



**How much does tradition matter?
Comparison of Tribal versus Non-Tribal values in the context
of waste site pollution**



By Zender Environmental Science and Planning Services
www.zender-engr.net
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This pilot comparative study was intended to serve as a cursory means to begin to identify: 1) Important Tribal values that relate to hazardous site risk situations, and 2) Whether these values differ from conventional western risk perceptions.

The answers are: keeping traditions and yes. We developed a questionnaire with a set of value choices relating to hazardous waste sites, and paid 17 respondents at a Tribal environmental conference to complete it. This group was comprised of Tribal members from five EPA Regions. The same set of questions was adapted to represent parallel situations for a conventional Western-oriented community. For example, we replaced the word “elders” with “senior citizens”. Instead of a Tribe losing its traditions, we described a rural farming community losing theirs. We distributed this questionnaire to a second group of 21 Caucasian respondents with Western-oriented backgrounds residing in several States. Both groups had attained fairly similar academic education levels. The questionnaires may be viewed at the end of this document. We devised three simple tests from the questionnaire responses. Here are the interesting results:

Test 1: Does Changing A Tradition Matter As Long As It Is Still Performed?¹

For Tribes, Yes:

<i>Answer selected:</i>	Tribal Group	Non-Tribal Group
Doesn't really matter	12%	33%
Matters some	0%	48%
Yes matters a lot	41%	19%
Extremely important	35%	0%

**Note for scientists:
Fishers exact test P
value = 0.026%**

¹ Citation of this study and Table should read: Zender, L., S. Gilbreath, S., S. Sebalo, W. Leeman, A. Erbeck, “How much does tradition matter? Comparison of Tribal versus Non-Tribal values in the context of waste site pollution”, www.zender-engr.net, July 2004.





Test 2: How Much Does Tradition Matter? A Comparison Of Tribal And Non-Tribal Responses In The Context Of Waste Site Pollution¹

Approximate description of tradeoff, with key terms, values bolded ⁴ :	Tribal Group ²	Non-Tribal	The “low-down”: Is there a significant difference in what groups valued? <i>Compared to non-Tribal group.</i> Tribal group valued :	P value: Chance that the difference could be a coincidence
	Which is your highest concern?			
Few elders ’ berry-picking tradition w/ <i>possible</i> physical exposure. <i>Versus</i> Many non-elders with <i>definite</i> significant physical exposure .	35% 47%	14% 86%	Elders/traditions <i>Over</i> Non-elders, having low exposure risks	5.81%
Losing elders /traditional knowledge/traditions . <i>Versus</i> Several non-elders having short-term health effects .	59% 24%	10% 90%	Elders/traditions <i>Over</i> Having good short-term health	0.02%
Losing elders /traditional knowledge/traditions <i>Versus</i> Pollution of a sacred site, with intangible impact only	53% 24%	14% 86%	Tradition/knowledge <i>Over</i> Intangible risk -free sacred site	0.11%
Non-members polluting/jurisdiction issue/ intangible impact . <i>Versus</i> Tribal members , regular physical exposure , nearby open dump.	35% 35%	29% 71%	Sovereignty/community <i>Over</i> No physical exposure risks for community members	21.83%
Small dump with low risks near where elders gather <i>Versus</i> Kids playing at abandoned building with high risks	18% 53%	33% 67%	<i>No significant difference</i>	61.63%
Intangible pollution , but loss of tradition <i>Versus</i> Physical pollution and cancer risk , but tradition continues	47% 24%	14% 86%	Tradition <i>Over</i> Physical pollution, cancer risks	0.21%

¹ Citation of this study and Table should read: Zender, L., S. Gilbreath, S., S. Sebalo, W. Leeman, A. Erbeck, “How much does tradition matter? Comparison of Tribal versus Non-Tribal values in the context of waste site pollution”, www.zender-engr.net, July 2004.

² Note percentages do not add up to 100% in Tribal Group because some respondents declined to answer some questions.

³ Fishers exact test P value expressed in percent.

⁴ Results are best appreciated by reading the full text of the tradeoff scenarios in the questionnaires at the end of this document.

Note, this test did not test which group values a contaminant-free environment, or other single value-concept, more. It compares scenarios with sets of values. The tradeoffs were devised to underscore key value differences in the context of hazardous site risk. In the first row, more of the Tribal group selected the 2nd scenario as being worrisome. This makes sense, given the higher number of people exposed and level of risk. Tribes *are* very concerned about physical exposure and risk. But the ratio of the Tribal group response was significantly different – i.e. much more slanted towards the first option than that of the non-Tribal group. In other words, given a straightforward choice of equal exposure for an equal number of people, the response of the Tribal Group could be predicted to be nearly 100% for more concern with elders. But the Non-Tribal Group’s response could be expected not to be. Note, the Tribal group tended to be much more evenly split, compared with the non-Tribal Group for all tradeoffs, with the exception of the 5th, where no inferences can be drawn.





Test 3: What Are The Concerns That Tribes Feel Are Most Important?

The instructions were: Can you check (✓) 4 or less items below for what is most important? We realize many of these issues below are very connected and hope that it is still possible to check the 4 that sound most important to you. It will help us a lot. You are welcome to star (**) really important issues:

There was a twist on this test. Rather than adapting these issues to conventional western community terminology for the non-Tribal Group, the non-Tribal Group was given the same instructions and issues, and asked to mark what they thought someone from a present-day Tribe would answer. The Table below lists the portion of each group that checked a particular value. Based on these percentages, rankings for each value are also provided for convenience.

Issue	Tribal Group	Non-Tribal Group	Rank of 1 st Round choice for this issue (Tribal Group)	Rank of 2 nd Round choice for this issue (Non-Tribal Group)
Long-term physical health of members – keeping them free of pollution that might cause cancer or serious health problems even if the risk is very, very low.	59%	29%	1st	tied for 5 th -9th
Spiritual / mental health of Tribal members – content with their life	53%	29%	2nd	tied for 5 th -9th
Tribal sovereignty – land jurisdiction issues about the site	47%	43%	3rd	1st
Keeping land clean	41%	29%	tied for 4 th – 6th	tied for 5 th -9th
Subsistence resources – keeping them pollution-free	41%	24%	tied for 4 th – 6th	tied for 10 th -12th
Keeping and practicing traditions	41%	38%	tied for 4 th – 6th	tied for 2nd
Elders’ health and well-being	35%	24%	tied for 7 th -8th	tied for 10 th -12th
People being concerned about environment or health – even if there is nothing wrong.	35%	19%	tied for 7 th -8th	13th
Not having people’s bodies be contaminated by pollution from the site – even if the pollution doesn’t cause any physical sickness.	24%	29%	tied for 9 th -10th	tied for 5th
Site cleanup even if scientists found that there was nothing wrong with the site and no harmful chemicals.	24%	0%	tied for 9 th -10th	tied for last
Listing site as a CERCLA or other -	18%	0%	11th	tied for last
Tribal sovereignty – people jurisdiction about the site (e.g. non-member dumping)	6%	33%	tied for 12 th -16th	4th
Self-determination and not needing to rely on local or state agencies.	6%	29%	tied for 12 th -16th	tied for 5th
Finding the site owners or responsible people and having them pay or apologize	6%	14%	tied for 12 th -16th	14th
Contamination of sacred sites	6%	38%	tied for 12 th -16th	tied for 2nd
Short-term physical health of Tribal members – keeping them free from symptoms like coughs, headaches, congestion, nausea	6%	24%	tied for 12 th -16th	tied for 10 th -12th





Interestingly, the top two concerns of the Tribal Group highlight the dichotomy of intangible versus tangible risks. Quantifiable cancer risk is ranked almost equally with the intangible factor of spiritual and mental well-being of Tribal members. The results coincide with a holistic perspective on life. Note that the ranking of short-term health of Tribal members as last in concern coincides with the previous test. There, the Tribal Group “chose to tradeoff” short-term health in the interest of elders and traditions¹. Note, this must be recognized as a basic test, and any inferences drawn must be limited. Statistically, the difference in the two sets of rankings from each group are not considered significant. A paired sample t test was conducted on percentages, with p value = 0.53109 (i.e. “no difference”).

But *individually*, the fact that a concern such as “contamination of sacred sites”, was ranked 2nd by the non-Tribal Group and last by the Tribal Group introduces another facet to developing a national site policy. In conventional western-oriented America, of which the non-Tribal Group is part, the term “sacred sites” arguably precipitates an almost inherent mental association, perhaps partly a hegemonic association with Native Americans (e.g. the “Chief-with teardrop” anti-litter 1970’s public service announcement². Yet, *in the context of hazardous site tradeoffs and priorities*, pollution of sacred sites may not be the top priority, or even one of the top priorities. Traditions and members’ long-term health – being free of pollution – could in fact be more important, *when and if* a tradeoff must be made. Indeed, it is compelling to note that several of the five issues ranked last in the Tribal Group seem to indicate that misconceptions about Tribal priorities exist, at least with regard to waste sites. If this is the case, such a circumstance only underlines the importance of having full Tribal participation in policy decisions about addressing hazardous sites that impact them.

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- ¹ As an aside, readers interested in this particular point might consider that, compared to conventional western cultures, in holistic Tribal cultures, short-term health and its symptoms tend to be viewed due less to viruses and environmental ills, and more due to the individual’s holistic well-being i.e. factors within their control. Cancer tends to be viewed due to pollution and environmental contamination, and would be viewed as polluting the body.
- ² See Castile, G. “*Hegemony and symbolism in Indian policy*”, in “State and reservation: new perspectives on federal Indian policy”, Castile, G. and R. Bee, (eds), Univ. of Arizona Press, AZ, 1992, or Zender, L., *supra* note 18 for application to Tribal waste issues.





◆ **Tribal Group Questionnaire** ◆





QUESTIONS ON YOUR HAZARDOUS WASTE SITE



1. We are trying to look at different ways that people value things. If you had to, could you **circle which statement is the most important** of the two for each box below? This means- if you could do something about only one situation- please circle which one it would be.

- ❖ There are 3 elders left in a tribe. They go berry picking near a hazardous waste site.
- ❖ A lot of Tribal members go dump their garbage at an open dump. Some of the waste is household hazardous waste, like used oil, batteries, household cleaners, fertilizer. Sometimes the dump is set on fire and you can smell the smoke.

- ❖ There are 3 elders left in a tribe. They are the only ones who know how to make baskets the traditional way and they still need to teach new people more about these ways. They gather grasses near a site they think is polluted even though scientists can not find evidence of pollution there. But the elders are still worried about the contamination from the hazardous waste site and decide not to make baskets anymore. The traditional way of making these baskets is lost.
- ❖ People that live closer to a dump site get colds and coughs more often than other people.

- ❖ The same situation with the 3 elders left, not making baskets anymore—and losing the tradition.
- ❖ A sacred site is polluted with chemicals someone dumped. The Tribal members know it is polluted. You can't see any pollution and it is not harming anyone's physical health.

- ❖ There is an illegal dump site on the reservation that some non-members created to dump all their trash. There aren't any homes nearby and no one uses the area for subsistence or other activities.
- ❖ There is a dump site on the reservation that some tribal members use for all their trash. They live right near the dump.

- ❖ An open dump with some household hazardous wastes is starting up. It is near a home where many of the elders gather to pass the day with each other.
- ❖ There is an abandoned feed/farm supply store on the reservation. They left partly-full containers of some of their fertilizers and pesticides. Kids use the area and building to play hide and go seek. None of them have gotten hurt.

- ❖ A Tribe thinks their land is polluted and people are afraid to hunt or fish or gather grasses. So they are losing their traditions. The pollution there is very small and not big enough to harm people's physical health-- no matter how much they eat. But no matter how much education, people feel the contamination is too much and it will harm them. The Tribe's old ways are being lost.
- ❖ A Tribe's lands and waters are definitely polluted. If people eat too much fish, they are a little more likely to get cancer or get sick than someone who doesn't eat the fish. But people in this Tribe continue to eat the fish and practice their traditional ways anyhow.

2. If people change the way they do traditional practices to avoid pollution, but they still do the same amount of traditional practices (e.g. eat as much subsistence foods) - is that bad or not? Check one.

doesn't really matter matters some yes, it matters a lot it is extremely important

3. Can you check (✓) 4 or less items below for what is most important? We realize many of these issues below are very connected and hope that it is still possible to check the 4 that sound most important to you. It will help us a lot. You are welcome to star (**) really important issues.

<input type="checkbox"/> Tribal sovereignty - land jurisdiction issues about the site	<input type="checkbox"/> Keeping and practicing traditions
<input type="checkbox"/> Keeping land clean	<input type="checkbox"/> Elders' health and well-being
<input type="checkbox"/> Tribal sovereignty - people jurisdiction about the site (e.g. non-member dumping)	<input type="checkbox"/> People being concerned about environment or health - even if there is nothing wrong.
<input type="checkbox"/> Not having people's bodies be contaminated by pollution from the site - even if the pollution doesn't cause any physical sickness.	<input type="checkbox"/> Site cleanup even if scientists found that there was nothing wrong with the site and no harmful chemicals.
<input type="checkbox"/> Spiritual / mental health of tribal members - content with their life	<input type="checkbox"/> Finding the site owners or responsible people and having them pay or apologize
<input type="checkbox"/> Self-determination and not needing to rely on local or state agencies.	<input type="checkbox"/> Listing site as a CERCLA or other -
<input type="checkbox"/> Subsistence resources - keeping them pollution-free	<input type="checkbox"/> Contamination of scared sites
<input type="checkbox"/> Long-term physical health of members - keeping them free of pollution that might cause cancer or serious health problems even if the risk is very, very low.	<input type="checkbox"/> Short-term physical health of tribal members - keeping them free from symptoms like coughs, headaches, congestion, nausea



◆ Non-Tribal Group Questionnaire ◆





1. We are trying to look at different ways that people value things in the context of garbage, dumps, and contamination. If you had to, could you **circle which statement is the most important** of the two for each box below? This means- if you could do something about only one situation- please circle which one it would be.

❖ A once thriving farming town located near the foothills in the Central Valley has lost much of its population to the City. There are 3 senior citizens left in this close-knit community who have lived there all their lives, and were there when some people still used horses to plow. In the fall, they go collect blackberries near a hazardous waste site.

❖ Many of the town's residents dump their garbage at an unauthorized open dump in the hills. Some of the waste is household hazardous waste, like used oil, batteries, household cleaners, fertilizer. Sometimes the dump is set on fire and town residents can smell the smoke.

❖ The same farming community -- This town was settled in the mid-1800's. There is a traditional secret recipe for a type of apple pie that the town was famous for winning at the State Fair. The 3 senior citizens learned the recipe from their parents, who learned from their parents, about how to make it. It involves an elaborate preparation, and picking the apples just at the right time and a particular place. But they just found out that place is near the site where a pesticide retailer dumped his excess inventory. The site was completely cleaned up by EPA, and no residual contamination was found. But the seniors are still worried about contamination and decide not to make the pies anymore. The traditional way of making these pies is lost.

❖ Even adjusted for contributing factors, residents that live closer to the unauthorized dump site in the hills get colds and coughs more often than people who live out further away from the dump.

❖ The same situation with the 3 seniors not making the traditional apple pies—and the town losing the tradition.

❖ Someone dumped their leftover pesticides a couple of years ago in the yard of an old church (still used). Everyone knows about what happened. Assume you can't see any pollution effects and the contamination is not harming anyone's physical health (no one lives nears there).

- ❖ There is an illegal dump site within the town's boundaries that some RV tourists created to dump all their trash. There aren't any homes near there and no one uses the area for farming or other activities.
- ❖ There is a dump site in the hills that some town residents use for all their trash. Their homes are right near the dump.

- ❖ Another open dump with some household hazardous wastes is starting up. It is near a home where the town's older citizens gather to pass the day with each other.
- ❖ There is an abandoned feed/farm supply store within the City limits. They left partly-full containers of some of their fertilizers and pesticides. Kids use the area and building to play hide and go seek. None of them have gotten hurt.

- ❖ A close-knit rural North Eastern Californian community thinks their land is polluted, and people are afraid to hunt or fish or gather berries. This is a town that has traditionally lived off the land for much of their diet. Hunting and fishing has been an integral part of their societal activities, and it was for their parents and their parent's parents. So they are losing their lifestyle they grew up with. The contamination there is actually very minor, and not significant enough to harm people's physical health-- no matter how much venison, fish, or berries they consume. But no matter how much the University scientists who have researched this issue countless times tell people that there is no problem, people feel the contamination is too much and it will harm them. The town's culture is essentially being lost.
- ❖ Another close-knit rural town's land, creeks, and lake are definitely polluted. If people eat too much fish, they are a slightly more likely to get cancer or get sick than someone who doesn't eat the fish. But people in this town continue to consume the fish and hunt and fish and collect berries regardless.

2. Each region of the Country has a "unique flavor", partly due to its unique traditions and customs- - i.e. activities, behaviors, or events that have been historically practiced and have been passed down several generations. Examples could be quilt making, square dancing, Southern hospitality, 4th of July parades, Times Square New Year's celebration. If people change the way these traditions are done, but they still do them, is that bad or not? For example, changing the route of a parade to accommodate traffic. Please check one.

doesn't really matter matters some yes, it matters a lot it is extremely important

3. Please complete the following in terms of how you think ***a present-day Indian Tribe or Alaska Native Village would most likely answer:***

Can you check (✓) 4 or less items below for what is most important about hazardous waste sites? We realize many of these issues below are very connected and hope that it is still possible to check the 4 that sound most important to you. It will help us a lot. You are welcome to star (**) really important issues.

<input type="checkbox"/> Tribal sovereignty - land jurisdiction issues about the site	<input type="checkbox"/> Keeping and practicing traditions
<input type="checkbox"/> Keeping land clean	<input type="checkbox"/> Elders' health and well-being
<input type="checkbox"/> Tribal sovereignty - people jurisdiction about the site (e.g. non-member dumping)	<input type="checkbox"/> People being concerned about environment or health - even if there is nothing wrong.
<input type="checkbox"/> Not having people's bodies be contaminated by pollution from the site - even if the pollution doesn't cause any physical sickness.	<input type="checkbox"/> Site cleanup even if scientists found that there was nothing wrong with the site and no harmful chemicals.
<input type="checkbox"/> Spiritual / mental health of tribal members - content with their life	<input type="checkbox"/> Finding the site owners or responsible people and having them pay or apologize
<input type="checkbox"/> Self-determination and not needing to rely on local or state agencies.	<input type="checkbox"/> Listing site as a CERCLA or other -
<input type="checkbox"/> Subsistence resources - keeping them pollution-free	<input type="checkbox"/> Contamination of scared sites
<input type="checkbox"/> Long-term physical health of members - keeping them free of pollution that might cause cancer or serious health problems even if the risk is very, very low.	<input type="checkbox"/> Short-term physical health of tribal members - keeping them free from symptoms like coughs, headaches, congestion, nausea