvement in developing alternatives to the project, nor is the community involved in developing mitigation measures for any adverse environmental impacts. The EIS only makes a brief reference to the date of a scoping meeting, but makes no effort to discuss individuals' concerns, the mitigation measures, or how the final draft might include some of these changes. The EIS fails to mention some of the more commonly missed points in the environmental consequences section, such as cumulative effects, worst-case scenario evaluation, and labor/employment effects. However, overall, the EIS scores fairly well considering its year of publication and high minority percentage.

Conversely, the Interstate 880 Interchange at Dixon Landing Road (Caltrans and FHWA 1997), with the same percentage of minorities as the SR 118 project, has the same overall score, although it was published ten years later than the former. Although the EIS fulfills all the requirements/recommendations put forth in the "environmental consequences" survey section, it does not display enough convincing quantitative data, and the language of the EIS does not lend itself well to being understood by any average reader. In fact, the first page of the EIS begins with an introduction that includes the following long and complicated sentence: "Section 404 of the Clean Water Act also requires consideration of all practicable alternatives to avoid and minimize adverse environmental impacts, and further requires that impact avoidance and impact minimization measures be exhausted before resorting to measures that restore or create off-site habitats that compensate for on-site habitats taken by a project."

The Route 905 project (Caltrans and FHWA 2001) uses much simpler language than above. It describes the project in clear terms that do not involve long sentences, transportation jargon, or

advanced concepts. This project scores 18 out of 18 points, even though the Otay Mesa community is comprised of a much larger percentage of Hispanic residents, at 47.9% minorities, than the surrounding San Diego County. The project very effectively involved the community by requesting and responding to public comments, holding scoping meetings, and taking community input into account when developing alternative projects and mitigation measures. The EIS is fantastic, with only one exception. Neither the draft nor the final statement include the U.S. Census Bureau racial statistics in the EIS, making the EIS more difficult to categorize.

One EIS, the Interstate 880/State Route 92 Interchange Reconstruction Project, though otherwise strong, brought to my attention a fundamental problem that may or may not be prevalent among all EIS assumptions. Although the environmental justice/minority populations section is more detailed, lengthy, and conscientious than most EISs, the following biased statement is made:

> "The Census data above generally indicate that there is a higher minority population than White/non-minority population in the multi-county area surrounding the project area. *Assuming that there is a direct relationship between composition of the population residing in the multi-county area and the vehicular trips on the highway system in the multi-county area*, an inference can be drawn that a larger proportion of the vehicular trips through the project would be attributed to minority populations than White/non-minority populations" (Caltrans and FHWA 2003).

The highlighted assumption above is the exact assumption that including environmental justice in EISs tries to eliminate. Environmental justice problems occur when certain minority or low-income populations are made to bear a disproportionate burden of the adverse effects of projects, while they are not as likely to enjoy the benefits of these projects. Thus, it is exactly the case that poor and minority populations often do not commute to work – their jobs are often local and, receiving low incomes, these people are often highly dependent on public transportation, do not own cars, and are therefore not equally contributing to vehicular traffic on the freeway. However, these populations are also the ones to live near the noise, pollution, and other adverse impacts connected with residing near a highway. The assumption made in the I-880/SR-92 Final EIS is not only an unsafe assumption, but is in fact dangerous, ignorant, and causes and is caused by a major misunderstanding of the importance of environmental justice.

Potential Bias As previously mentioned, the greatest challenge in this research has been finding EISs to survey. The small number found does not lend itself well to high statistical significance.

The small available sample size is also problematic because it did not allow for randomization of the data selected. Lack of randomization could have affected the data in at least three ways:

1. Lack of good geographical representation for California;
2. The possibility of disproportionately more or fewer EISs affecting high-minority percentage communities to be analyzed; and
3. The sources that have provided EISs might have specific reasons (i.e., biases) for retaining those particular EISs.

As far as geographic representation for California, there is no reason to believe, even if the EISs were unevenly spatially distributed, that the EISs would be biased in some way. Although different regions in California represent different Caltrans districts, the districts all answer to the state headquarters in Sacramento, and are bound by the same state and federal laws.

About the distribution over a wide diversity of communities, I can be less optimistic. This claim also leads into the third effect on data (that agencies might have their own reasons for maintaining EISs). For example, I have been told specifically that the documents held at the headquarters in Sacramento are not random; they have usually been sent there for a purpose, either to be reviewed further or because parts of the EIS have been deemed problematic by the district or by the EPA. These problems can be anything from biological to seismic to social effects – but the fact that problematic EISs are specifically kept at Caltrans headquarters is significant enough to have created a possible bias in the data.

Conclusions California, as has been historically true, is still today a vanguard for excellence in environmental protection methods, and recently, has added to its list of achievements excellence in attention to environmental justice issues. Caltrans, a state department and overseen by the Federal Highway Administration, has proven its depth in looking into environmental impact statements to ensure that no racial group is undermined in the process of building and altering highway systems. Structurally, attention to social issues in EISs has been the same, overall, among a wide diversity of population types, from nine to 80% minorities in the communities examined.

Additionally, racism-free scores have significantly improved over time. However, the most recent environmental justice scores are not much better on average than the scores over the past twenty years. Although scores for high-percentage minority communities have improved so that these communities today exhibit similar scores to high-percentage White communities, overall structural attention to social issues still needs work. Improvement is no longer a matter of minimizing disparities among racial groups, but a matter of involving all citizens, in the most inclusive ways possible, in the alterations to the community around them. This includes improving environmental justice scores for all, but also and especially making EISs accessible to anyone that chooses to involve him or herself in public review process (and encouraging such involvement).

The importance attributed to EISs, transportation, and environmental racism will always be dependent on the political context in which the document is written. Some federal and state administrations attribute the most importance to environmental concerns, and others to the need for industry development. For example, one EIS, the Interstate 180 Hoffman Corridor (Caltrans) published in its 1981 final environmental impact statement the consequences the project would have on national defense. On the edge of the Cold War, national defense ranked high in importance, though in no other EIS were the effects on national defense addressed. But justice for all should always be at the top of this country's agenda. Governments and activists should always remember that no matter how harmful or harmless environmental effects are considered to be, every citizen in this country is entitled to live a healthy and just life.

Since this research has only involved structural aspects of environmental justice in an EIS, I recommend more research in the way of direct effects of environmental impact statement writing, and mitigation of negative impacts. Other industries should be analyzed in California for compliance with high standards of environmental justice, and the same extensive and systematic research should be done across the United States. Only with systematic analysis, leading to systematic improvements, can all people of all racial groups experience the same fair involvement in the environmental consequences for their communities.

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Appendix I: Legally required contents of an environmental impact statement

(Bass and Herson 1993)

1. Cover Sheet
2. Summary
3. Table of Contents
4. Statement of Purpose and Need
5. Alternatives (which include the proposed action)
6. List of Federal Permits
7. Affected Environment
8. Environmental Consequences (including direct, indirect, cumulative, conflicting effects, other effects, and effects for which there is incomplete information)
9. Mitigation Measures of Adverse Effects
10. List of Preparers
11. List of Agencies and Organizations
12. Appendices
13. Index
14. Comments and Responses (in Final EIS only)

Appendix II: Checklist for Racism-Free Environmental Impact Statement (By Section of Document)

General: Score __ of 2

___Plain Language (esp. in summary)
___Sufficient quantitative (not just qualitative) information – environmental data

Scoping: Score __ of 1

___Scoping meetings run with community members, discussed in EIS

Alternatives: Score __ of 3

___Community involved in finding alternatives
___Community involved in developing mitigation measures
___Presenting alternatives' social effects comparatively

Affected Environment: Score __ of 2

___Performed scientific risk assessments
___Used up-to-date studies (i.e., mostly within 5 years of publication)

Environmental Consequences: Score __ of 8

___Cumulative impacts addressed
___Environmental justice policy/Title VI addressed
___Worst-case scenario evaluation

Areas considered:

___Community cohesion
___Labor/Employment
___Effects on residential areas and displacements
___Effects on public/recreational areas, such as schools, parks, churches, etc.
___Effects on commercial/industrial areas and businesses

Public Comment Period: Score __ of 2

___Received input from community
___Input taken into consideration by agency

Overall Score ____ of 18

Date of publication:

Socioeconomic statistics:

Date of survey:

___ *Draft EIS* ___ *Final EIS* *Name of project:*

Appendix III: Environmental impact statement scores

EIS#	Date published	%Minority	Environmental Consequences Score	Overall Score	
1	Apr-03	50.5	7	16	
2	Feb-03	24	5	10	*
3	Jul-02	34.2	8	15	
4	Nov-01	25.8	6	13	
5	Aug-01	47.9	8	17	*
6	Jan-01	36.3	7	16	
7	May-01	80	5	14	
8	May-00	35.5	6	10	
9	Dec-99	34.6	6	12	*
10	Dec-99	14	7	17	
11	Sep-99	23	6	13	
12	Sep-98	16	6	12	
13	Jan-98	41	6	13	*
14	Jul-97	56.3	8	11	
15	Jan-96	14	7	15	
16	Dec-95	61.7	7	16	
17	Mar-93	23	6	14	
18	Oct-92	36.5	5	10	*
19	Mar-92	56.5	5	13	
20	Mar-92	16	5	12	
21	Oct-91	13	7	15	
22	Oct-91	36.5	4	9	
23	Sep-91	69	5	13	
24	Jul-87	21.9	7	15	*
25	Jul-87	10	7	14	*
26	Jan-87	66	4	11	
27	Apr-86	9.4	5	13	
28	Feb-84	23.8	3	8	
29	Aug-83	66	4	10	
30	Jan-83	14	1	5	
31	Apr-97	7	8	16	
32	Nov-00	16.1	6	15	
33	Sep-02	27.8	4	10	*
34	Mar-98	11	6	12	
35	Jun-02	35.8	7	14	
36	Sep-02	7	7	15	
37	Dec-03	8	8	18	
38	Dec-03	70.4	7	15	
39	Dec-82	55	5	10	
40	Dec-80	75.5	6	12	
		(of 100%)	**(of 8)**	**(of 18)**	

* EISs did not provide racial statistics. Information was derived from the U.S. Census Bureau (1990 and 2000).