Biodiversity
Publication details, including instructions for authors and subscription information:
http://www.tandfonline.com/loi/tbid20

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Available online: 03 Aug 2011

To cite this article: Robert D. Sluka, Martin Kaonga, Janice Weatherley, Vijay Anand, Daryl Bosu & Colin Jackson (2011): Christians, biodiversity conservation and poverty alleviation: a potential synergy?, Biodiversity, DOI:10.1080/14888386.2011.599780

To link to this article: http://dx.doi.org/10.1080/14888386.2011.599780

BIODIVERSITY
2011, 1–8, iFirst

FORUM

Christians, biodiversity conservation and poverty alleviation: a potential synergy?

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(*Received 13 October 2010; final version received 22 April 2011*)

Introduction

Globally there are approximately 2 billion people who identify themselves in one form or another as Christian (Barrett, Kurian, and Johnson 2001), believing in God as the creator of the world, and of nature. Conservationists don't readily associate the term Christian with biodiversity conservation, but some may be aware of efforts by various Christian organisations, such as World Vision and Tearfund, to alleviate poverty through activities such as education, digging wells, building buildings, providing medical care, job creation and utilisation of non-timber forest products, to name a few. The imperative to care for the poor is found consistently throughout the Bible and we will not try to provide an overview here (c.f. Hughes and Bennett 1998). As Christians review their stewardship roles, many emerging community-based conservation projects are motivated by the Christian faith. However, sceptics have questioned the viability of a variant conservation approach that combines Christian principles and beliefs, biodiversity conservation and poverty alleviation.

In a famous article in 1967, Lynn White blamed Christianity for our ecological crisis (White 1967). While Schaeffer (1970) acknowledged that, in practice, many of White's accusations were true, Christian faith actually points towards a stewardship ethic (Van Dyke et al. 1996; Tillett 2005; Berry 2007; Bookless 2008) and yet this message has often gone unheard outside of very small circles. Some recent publications (e.g. Regosin and Frankel 2000; Garner 2003; Orr 2005; Stuart et al. 2005) have again caused Christians working in the field to respond by both acknowledging the slowness of some Christians to respond positively to conservation and the convergence of Christian teaching as a source of hope for biodiversity conservation. The ubiquitous and persistent nature of personal faith and its impact on communities demands that Christian groups are engaged in biodiversity conservation and poverty alleviation. However, there are few examples in the literature of this being done successfully. Our thesis is that there are a growing number of Christian groups effectively working for biodiversity conservation and poverty alleviation.

There is an increasing volume of literature focussing on Christian environmentalism and hundreds of small, un-associated, local, national and global Christian groups focussing at least partially on environmental conservation or 'creation care', a term that is used within Christian communities. This term does not refer to a theory of origins, but refers to a particular Christian doctrine regarding the Christian perception of God as a creator who has delegated responsibility to human beings to care for the earth. This linguistic framework sets environmentalism squarely within Christian doctrine, but poses difficulties for non-Christians who may find the use of the term 'creation care' difficult to understand, much less use. Additionally, the term 'stewardship' is often used to denote wise use of resources and is increasingly being applied to the environment (Berry 2006). The authors simply point this out as the growing number of Christians involved in environmentalism is developing a Christianised language to set biodiversity conservation within theological constructs that are considered orthodox. Standard search engines may not reveal the extent to which Christians are involved in this endeavour.

Into this milieu, A Rocha[1] began its work in 1983 at one site in Portugal. Almost 30 years later, this NGO has expanded its work to 20 countries across the globe. At the core of the work is a commitment to view biodiversity and poverty alleviation from a Christian perspective. Projects are frequently cross-cultural in character and share a community emphasis, with a focus on science and research, practical conservation

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ISSN 1488–8386 print/ISSN 2160–0651 online

DOI: 10.1080/14888386.2011.599780
http://www.informaworld.com

and environmental education. Several A Rocha projects are situated in areas where poverty alleviation is a necessary component.

In this paper the authors assert that Christians are doing effective biodiversity conservation and poverty alleviation. We illustrate this using three case studies from both Asia and Africa. We show that it is important to understand why we use the modifier 'Christian' in this discussion as many who are involved in this endeavour are motivated to do so because of an underlying religious motivation for action. Additionally, we paint a picture of what could be if large portions of those who identify themselves as Christian wholeheartedly engage in both biodiversity conservation and poverty alleviation. The potential for engaging 2 billion people is staggering.

Ghana case study

Mole National Park is the largest protected area in Ghana and home to its largest populations of Savannah Elephants, as well as Lions, Leopards, African Buffalo and Roan Antelope. It is bordered on all sides by about 30 poor communities that rely on natural resources, often from within the park. Harsh environmental conditions force these communities to live from hand to mouth, not least during the long dry season, and drive them to undertake a range of unsustainable land use practices such as poaching wild animals and tree-cutting for wild honey harvesting and firewood. This has often led to conflict between these communities and those working to conserve wildlife within the Mole National Park.

A Rocha Ghana[2] has been working since 2005, with the Collaborative Resource Management Unit of Mole National Park, district assemblies and fringe communities in building local consensus and support for sustaining the ecological relevance of Mole National Park. A Rocha Ghana's first engagement with fringe communities sought to capitalise on the strong belief systems of local people and used that as a basis for building environmental consciousness in members of rural communities on the fringes of Mole. The programme identified the various religious faith groups as well as traditional environmental practices that conserve natural resources, with a team of both Christian and Islamic scholars. Environmentally focussed faith aligned messages were then delivered to both Christian and Islamic groups in twelve fringe communities. Several observations were made during the execution of this programme. Key amongst those were that community members exhibit 'polygamous faith practices' as there is a higher inclination towards traditional worship and its associated activities which is independent of whether one is a Christian or Muslim. Secondly, people have strong commitments to their respective religious inclination be it Christian, Islam or traditional, the major religious groupings identified in communities around Mole. However, poor living conditions and a lack of sustainable livelihood options have contributed to eroding respect and adherence to religious admonitions on creation care.

Figure 1. Women who live near Mole National Park being trained in the use of a shea butter extraction machine. Previously this was a very slow, labour-intensive process. (A Rocha Ghana)

Our earlier commitment to understanding people's inherent motivations on how and why they care for nature, paved the way for engagements with four adjoining villages to strengthen community participation in the management of the park and to ensure communities benefited from conservation activities. A Community Resource Management Area (CREMA) with a constitutional and legal framework has been established which gives these communities the authority and incentives to sustainably manage and conserve the local natural resources. This conservation strategy secured biological diversity in the park through the implementation of eco-friendly land use systems in off-reserve areas and devolution of management authority. The project provided a start-up package, which included capital, equipment, and training in agro-processing and utilisation of non-timber forest products (Figure 1). The package also promoted income generating activities like processing of cassava and shea nut, and bee keeping.

This has already resulted in a number of achievements, namely: a deeper commitment from local communities to use natural resources sustainably; demarcation of 681 km^2 of communal land as a core management area with access and use regulations supported with by-laws; a drastic reduction in illegal hunting and wildlife returning to areas in the immediate vicinity of target CREMA villages. Many individuals benefited directly from natural resource based enterprises such as beekeeping and local communities received US$7100 in 2009. The Murugu-Mognori CREMA, which is 268 km^2 receives an annual revenue of US$4,000 from the 'Mognori Eco-Village' ecotourism initiative. Furthermore, 72 households have enjoyed a 220% increase in household income from beekeeping alone and 30 households now enjoy additional income and improved nutrition from vegetable production. In addition, provision of low-cost technology has reduced time spent on processing agricultural produce. The positive results from this project have resulted in requests from neighbouring communities for similar projects. This has informed and afforded the initiation of another CREMA, known as the Kumbo CREMA, which also involves two communities Yazori and Kaden adjacent to the Murugu-Mognori CREMA.

Apart from CREMAs, A Rocha Ghana as a Christian conservation organisation has been delivering a faith-based environmental message to local churches to help people rediscover their spiritual basis for environmental action. The Biblical basis for responsible environmental management has been presented, explaining that people have been entrusted with careful stewardship of the Earth. Engaging communities through motivating those who are part of a church community can be highly effective in a country like Ghana where 69% of people identify themselves as being Christian.

India case study

A Rocha India[3] concentrates its efforts around the Bannerghatta National Park, near Bangalore in Southern India. Much of its work focusses on the conservation of the Asian Elephant (*Elephas maximus*) a flagship species for conservation in India. The Asian Elephant is classified as being 'endangered with a decreasing population trend' by the IUCN Red List and in urgent need of effective conservation. However, the survival of the Asian Elephant continues to be threatened by fragmentation and degradation of natural habitat, poaching for ivory and human-elephant conflict.

Due to the proximity of people's homes to the Bannerghatta National Park, the livelihoods of many families are at great risk from raids by wild Asian Elephants. The damage to agricultural crops by elephants is a contributory factor to their poverty. For example, in one village, the economic loss to the village due to crop damage in the last four years was approximately $4730, a high amount where the average annual family income is less than $780. Solutions are therefore needed to decrease conflicts between the farmers and elephants to benefit both the people and the wildlife.

A Rocha India has focussed on reducing human-elephant conflict, in particular by piloting the introduction of rope barriers smothered in chilli, tobacco and oil, which have shown to be effective in keeping elephants away from crops (Sitati and Walpole 2006) (Figure 2). Initially, success was achieved with a Christian farmer who greatly appreciated the involvement of A Rocha. His involvement and support was essential as he has enabled new methods for deterring elephants to be tested and demonstrated to other farmers that they work, helping to build trust with the local community. Some of the farmers call A Rocha, 'the rope people' in their local language, because they have seen the success of the chilli-tobacco rope barrier.

A Rocha India is the first conservation organisation in India to have a Christian basis. Although secular conservation organisations work on similar issues across India, the work of A Rocha is considered to be unique because of the motivation behind it and its philosophy of caring for God's creation. A Rocha India believes that it is this distinctiveness that draws people from many walks of life and faiths to come and work with them. Although only a relatively small percentage of people in India are Christians, religion

Figure 2. A Rocha India has shown that fixing ropes, smeared with a mixture of oil, chilli and tobacco, around farmers' fields on the edge of Bannerghatta National Park reduces crop damage by elephants. (A Rocha India)

plays an important role in public and private life and the spiritual motivation behind A Rocha's work is of interest to people. Additionally, A Rocha India is playing a pioneering role in awakening an interest in 'creation care' amongst local Christians and churches who have not heard of it before and thereby also inspiring them to become involved in conservation work.

Kenya case study

The Arabuko-Sokoke Forest is the largest remnant of dry coastal forest in East Africa (Bennun and Njoroge 1999). It has been ranked by BirdLife International as one of the most important forests for the conservation of threatened birds on mainland Africa (Collar and Stuart 1988) and together with Mida Creek, forms part of a UNESCO Biosphere Reserve. The forest is crucial to the survival of six globally threatened birds, which have been recorded from a few coastal forests in Kenya and northern Tanzania. The forest contains 90% of the world's population of Golden-rumped Elephant Shrew (*Rhynchocyon chrysopygus*). Other rare mammals include the Sokoke Bushy-tailed Mongoose (*Bdeogale crassicauda omnivora*) and Ader's Duiker (*Cephalophus adersi*) – Africa's most endangered antelope which was thought to only occur here and in Zanzibar, but which has recently been discovered in the Boni-Dodori Forests north of Lamu[4]. Mida Creek, covering 32 km^2 and adjacent to the forest, is home to a productive mangrove ecosystem. The open waters of the creek are now recognised as important feeding areas for endangered juvenile Green Turtles.

Roughly 104,000 people live in the fifty or so villages bordering the forest. Most of these people are subsistence farmers, growing enough maize, cassava and beans for themselves and their families. Although threats such as excisions (the lifting of legal protection so that land can be sold off for development) and titanium mining face the forest, subsistence use by local people is probably the single greatest threat. A recent study showed that pole poachers have depleted the forest of mature, seed-producing trees and now resort to cutting younger trees, with serious consequences for the forest (Waters, Jackson, and Jackson 2007). Hunting for food is a direct threat to several of the endangered forest mammals. Much of the population around Mida Creek depends directly on the mangrove forest for timber and wood fuel. Mida Creek is threatened by over-fishing and mangrove cutting.

A Rocha Kenya[5] was established in 1999 and has focussed on protecting important bird areas on the north Kenyan coast, especially the Arabuko-Sokoke Forest and Mida Creek. Through discussions with various members of the local community it became clear that one of the main drivers of illegal logging in

Figure 3. One of the tree canopy platforms built by A Rocha Kenya to attract tourists into the Arabuko-Sokoke Forest. (Bethan Harris)

Figure 4. Carolyn, one of the students who attend secondary school thanks to the ASSETS eco-bursary programme. (Melissa Ong)

Arabuko-Sokoke Forest was the need of parents to raise income to pay fees to send their children to secondary school. Whereas primary school is subsidised by the government and therefore more affordable, the comparatively high cost of secondary school fees means few families can afford it. In the year 2000, in Malindi District (where the project is located) 23,000 out of 25,000 children who qualified for secondary school did not attend, largely because they could not afford it. A Rocha Kenya therefore set up ASSETS (the Arabuko-Sokoke Schools and Eco-Tourism Scheme) which aims to conserve the forest whilst at the same time enabling families to benefit directly from its conservation by raising income for community member's secondary school fees, thereby decreasing one of the drivers of illegal logging.

ASSETS has enabled eco-tourism facilities to be constructed including a suspended walkway, a nature trail and two tree platforms (Figure 3). All of the proceeds raised through the use of these facilities go directly into an eco-bursary fund for school fees which local children can apply for, which is managed in partnership with schools and local community leaders. As of September 2010, 378 children attended secondary school thanks to ASSETS bursaries, 144 of which have already graduated (Figure 4). A number of other activities are also undertaken so that parents and children are aware that the eco-bursaries depend on

conservation of the forest, such as environmental education, water conservation initiatives and litter clean-ups and they must agree to refrain from illegal logging and poaching. Additionally, ASSETS beneficiaries are provided with tree seedlings to grow their own woodlots to reduce pressure on the forest, and tree nurseries have been established in local schools. A monitoring scheme was developed in 2007 which to date has shown that parents of ASSETS students show a strong protective attitude toward the forest, environmental awareness has increased, and participants explicitly linked the program and forest conservation with their children's access to education.

Discussion

Religious motivation

The common feature of the three community-based conservation projects in this study is that they are based on biblical principles and values. In northern Ghana, A Rocha has been helping churches to rediscover their role as stewards of God's creation. Understanding that God who created the earth loves it and has given us the responsibility to care for it has been a key tenet of the Christian faith. Although northern Ghana is predominantly a Muslim area, the influence of the Christian communities in these project areas appears to be strengthening the perception and practice of creation care. Similarly, building the capacity of the Church in Kenya and India to encourage, promote and practice conservation has been a major characteristic feature of these national organisations. This has taken the form of training church leaders and other Christians in creation care theology and principles of conservation. For example, A Rocha Kenya and another Kenyan organisation, Care of Creation Kenya, have recognised that mobilising the Christian population across the country could be a substantial force for conservation. To date over 1,000 national church leaders from many different denominations have taken part in seminars, conferences and practical training. This has inspired a range of small initiatives such as indigenous tree nurseries and reforestation, the use of appropriate technologies to save water and fuel, the practice of conservation agriculture, a reduction in pollution and more sustainable living. Harnessing the conservation principles in Christian belief and value systems is key to active involvement of local communities in biodiversity conservation and poverty alleviation, especially in areas with a significant presence of Christians.

If Christians can be shown that their treatment of the environment is a faith-related issue, this can have a dramatic and rapid impact on how they live in relation to the environment (Emmerich 2009). In the three case studies, staff members who are also motivated by their belief have played a significant role in helping Christians understand the theological underpinning for conservation. Also, by working with church leaders to explain conservation issues in a theological language that they can relate to, we find that we are able to bring an environmental message which is more likely to be accepted by Christian communities than a message from a secular conservation group which does not touch on its spiritual relevance. Once Christians are convinced of the link between conservation and faith, they are often highly motivated to act and do something about it even if they were not particularly interested in it before. In many rural communities where the majority of people are Christians, the church plays an important role in community life through which people already know each other. Once the leader of a church is convinced to get involved, the church can therefore provide a pre-existing structure through which to organise community-level conservation activities. Therefore, all community-based conservation projects in this study were underpinned by strong Christian values and principles.

Biodiversity conservation and poverty alleviation

The biblical command to love our neighbours naturally means that community-based conservation projects led by Christian organisations will consider the livelihood needs of resource-poor indigenous and local people as an integral component of their projects. The Christian worldview provides one in which both people and the environment are considered to be of intrinsic value, including individual species which are regarded as being important regardless of their usefulness to people or their economic value (Van Dyke et al. 1996; McGrath 2000). This can be helpful when involving Christians in the development of holistic approaches to tackling conservation issues, including natural resource management models in which it is vital to consider the needs of both wildlife species and communities (Prance 2007). For example, the conservation project in India has developed a chilli-tobacco rope to protect farmers' crops against elephants that have usually strayed into farmers' fields in off-reserve areas. Apart from resolving the human–elephant conflict, food security is assured in communities living on the fringes of Bannergatta National Park. In Ghana, local communities dependant on natural resources in the Mole national park have been assisted by the CREMA project to invest in processing of cassava and shea nut, beekeeping, dry season gardening, ecotourism and other income generating activities to alleviate poverty

and reduce the pressure on ecosystems in and around the park. Similarly, the ASSETS Project in Kenya provides bursaries to secondary school pupils in local communities around the Arabuko-Sokoke Forest, using proceeds from community-managed eco-tourism activities. These activities provide local communities with alternative livelihood systems to ensure ecosystems are sustainably used. The three case studies clearly demonstrate that conservation of biodiversity and poverty alleviation in project areas were intertwined.

The focus on biodiversity conservation is evident in all case studies. In India, the project is protecting Asian Elephants as a flagship species, whose populations are fast declining. In Ghana and Kenya, species and habitats are threatened by illegal hunting and logging, and unsustainable commercialisation of natural resources in protected areas. In all case studies, guided by Christian principles and values, elaborate conservation plans have been designed and implemented with communities to conserve biodiversity. A cursory review of the three projects suggests that community-based conservation projects based on biblical principles can deliver conservation and poverty alleviation objectives simultaneously.

While this evaluation of projects has indicated that the Christian faith has inherent attributes of stewarding creation and providing for resource-poor indigenous people and local communities dependant on natural resources, it is worth mentioning that long-term sustainability of this conservation approach should adequately consider the changing environment. As populations grow and the demand for additional sources of food, water, fuel and construction materials increases, the conservation approach will require modifications. It is also important to stress that, this approach has worked in areas where Christianity and biological diversity co-exist. Even then, some sectors of local communities could undermine conservation goals. For example, some illegal hunters in one CREMA in Ghana resisted the conservation projects until traditional rulers and District Assemblies assured them of adequate resources for development of alternative income streams. These cases emphasise the need to ensure that different focus groups in communities have equitable access to resources for their livelihoods.

Potential for engaging Christian communities

The total number of Christians worldwide has been estimated to be as high as 2 billion (Barrett Kurian, and Johnson 2001). Of course, not all of these would be active in a local church or be influenced by the institutional teaching of the faith. However, this represents a very large user group that is often under-engaged in relation to natural resource management. Studies have shown the huge contribution that Christian communities in the UK give to social development, for example, through the millions of person-hours given by volunteers towards projects in their local communities (Farnell 2001; WWF UK/ Social Development Commission 2005). Increasingly, a number of these projects are focussing on environmental themes. The interest among Christian communities is also evidenced by the growing number of books, articles, and websites devoted to Christians caring for the environment (e.g. Van Dyke et al. 1996; Tillett 2005; Berry 2007; Bookless 2008).

Additionally, the centre of density of Christians has shifted away from North America and Europe towards the Global South (Barrett, Kurian, and Johnson 2001). The large rise in numbers of Christians worshipping in local communities across South America, Africa and Asia represents a challenge to those in conservation, particularly as there is often an overlap between the countries with growing Christian populations and those with the highest levels of biodiversity, especially in the tropics. Will these communities adopt an environmental ethic rooted in the historic interpretations of Christian environmental stewardship or ignore this essential part of their faith? The case studies presented here suggest that many Christian communities are actively engaging in environmental conservation, yet much work remains given the scale of the conservation challenge. This reawakening has the potential to mobilise huge numbers of communities for environmental action.

Conclusion

The three case studies have shown that conservation projects designed and implemented based on Christian principles delivered both conservation and poverty alleviation objectives. Christianity teaches environmental stewardship and love for our neighbours. This belief motivates Christians to assist resource-poor indigenous people and local communities dependant on natural resources to develop sustainable livelihood systems, and hence coexist with nature. This conservation approach holds great potential for biodiversity conservation in geographical regions where there is congruence between significant Christian populations and areas of greatest biological diversity. These also happen to be areas where resource-poor local communities are located. This evaluation reaffirms the importance of faith as a primary motivator of individuals and local Christian communities. The experience of our work with Christians in conservation leads us to be

hopeful that this large user group of previously environmentally unmotivated individuals can make a lasting and significant contribution to conservation. Additionally, we believe that the characteristics and organisation of the Christian faith provide one useful framework for community-based natural resource management. Therefore, Christianity, biodiversity conservation and poverty alleviation are synergistic.

Acknowledgements

There are numerous volunteers and staff who have put many years into these projects. We would like to acknowledge this service unto God. We would like to thank Andy Lester, Chris Naylor, and Sir Ghillean Prance for helpful comments on drafts.

Notes

1. www.arocha.org
2. http://www.arocha.org/gh-en/home.html
3. http://www.arocha.org/in-en/163-DSY.html
4. http://www.zsl.org/info/media/press-releases/1522,1522,PR.html
5. http://www.arocha.org/ke-en/index.html

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