

FROM TOXIC LEGACY TO SUSTAINABLE FUTURE:

Resource Extraction's Impact
on Rural and Indigenous Health
and the Urgent Call for Change

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In the summer of 2024, several scientific reports crossed our desks and inboxes that could all be lumped into the category of “Impacts to Mental, Physical and Cultural Health as a Result of Resource Extraction and Destruction of Traditional Territories.”

SWCC tasked UVIC Bio-psychology student and local Skeena resident, Honor Watson to review the latest studies and research completed on this topic. Honor was to compile the important conclusions and discoveries from the various reports into a single document.

This report is that very summary and is intended to help local people gain a better understanding of the known health risks of industrial resource extraction that happen near their home communities and traditional territories.



Photo Credit: SWCC

While resource extraction creates jobs and economic growth, this report looks at the costs to human health we hope that this summary will support better and more informed decision-making at all levels of government that prioritizes human health.

For more information on SWCC and our work, please visit www.skeenawatershed.com.

Honor Watson



Honor has worked with Skeena Watershed Conservation Coalition as a youth intern and researcher since 2021. Her role has involved supporting grassroots environmental conservation and justice, Indigenous Hereditary leadership, and youth programming. Honor is a student at the University of Victoria, currently completing her fourth year of undergraduate studies in Bio-Psychology. More recently, She has been applying her studies through supporting community research and education relating to the human wellness impacts of resource extraction projects and climate change.



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INTRODUCTION:

The Cost of Resource Extraction on Rural and Indigenous Communities

Resource extraction, whether through mining, fracking, or oil sands operations, has become a major driver of economic growth. However, for many rural and Indigenous communities, these activities come at a steep cost.

The lands that have sustained rural and Indigenous communities for generations are being degraded or destroyed, leading to profound consequences for their mental, physical, and cultural health.

This paper delves into these impacts, highlighting the urgent need for policy changes that protect community members and traditional territories.





Land is far more than just a physical space—it's a source of identity, culture, and spiritual connection for the people that live on it. Resource extraction, such as mining, fracking, or oil sands operations, has become a major driver for economic growth. However, when resource extraction disrupts or displaces these lands, it triggers a ripple effect of physical, mental, and cultural illness in rural and Indigenous communities. As environmental degradation becomes a reality, communities experience the psychological strain of losing their way of life and a deep sense of helplessness.



Toxic pollutants released by resource extraction, including heavy metals and carcinogens, contaminate the air, water, and soil. This exposure leads to serious health problems like respiratory diseases, cancers, and other illnesses, especially in communities living close to extraction sites. Contaminated water sources from fracking and oil sands operations pose direct threats to health, deepening the crisis.



Culturally, the impacts are just as devastating. Traditional practices and spiritual rituals tied to the land are disrupted, and community bonds are weakened by forced relocation and environmental changes. This erosion of cultural health also undermines Indigenous sovereignty and the ability to maintain ways of life. The loss of these traditions represents not just a cultural crisis but also a broader societal one, with weakened social cohesion and increased inequality.



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Impacts on MENTAL HEALTH

MENTAL HEALTH IMPACT:

Psychological Stress and Trauma

Resource extraction and environmental destruction often leave deep scars on the mental well-being of affected communities.

Imagine living with the constant fear that your water might be poisoned or that the air you breathe is harmful. This isn't just a story of environmental harm—it's a story of human trauma. Anxiety, depression, and post-traumatic stress disorder (PTSD) are common among those living near fracking sites or in areas where traditional lands are being exploited.

Indigenous communities, in particular, feel the weight of this trauma more acutely because their connection to the land is not just physical; it's spiritual and cultural. The destruction of trails and sacred lands disrupts not only their environment but their very identity, leading to chronic stress and a sense of cultural dislocation.



Imagine living with the constant fear that your water might be poisoned or that the air you breathe is harmful.

Case Example:

In Northern British Columbia and Alberta, the impact of fracking on Indigenous populations has been profound. The stress of living in close proximity to these operations, compounded by the marginalization of Indigenous voices in decision-making processes, has led to a rise in mental health issues. The fear of unknown long-term health impacts from contaminated water and air creates a pervasive sense of anxiety that affects every aspect of life.

MENTAL HEALTH IMPACT:

Destabilization of Community Support Systems

When communities are disrupted by resource extraction, the social fabric that holds them together begins to fray.

Social cohesion is critical for mental health, but it's often one of the first casualties in areas impacted by environmental destruction. Displacement due to land degradation not only forces people out of their homes but also separates them from the social networks that provide support.

For Indigenous communities, the destruction of trails that serve as both cultural and communal lifelines results in the loss of traditional practices and governance systems. This disruption exacerbates mental health issues, as people struggle to cope with the loss of their community and cultural identity.

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Impacts on PHYSICAL HEALTH

PHYSICAL HEALTH IMPACT:

Health Effects of Air and Water Pollution

The physical health impacts associated with resource extraction, particularly in regions where fracking is prevalent, are severe and far-reaching.

Air pollution from fracking operations introduces a host of harmful chemicals into the atmosphere, including volatile organic compounds (VOCs), nitrogen oxides (NO₂), and particulate matter. These pollutants contribute to a variety of respiratory issues, including asthma, bronchitis, and chronic obstructive pulmonary disease (COPD). In areas like northeastern British Columbia and Alberta, where oil sands and fracking operations are dense, the residents, especially Indigenous communities, face increased exposure to these pollutants, leading to significant health challenges.

Water pollution from hydraulic fracturing (fracking) poses serious health risks. This process injects high-pressure fluids into the ground to extract natural gas, resulting in wastewater that contains toxic chemicals, heavy metals, and radioactive elements. These contaminants can seep into groundwater, compromising drinking water and leading to health issues such as gastrointestinal illnesses, reproductive problems, and cancer. Fracking fluids have been linked to inflammation, chromosomal damage, and hormonal disruptions. Elevated levels of these harmful substances have been detected in the air, water, and urine of people living near fracking sites. This contamination worsens existing health disparities and highlights a critical public health crisis associated with fracking practices.



PHYSICAL HEALTH IMPACTS:

Lost Traditional Practices

Environmental degradation does not just pollute the air and water; it also changes how people interact with their environment. For many Indigenous communities, traditional physical activities like hunting, fishing, and gathering are integral to both their culture and their health. But when these activities become impossible due to environmental destruction, the community's physical health suffers. The reduction in traditional activities leads to more sedentary lifestyles, which in turn increases the risk of obesity, cardiovascular disease, and other health issues. The loss of these activities also means the loss of a vital connection to the land, further exacerbating the physical and mental health impacts.

Preterm Births, Birth Defects, Infant Death, Developmental Delays and Cancers

The health impacts of living near fracking sites are particularly dire for children and pregnant women. A study used postal codes to track pregnant mothers living

Thank you again for all of your help and support with my book! I link near active fracking operations and linked these to their pregnancy outcomes. The results were alarming: **women living closer to fracking sites experienced higher rates of preterm births, smaller babies, birth defects, and infant mortality.**

Children in these areas face their own set of health challenges. Exposure to the toxic chemicals released during fracking can lead to respiratory issues, developmental delays, and a higher risk of childhood cancers. The harmful effects of these pollutants, such as endocrine disruptors and carcinogens, are particularly dangerous during the crucial stages of development in the womb and early childhood.

Rising Mortality Rates and Premature Death

The dangers of fracking extend beyond chronic illnesses and developmental issues—living near these sites is also linked to higher mortality rates. Studies have found that communities living close to fracking operations experience higher rates of all-cause mortality, particularly from diseases like cancer and respiratory illnesses. The combination of air and water pollution, along with the constant stress and anxiety of living in a degraded environment, contributes to these elevated mortality rates. This is especially concerning in areas like northern British Columbia and Alberta, where fracking operations are dense, and the local populations, often Indigenous, are disproportionately affected by the health impacts of these activities.



Impacts on **CULTURAL HEALTH**

CULTURAL HEALTH IMPACT:

Loss of Traditional Knowledge and Practice

The cultural impact of environmental destruction is perhaps one of the most devastating, yet least discussed, aspects of resource extraction. For Indigenous communities, the land is not just a place to live—it is a repository of cultural knowledge and practices that have been passed down through generations. The destruction of culturally significant sites, such as trails and sacred areas, erodes this knowledge, leading to the loss of cultural identity and heritage. This loss is felt deeply across generations, as younger members



of the community are unable to learn and practice the traditions that define their cultural identity.

In British Columbia, the destruction of Indigenous trails due to fracking and pipeline construction has not only disrupted physical access to traditional lands but has also severed the cultural ties that connect communities to their heritage. These trails are more than just paths; they are integral to the transmission of cultural practices and knowledge.



Photo Credit: Jennifer Bulleid

Feather Art: Michelle Stoney

CULTURAL HEALTH IMPACT:

Displacement and Relocation

When communities or residents are displaced because of environmental destruction, the cultural impact can be deeply damaging and long-lasting. Relocation disrupts the flow of cultural traditions and breaks down community structures, which often results in a loss of cultural continuity. For Indigenous communities, being forced to leave ancestral lands means more than just moving—it's about losing access to the spaces where traditions are lived, shared, and passed down through generations. This separation from the land makes it incredibly difficult, if not impossible, to maintain these cultural practices in new environments, leading to weakened community ties and a diminished sense of identity.



Photo Credit: Michael Tolendano

Militarized RCMP forcibly removing Wet'suwet'en people from their traditional territory over Coastal GasLink pipeline conflict.

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Broader Impacts **BEYOND HEALTH**

BROADER SOCIAL IMPACT:

Sacrificing Local Economies to Large Industry

The economic impact of resource extraction often compounds the physical and cultural harms. Many rural, local economies are dependent on healthy ecosystems. Also, hunting, harvesting, agriculture and traditional land use is not just a way of life but is a vital economic activity for many rural and Indigenous communities. When environmental destruction makes these activities impossible, it results in a loss of livelihoods and economic independence. This economic stress can further exacerbate health issues, as communities become more reliant on external support and less able to maintain their traditional ways of life or economic wellbeing.

The prioritization of industrial profits over the health and well-being of rural and Indigenous communities has created “sacrifice zones” where the economic and health costs are borne disproportionately by those who have the least power to resist. This economic marginalization is a direct result of policies that favor resource extraction over the preservation of traditional lands and livelihoods.



BROADER SOCIAL IMPACT:

Increasing Social and Community Conflicts



Photo Credit: Jennifer Bulleid



Photo Credit: SWCC



Photo Credit: Jennifer Bulleid



Photo Credit: Pansy Wright-Simms



Photo Credit: Pansy Wright-Simms

The social structures within communities are deeply intertwined with their cultural practices and connection to the land. When these are disrupted by environmental destruction, the impacts ripple through the entire community. Traditional governance systems, social networks, and community relationships all suffer when the land that sustains them is degraded. This weakening of social cohesion leads to increased isolation and vulnerability, particularly for those already marginalized by systemic inequalities.

In Northern British Columbia, the destruction of Indigenous trails and the marginalization of community voices in land management decisions have led to a breakdown in social cohesion. The loss of these vital social structures exacerbates the isolation and marginalization of Indigenous communities, making it even harder for them to advocate for their rights and well-being.

Social structures within communities are deeply intertwined with their cultural practices and connection to the land.



CASE STUDIES:

- BLUEBERRY RIVER FIRST NATIONS (BRFN)
- HAISLA NATION

Cumulative Impacts: Trading Health for Profit

In the Peace River region of British Columbia, the Blueberry River First Nations (BRFN) have been significantly affected by unconventional oil and gas extraction, particularly hydraulic fracturing. A study published in the Canadian Journal of Public Health highlights the cumulative impacts of over 17,000 oil and gas wells in their territory, which has resulted in the depletion of traditional hunting, fishing, and medicinal plant-gathering areas, disrupting the BRFN's way of life and cultural practices.

In the Kitimat region, the Haisla Nation has also faced challenges due to the proposed expansion of liquefied natural gas (LNG) facilities. The People and Nature article discusses how these developments threaten the Haisla's cultural heritage, including fishing grounds and sacred sites, potentially leading to long-term health issues related to the loss of traditional foods and cultural practices.

Analysis of the Health Impacts in These Communities

The BRFN face numerous health challenges linked to oil and gas activities. These include higher rates of respiratory issues, cancers, and reproductive health problems. Water contamination from fracking raised concerns about drinking water safety, contributing to mental health issues. The destruction of traditional lands has also impacted cultural identity, which is intrinsically linked to the overall health and well-being of these communities.

For the Haisla Nation, LNG projects have heightened stress and anxiety due to the potential loss of fishing grounds that are central to their diet and culture. Displacement from traditional lands may also worsen health issues, including increased rates of diabetes as traditional foods become less accessible.

GLOBAL PERSPECTIVES: Comparison With Regions Facing Similar Issues

The situation in Canada mirrors that of other Indigenous communities worldwide. In Latin America, for example, Indigenous groups in the Amazon basin face similar threats from oil extraction and deforestation. A study in the *Journal of Global Environmental Politics* highlights the health impacts faced by the Indigenous people of the Ecuadorian Amazon, who suffer from high rates of cancer and other diseases due to prolonged exposure to oil spills and contaminated water. Similarly, in Australia, Aboriginal communities near mining sites experience significant health and social challenges, including chronic diseases and the loss of cultural sites.

Photo Credit: flickr.com Matt Zimmerman

Lessons Learned and Potential Solutions

From a global perspective, the recurring theme is the need for stronger policies that recognize and protect the rights of Indigenous peoples to their land and resources. The Canadian experience shows the importance of integrating Health Impact Assessments (HIAs) into the approval processes for resource extraction projects, ensuring that the health and cultural well-being of Indigenous communities are prioritized. Additionally, global examples illustrate the need for sustainable resource management practices that involve Indigenous communities in decision-making processes. Empowering communities through legal frameworks, such as the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), can provide a foundation for protecting their health and cultural heritage. Engagement with local communities to understand their concerns and integrating traditional knowledge into environmental management strategies is crucial for mitigating the adverse effects of resource extraction.

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POLICY CONCERNS & RECOMMENDATIONS

CONCERNS WITH OIL & GAS POLICIES

Inconsistent Regulations for Oil and Gas Extraction

Currently, regulations surrounding resource extraction, particularly fracking and other forms of unconventional oil and gas development (UOGD), are inconsistent and often ineffective in addressing the full scope of health and environmental impacts. In Canada and the United States, setbacks—minimum distances between oil extraction sites and human infrastructure such as homes and schools—vary widely. For example, British Columbia allows setbacks as low as 100 meters, while in California, setbacks can reach up to 970 meters.

However, these regulations often fail to account for the number of active wells in a given area, which means that highly industrialized zones may still pose significant health risks despite distance-based guidelines.

Inadequate Fracking Fluid Disclosure Requirements

Moreover, fracking fluid disclosure requirements are inadequate. Although some jurisdictions require the reporting of chemicals used in the hydraulic fracturing process, many still allow exceptions for trade secrets, leaving communities unaware of the specific toxic substances to which they are exposed. Furthermore, current environmental assessments often lack the depth needed to fully understand the health risks posed by fracking, especially for vulnerable populations such as Indigenous communities and pregnant women.

Health Risks Willfully Ignored

The toxic chemicals used in fracking fluids, which are linked to inflammation, hormonal disruption, and chromosomal damage, are being found in the air, water, and even the urine of individuals living near fracking sites. Yet, many of these findings are not adequately addressed in current policies.



Photo Credit: Garth Lenz

CONCERNS WITH OIL & GAS POLICIES cont'd...

Failure to Adequately Address Cumulative Effects

Regulations often fail to consider the cumulative effects of multiple wells in close proximity, which can significantly amplify environmental and health risks. The current BC Cumulative Effects Assessment Framework is not connected to decision-making.

Inadequate or Absent Long-term Monitoring

There is insufficient monitoring and reporting of the long-term impacts on air and water quality, especially in Indigenous and rural communities where fracking is concentrated.

Limited Community Participation

Policies rarely include the participation of affected communities in decision-making processes, leaving those most at risk without a voice in how their lands and health are managed.

Lack of Compliance and Independent Oversight

The lack of mandatory independent monitoring systems also means that there is limited accountability for the environmental damage and health outcomes caused by the oil and gas industry. Even when laws are broken, fines and sanctions do not serve as a deterrent as it is often more financially viable to continue causing harm and completing the work in a timely manner, rather than slowing down to ensure better human and environment health.

RECOMMENDATIONS

1. Policy Changes to Mitigate Health Impacts

To better protect public health, there needs to be a revision of policies, informed by the best available scientific evidence. For example, setbacks should not only account for distance but also the number of active wells in a given area, as well as the cumulative exposure risks. Furthermore, all chemicals used in the fracking process, including those protected under trade secret clauses, should be fully disclosed. The presence of harmful chemicals in air and water around fracking sites has direct links to adverse health outcomes, including preterm births, birth defects, and higher mortality rates. It is crucial that this information is transparent to the public to ensure informed decision-making that prioritizes human health at both the individual and community levels.

2. Mandate Human Health Impact Assessments

Health Impact Assessments (HIAs) must be a mandatory component of any new fracking or oil and gas development project decision making. These assessments would ensure that the potential health impacts on vulnerable populations are fully considered before operations are approved or permitted.

HIAs should not only include physical health impacts but also mental and cultural health impacts. This will lessen displacement and environmental degradation that often leads to increased rates of depression, anxiety, and other mental health issues, particularly among Indigenous communities whose cultural practices are closely tied to the land.



RECOMMENDATIONS cont'd...

3. Enhance Support Systems

Communities affected by fracking and environmental destruction need enhanced health support systems to deal with the range of health impacts they face. This includes mental health services to address the psychological stress caused by environmental degradation and displacement, as well as medical services to treat the physical health effects of air and water pollution. Specific programs should be implemented to monitor and support the health of pregnant women and children, who are particularly vulnerable to the toxic effects of fracking chemicals. Confidence that Provincial regulations and health assessments have been improved to genuinely protect human health would go a long way.

4. Promote Sustainable Resource Management

Sustainable resource management must be a cornerstone of any policy reforms. The current approach to resource extraction is unsustainable and poses severe risks to both environmental and human health. Policies should encourage a shift away from fossil fuel dependence and promote renewable energy sources. This would not only reduce the health impacts of fracking but also contribute to broader efforts to combat climate change, which has its own severe health consequences.

5. Engage With The Local Communities That Are Impacted

Finally, it is critical to engage local communities directly in the development and implementation of these policies. Environmental justice principles dictate that those most affected by environmental harms should have a say in how those harms are managed and mitigated.

Advocacy efforts should push for the inclusion of Indigenous voices and other marginalized groups in policy discussions. Community-led environmental monitoring, health impact assessments, and resource management strategies will ensure that policies are responsive to the specific needs and concerns of those most at risk from environmental destruction.

In conclusion, addressing the health impacts of fracking and other forms of resource extraction requires comprehensive policy changes, increased community involvement, and a shift toward sustainable resource management. By integrating health impact assessments, enhancing support systems, and engaging with local communities, it is possible to mitigate the devastating effects on mental, physical, and cultural health and move toward more just and sustainable land stewardship practices.



PERSONAL REFLECTION

A Note from the Author

Doing research for this paper, I came across a great deal of disheartening information about the impacts of resource extraction on communities.

While the physical harm caused by air and water pollution, rising mortality rates, and the prevalence of anxiety, PTSD, and depression in affected areas was not what shocked me the most. It was the realization that despite clear evidence showing that resource extraction is not only destroying the land but also taking a devastating toll on the people who live there, these harmful practices continue unchecked.

The persistence of such exploitation, in the face of overwhelming research, raises urgent questions about our collective priorities and the systems that enable this ongoing harm.

“It was the realization that despite clear evidence showing that resource extraction is not only destroying the land but also taking a devastating toll on the people who live there, these harmful practices continue unchecked.”

One of the biggest things I'm taking away from this is just how much work needs to be done to create real change. Writing about the impacts of resource extraction, especially on Indigenous communities, made it clear that the current approach to managing resources is unsustainable. We can't keep prioritizing economic gains over the health and cultural well-being of people, especially those who are already vulnerable.

I've also come to appreciate the importance of involving communities directly in decisions about their land. Indigenous knowledge and practices offer valuable insights into sustainable resource management, but they're often overlooked in favor of industrial interests. This needs to change. The more I researched, the more I realized how crucial it is for affected communities to have a voice in how their lands are managed and how their health is protected. If we truly want to make a difference, policies need to be built around the idea that healthy lands mean healthy people—and that includes mental, physical, and cultural health.



CONCLUSION

Summary of Key Points

This paper has highlighted the deep and lasting impacts that resource extraction has on rural and Indigenous communities, from mental and physical health to cultural well-being. We have seen how pollution from activities like fracking causes a range of health problems from moderate to fatal, including respiratory issues, cancer, and reproductive complications, particularly in children and pregnant women. But beyond these physical harms, the destruction of the land also takes a massive toll on mental health, causing anxiety, depression, and even PTSD. Culturally, the loss of traditional lands severs a vital connection to heritage and identity, further amplifying these challenges. These harms also have a negative impact on our public infrastructure by putting more and more pressure and costs on BC's public health care system.

Call to Action

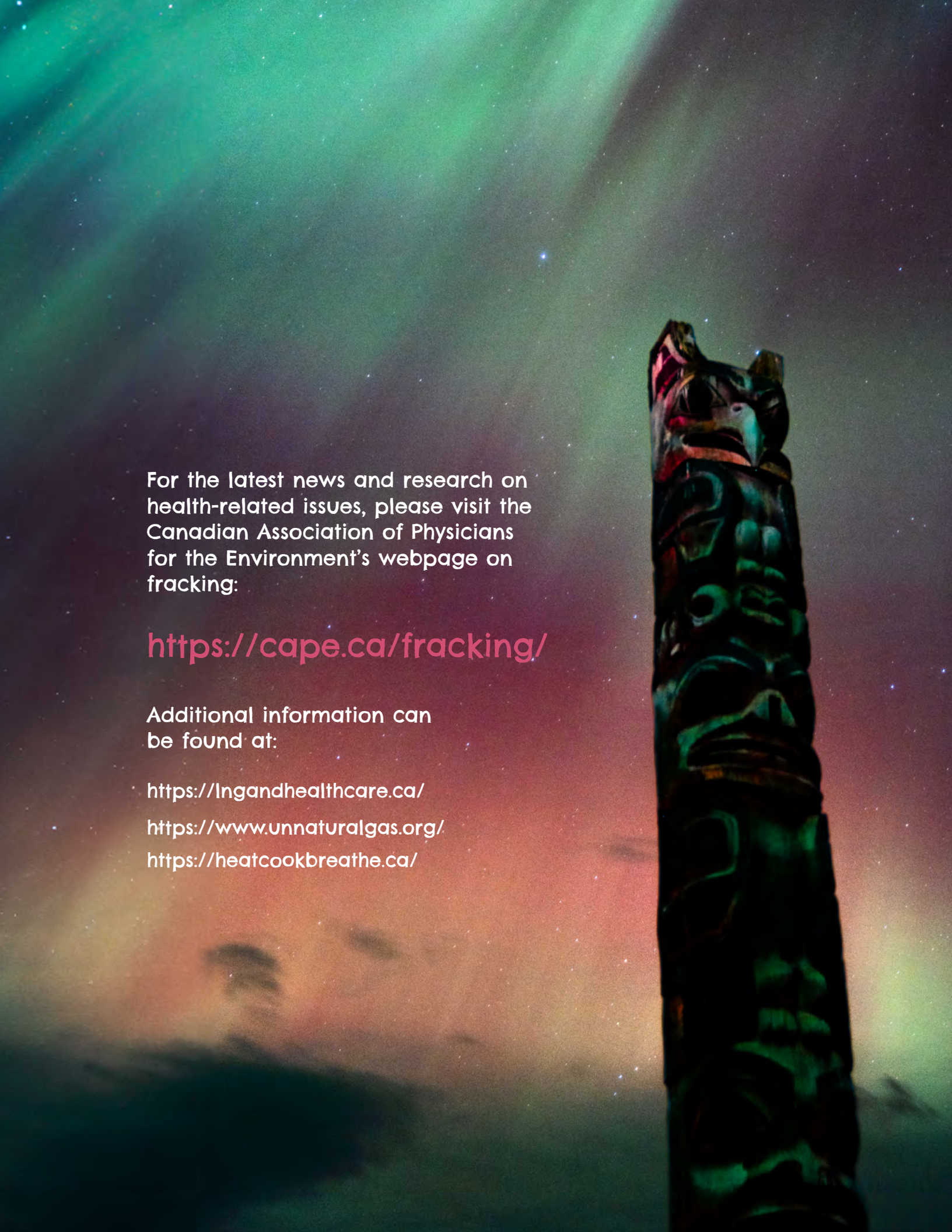
It is clear that we cannot continue down this path. We urgently need to rethink how we approach resource extraction, not just from an environmental perspective, but from a human one. Policies must change to put health and cultural well-being at the forefront. Indigenous communities, who are often the most affected, need to be involved in the decision-making process. We cannot afford to wait—the time to act is now.

Future Directions

More research on the impact of these issues and how to better manage them is required to understand and develop better sustainable resource management practices that do not pose a high cost to people's lives and cultures. Long-term monitoring of communities near extraction sites is crucial for the successful development of these management practices. The development of solutions to these issues must integrate traditional Indigenous knowledge in order to foster a more balanced and respectful approach to land use. In the end, protecting the land means protecting the people who depend on it—and that is something we all have a stake in.

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For the latest news and research on health-related issues, please visit the Canadian Association of Physicians for the Environment's webpage on fracking:

<https://cape.ca/fracking/>

Additional information can be found at:

<https://Inchandhealthcare.ca/>

<https://www.unnaturalgas.org/>

<https://heatcookbreathe.ca/>