Abstract

Conservation has become an urgent challenge. Consider the following:

- Every 20 minutes the world adds 3,500 human lives and loses 1 more species, 27,000 species lost a year;
- Every 60 minutes 240 acres of natural habitat are destroyed;
- 70% of the worlds known species risk extinction if global temperature rises by more than 3.5 degrees Celsius;
- 20% of the world's species could be gone in 30 years;
- 80% of the decline in biological diversity is caused by habitat destruction.

While protected areas have become the safest way to ensure biodiversity conservation, many protected areas, particularly those in developing countries, face various forms and levels of threats, from climate change and human encroachment, which can undermine conservation goals in the long run. Indigenous knowledge about biodiversity and conservation is valuable and can be used to sustainably manage protected areas; however, indigenous communities continue to be marginalized due to the belief that their values and behaviors do not align with the overarching mission of conservation. In addition, in many protected areas, governance authorities do not recognize self-governance systems, means of livelihoods, rights, knowledge and practices of local communities

The objective of this research is to explore the extent of local knowledge and awareness of biodiversity, conservation and protected area management of indigenous communities at Khuvsgol Lake National Park, Mongolia. It investigates current levels of biodiversity awareness and explores perceptions toward conservation values and park management governance. A unique aspect of this study explores new communication tools and asks if the emergence of ICT, such as mobile phones can be used as a new channel of communication between protected area authorities and indigenous communities that can help foster positive attitudes toward collaborative conservation action.

Results of this research show that most indigenous communities at Khuvsgol Lake National Park have a high awareness of existing biodiversity and held positive attitudes toward nature conservation and protected areas; however, insufficient knowledge of park rules and low levels of trust between local residents and park authorities may undermine conservation objectives in the long run. I identified an unequal share of economic benefits from tourism and preferential treatment toward elite business owners as a source of conflict. Limited information channels and poor communication between local residents and park authorities are also a source for low-level participation in conservation activities. Leveraging the increasing use of information communication technology, such as mobile phones, can serve as a new mechanism for improved information sharing and transparent reporting between local communities, conservationists and protected area authorities.

In investigating the effectiveness of using information communication technologies (ICT) such as short-message service (SMS) and interactive voice recordings (IVR) to communicate information about park governance and conservation values to indigenous communities at KLNP I found that a majority of participants, particularly females and those between 10-29 with a high school or university level education, responded favorably to receiving information via SMS about protected area management and conservation values with many improving their knowledge on the rules and regulations and conservation efforts at the park; however, most participants failed to utilize IVR as a means to engage park authorities with environmental and conservation issues. These results suggest that despite the growing use of mobile phones and access to the Internet as a source of information, ICT is not a substitute for in-person interactions.

Mounting conservation challenges such as climate change, human encroachment and limited managerial resources require a new collective intelligence and collaboration from all stakeholders if long-term conservation outcomes are to be achieved. Institutions must recognize that they cannot solve the challenges of conservation alone. In the face of these enormous challenges, conservation policy will want to utilize all available communication channels to share knowledge, build capacity and establish partnerships with local stakeholders to ensure conservation efforts are maximized. Limited financial resources make harnessing ICT, such as SMS, IVR and social media platforms such as Facebook,

including those with geo-spatial reporting capabilities, a viable option in fostering communications channels and feedback loops with remote communities, however, transparent and inclusive forms of relationship building including local meetings, workshops and training seminars, should be prioritized in order to create a trusting environment. Conservationists and park authorities that try to establish trust with local communities will more likely avoid conflict that will allow for conservation actions to flourish.

Keywords: biodiversity; conservation; information communication technology; Mongolia; protected areas; protected area management