

**Is A Purely Scientific-Based Approach Enough? The Importance of Local
Stakeholders in Solutions to Environmental Problems.**

Taryn

Department of Environmental and Resource Studies, Trent University

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Introduction

Science-based recommendations for solving environmental problems are critical. However, local communities' knowledge is also valuable and must be acknowledged when attempting to solve environmental problems, such as ecological restoration, climate change, and conservation efforts. Environmental issues can devastate local and global infrastructure, human health, and total productivity. Environmental issues disproportionately affect minority groups, including people of colour and individuals in developing countries (Abbass et al., 2022; U.S. Environmental Protection Agency, 2022). Many protected natural areas hold cultural significance, and the perspectives of local individuals, who may have valuable insights, should not be overlooked when addressing these issues (Parks Canada, 2024). Therefore, this essay will discuss the importance of an integrated viewpoint when solving environmental problems, including those of scientific basis and public citizens.

Scientific, Economic, and Social Implications of Involving Local Stakeholders in Environmental Problems.

Although a science-based recommendation for solving environmental issues is essential when discussing climate change, ecological restoration, and conservation efforts, understanding the importance of consulting other stakeholders, such as local communities, is critical to the project's success. Aichi Target 15, for example, of the Convention on Biological Diversity, states a goal to restore 15% of degraded ecosystems. However, deciding which areas to restore is mainly based on biological importance and feasibility rather than local concerns or needs (Reyes-García et al., 2018). This focus on ecological goals, without considering the perspectives of those who may be most affected by environmental degradation, such as Indigenous peoples, can lead to inequitable harms and impacts on these communities (Schultz et al., 2022). Indigenous peoples and local communities have valuable knowledge of their lands and ecosystems, enabling them to effectively contribute to

restoration and conservation efforts. Many of these communities practice traditional methods to manage and restore their environments, historically creating highly biodiverse ecosystems essential for survival (Reyes-García et al., 2018). For example, the milpa is a traditional Maya farming technique that promotes biodiversity and soil fertility by rotating agricultural plots within forested areas (UNDP, 2024). This method enhances crop diversity, productivity, and food security while reducing the impacts of land-use change and potentially increasing nitrogen fixation (Drexler, 2021; Romero-Natale et al., 2024).

Involving local people in solving environmental issues is also critical for the public perception of these issues. Volunteer restoration activities, through the involvement of citizens in active relationships in natural areas, can reinforce existing environmental identities and promote pro-environmental behaviours for frequent volunteers due to social influence (Dresner et al., 2014). Social influence plays a key role in conformity and is usually driven by a person's desire to fit in and express valued identities. The more we personally identify with a group, the more the social norms of those groups, such as pro-environmental behaviour, begin to influence our personal behaviour (Van & Packer, 2021). Therefore, the more an individual participates in volunteer efforts, the more likely there will be a spillover of pro-environmental behavioural changes among volunteers (Dresner et al., 2014). Volunteer efforts can also foster a sense of community that helps combat scientific denial and fascism regarding environmental issues by strengthening individual identity and belonging. (Arbeit et al., 2020; Van & Packer, 2021).

Despite the benefits of involving local stakeholders in solving environmental issues, there are also several scientific, economic, and social implications of considering local communities. As stated before, allowing citizens to participate in solutions to environmental problems can help facilitate pro-environmental behaviour on a societal scale and allow for the facilitation of knowledge which may not have been considered in scientific-based

recommendations (Dresner et al., 2014; Parks Canada, 2024; Reyes-García et al., 2018). However, economic and scientific benefits can also come from considering local communities when dealing with solutions to environmental problems. For example, local knowledge has commonly been used to increase the effectiveness of ecological restoration strategies by identifying what species to use as well as cultural keystone species, which sites to focus on, guiding restoration processes with long-term experience, and even designing and implementing restoration monitoring programs (Reyes-García et al., 2018). Involving local communities in scientific approaches to environmental problems can also have several economic benefits. In addition to intrinsic values, healthy ecosystems provide several services, such as clean water and air, healthy soils, culturally important artifacts, food, and other resources essential for human wellbeing. Involving citizens in solutions to environmental problems can also provide short-term and long-term employment opportunities, creating positive ecological and economic feedback loops (Gann et al., 2019). Therefore, involving local communities can help create economic, social and scientific benefits by guiding scientific knowledge based on community intel.

Potential Counterarguments to Involving Local Communities in Environmental Solutions.

Despite the many benefits of involving local peoples in solving environmental problems, there are several counterarguments against their inclusion. For example, the “Ecological Indian” stereotype portrays Indigenous peoples as the ideal environmentalists, creating an impossible standard that, when violated, leads to harsh criticism regarding Indigenous peoples as contributors to environmental crises (Bell, n.d.; Few For Change, 2021). This viewpoint neglects the harm colonialism has inflicted on Indigenous communities, contributing to poverty and forcing reliance on unsustainable resources, with a poverty rate of 19.5% for Indigenous peoples off-reserve (Employment and Social

Development Canada, 2021; Bell, n.d.; Fernández-Llamazares et al., 2020). This viewpoint also overlooks the role of large post-colonialist companies in environmental harm and shifts the blame for these effects onto Indigenous peoples (Fernández-Llamazares et al., 2020; Few For Change, 2021). Therefore, involving Indigenous peoples in these discussions does not only allow for the scientific, economic, and social benefits they provide but can also help to unravel this stereotype by diversifying communities, effectively reducing intergroup bias through the fostering of cross-group friendships and exposure (Bai et al., 2020; Van & Packer, 2021).

Conclusion

In the end, despite the importance of scientific recommendations when solving environmental problems, local stakeholders should also be considered in finding solutions to these issues. Local and Indigenous knowledge can help facilitate scientific-based approaches to climate change, ecological restoration, and conservation while increasing individuals' pro-environmental behaviour and providing economic opportunities and benefits. The exclusion of these individuals can also have harmful social impacts, especially on communities vulnerable to these environmental issues. Therefore, although scientific-based approaches help solve environmental problems, including local stakeholders can create many benefits to the facilitation of this process and mitigate the harm done to communities vulnerable to these environmental issues.

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