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EDITORIAL

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Increasing women's participation in community-based conservation: key to success?

Ensuring that both men and women benefit equitably from conservation and development programs is likely to increase the long-term success of both conservation and development goals. However, despite numerous international agreements and national policies highlighting the important relationship between gender, environment and sustainable development, implementation is often weak and gender is often neglected or inadequately addressed in conservation initiatives (Westerman and Benbow 2014). Since women play critical roles in natural resource use, information transfer, and societal reinforcement of resource use practices (Agarwal 2009), there is a need to ensure that they are as well integrated into community-based conservation projects as men at all levels, from micro-development projects to management and decision-making structures. Cultural practices and traditional gender roles may make this challenging; however, such an approach could substantially improve the outcomes of conservation and development actions.

In Madagascar, there is currently an urgent need and also an opportunity to mainstream the integration of gender in conservation planning and implementation. Madagascar holds some of the most unique and biodiverse ecosystems on Earth, but is currently facing an environmental crisis that threatens both its biological wealth and the human livelihoods that depend on it. Madagascar's forests are among the most threatened ecosystems in the world, and support about 14.5 million people (ca. 65% of the population) who rely on forest resources for their subsistence (Chao 2012). Efforts to stem this crisis have led to a rise in community-based conservation initiatives in Madagascar including the Government's recent earmarking of 94 new protected areas totaling more than 6 million hectares and about 10% of the remaining forest. These new protected areas will each be tied to a community-based conservation effort run through a local or foreign NGO. While this is a giant leap in addressing Madagascar's environmental crisis, there will be significant challenges in implementing and effectively addressing the coupled environmental and human dimensions. Given the high dependence of the nation's people on forest resources (e.g., for food and construction), the successful integration of both men and women into these initiatives will be critical for their success.

The importance of a gender-responsive strategy to conservation is also addressed in decisions and recommendations set forth by the Convention for Biological Diversity (UNEP 2010, 2014), for which Madagascar is a party. As such, there has been a recent increase in gender considerations in conservation initiatives throughout the island. This advancement is promising; however, there is still a great need for better integration of this approach in many of Madagascar's current protected areas and a great opportunity to mainstream this approach as the newly decreed areas for protection become a reality. This article discusses the relevance and

challenges of incorporating gender considerations to the conservation and sustainable use of biodiversity in Madagascar and offers some strategies for implementation.

WHY INTEGRATION OF WOMEN MATTERS

The majority of Malagasy people live on under \$2 per day; and therefore, they depend heavily on natural resources for their subsistence, for which women play an under-recognized but significant role. Use of forest for rice agriculture, called 'tavy', forms the basis of subsistence for many rural communities and is practiced by both men and women, who share rights to ownership and inheritance of forest land (Widman 2014), and participate in working the fields and selling their product in the market. Women also use natural resources to directly provide for their families such as fetching water; harvesting crayfish, fruits, and leafy vegetables for consumption and sale; and collecting non-timber forest species to weave mats and baskets, to be sold in local markets or used by the women's families for their everyday needs (Järvillehto 2006). Men, on the other hand, may traditionally collect wood for fuel, construction or sale, harvest honey and medicinal plants, tend to cattle, and in some regions, hunt bushmeat for consumption. When attempting to offset the costs associated with reduced access to these critical resources, it is important for community-based conservation initiatives to consider the needs of both men and women in order to enlist community support and ensure success of the program.

While both genders from rural households will experience costs from restricted use of natural resources, women may be more negatively affected because of their reduced alternative economic opportunities and more limited access to natural resources. For example, Madagascar, currently ranks 120th out of 128 countries listed on the Women's Economic Opportunity Index (Economist Intelligence Unit 2012). This lack of earning alternatives may reduce women's abilities to compensate for restricted access to natural resources, thus reducing their contribution to their family's well-being, which may, in turn, diminish their status and equity in society. Even if the limited jobs within protected areas are staffed by both men and women, protected area management can create or increase gender imbalances in access to natural resources, which may have repercussions for women's status in society and their attitudes about conservation programs. For example, when forest use is restricted in southeastern Madagascar, women have been shown to avoid entering the forest to carry out their traditional resource use practices more than men because of the societal belief that women are more likely to get caught by park agents (Järvillehto 2006). If women are more affected than men in their ability to fulfill their traditional role in providing resources for their families and compensation for resource opportunity loss is also biased towards men, women's perceived value and status in society could fall. This inequity may affect not only gender-structures but the success of development and conservation goals that rely on community support. Thus, if gender issues are not adequately addressed in natural resources management efforts, gender inequities may be unintentionally exacerbated with long-term consequences for women's roles in society and attitudes toward protected-area management may suffer.

Women can also be important actors in conservation and natural resource management in many ways. Through their use of and connection with natural resources in their daily life, women

gain extensive ecological knowledge, essential in activities that could strengthen natural resources management. For example, it would be useful for reforestation initiatives in zones made accessible to local villagers to know the attributes of species valued by both men and women, such as medicinal plants, timber and non-timber species. In addition, women have a great potential to spread knowledge and to influence societal views in Madagascar, because they tend to be highly connected socially, and they play an important role in passing on knowledge, culture and values while caring for and raising children. Women can also strongly influence men's roles in the management and use of natural resources. For example, in East Africa, women's verbal and non-verbal behaviors towards men have been shown to encourage bushmeat hunting by men because they place high value on the access to meat and cash as well as to the bravery of male hunters (Lowassa et al. 2012). In Madagascar, there is also a tendency for important household decisions to be made by couples jointly, and women often manage the household money, giving them a strong position on household decisions and activities that may relate to natural resource use and exploitation in protected areas (Järvillehto 2006).

CREATING GENDER-RESPONSIVE STRATEGIES

To integrate the involvement of women in conservation initiatives, there is a need for a clear, strategic, gender-responsive plan that takes into account the specific needs of men and women and the gendered inequities that may prevent women from benefiting from natural resources management (Agarwal 2009). Gender-responsive policies consider the different societal roles and places of men and women, their interests as well as their cultural and traditional settings (Otzelberger 2011). Such approaches have been recently outlined at the conference of the parties to the Convention on Biological Diversity (UNEP 2014), which present valuable tools for natural resources management. The Nature Conservancy (2015) has also developed useful toolkits that outline specific steps organizations can take to create a strategic plan that integrates gender into conservation projects. Essentially, gender integration needs to be made explicit in the development and implementation of conservation approaches, and frequent assessment during and after the project should be done to ensure its effectiveness.

STRATEGIES FOR INTEGRATING WOMEN IN CONSERVATION PROJECTS

The establishment of sustainable micro-development projects for women is a useful strategy that could greatly improve equity in benefits as well as provide incentives for women to be involved in natural resource management. For example, several NGOs working in Madagascar have created opportunities for women living in areas adjacent to protected areas, enabling them to perform profitable income-generating activities, such as producing and selling high-quality silks and embroidered products (e.g., Azafady, Centre ValBio), running business that sell fuel-efficient stoves (e.g., Conservation Fusion), and performing alternative coastal livelihood activities such as aquaculture (e.g., Blue Ventures).

Although micro-developments projects targeted toward women promote gender equality, it is not enough. An important strategy is to empower women in decision-making processes. The settings of community meetings, where management decisions are often made, do not often encourage the participation of wo-

men; and although women are usually not formally excluded, they are often reluctant to speak up in mixed-gender meetings because of cultural expectations (Järvillehto 2006, Westerman and Benbow 2014). This is illustrated by the Malagasy saying, "aza manao akohovavy maneno", which means "do not be the crowing hen". It is, therefore, particularly important to find ways to motivate women to actively participate in decision-making structures. For example, park managers could organize separate women-only meetings to discuss issues related to conservation and resource management and encourage the involvement and election of women in park-related committees. This lack of women representation in community meetings also occurs because women are often busy with household duties and childcare, preventing their equal participation (Westerman and Benbow 2014). Thus, one way to increase women's involvement would be to consider women's needs, such as offering childcare during meetings, holding the meetings at times when women have more time (e.g., when they are more likely to be away from domestic duties), providing transportation to meetings or even arranging for venues closer to villages.

Improving women's health and providing them with accessible health care can also represent powerful incentives for women to become more involved in conservation actions. Their dependence on natural resources may intensify specific health issues and safety concerns both for them and for their household. For example, women using firewood as a main source of energy may suffer from chronic pulmonary disease (Wan et al. 2011). Also, women tend to be primary care-givers for sick family members, and therefore have an interest in improving the health of their communities. However, living in remote villages with poor road infrastructure often makes it difficult to access health care services. In addition, given that significant population growth, which is the case in Madagascar (at a rate of 2.62%, Index Mundi 2014), can increase anthropogenic pressures on natural resources (Wan et al. 2011), taking into account women's reproductive health is also a beneficial strategy. This includes providing accessible family planning services to women, and/or training female community-based health agents to provide services at the local level (e.g., Dolch et al. 2015, Robson and Rakotozafy 2015).

Another crucial strategy includes training and educating local women who, in rural areas often have had very limited educational access. This may increase their opportunities to benefit from economic opportunities, and may enhance societal support for conservation and development initiatives given women's propensity to spread knowledge within their communities.

ASSESSING PROGRAM EFFICACY

While several major conservation NGOs and policy makers have begun to incorporate gender into conservation projects in Madagascar, it is unclear how equitable they are or how they have contributed to success in conservation outcomes. Very little research has been published that examines gender dimensions but represents an important direction of future research. There is a need to find a way to quantitatively and qualitatively assess and report the outcomes of such programs in a constructive way that avoids conflict of interest arising from self-assessment of organizations seeking continued donor support. Organizations should be open to learning and sharing knowledge gained from both successful and failed measures with the vision of contributing and making progress towards a larger conservation goal. Although

there are challenges to Madagascar's expansion of protected area networks, the opportunities are greater still, including the mainstreaming of effective approaches and the development of appropriate assessment techniques and results reporting. With these tools in hand, new and established programs may improve their implementation strategies to the benefit of both humans and the ecosystems on which their livelihoods depend.

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