
*JOURNAL FOR THE STUDY OF
RELIGION, NATURE AND CULTURE*

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brontaylor@religionandnature.com

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Special Issue
Climate Change and Religion

Guest Edited by
Robin Globus Veldman, Andrew Szasz,
and Randolph Haluza-DeLay

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**Editor's Introduction:
Special Issues—Past and Future***

In 2006 a number of scholars set out to create a society and journal devoted to illuminating the relationships between what people variously understand to be religion, nature, and culture. We sought to do so from a wide variety of disciplinary, regional, and chronological perspectives. A central part of our strategy was to commission scholars to prepare special issues that would diversify the discussion and thus make it robustly interdisciplinary. Our editors not only dreamed up special issues and recruited experts to develop them, we threw open the doors to proposals from scholars to develop their own special interests.

We are pleased with the results so far. During the first five years of publication our special issues have considered the spiritual and ethical dimensions in Aldo Leopold's ecological philosophy; 'ecotopia' and the religious imagination; the motion picture *Avatar* and nature spirituality; the contested meanings of trees and forests in Indian Hinduism; the evolutionary origins and explanations for religious belief and practice; Christianity, scripture, and ethics in the work of James A. Nash; the religious lives of Amazonian plants; African sacred ecologies; animism and nature conservation among indigenous peoples; astrology, religion, and nature; and we began the *JSRNC* in 2007 with two special issues that explored a host of theoretical issues at the nexus of religion, nature, and culture.

The special issue in your hands, ably edited by Robin Globus Veldman, Andrew Szasz, and Randolph Haluza-DeLay, exemplifies the strength of our special issue efforts. Several issues ago (vol. 5.3), I urged an intensification of social-scientific research into understanding the role of religion in the quest for environmentally sustainable societies. Our current issue

* The editors of the *JSRNC* wish to acknowledge the support of The Rachel Carson Center for Environment and Society in the production of this issue of the *JSRNC*, as part of its research cluster's initiative in 'Natural Disasters and Cultures of Risk'.

takes a significant step in this direction, by focusing on the role of religion in fraught debates and responses to climate change and perceptions about it. Like many of our best issues, it poses as many questions as it answers, while demonstrating how important resolving these sorts of questions might well be. I hope the *JSRNC* will see more special issues devoted to whether, to what extent, and under what sort of circumstances religion promotes or hinders mobilization to address contemporary environmental problems.

While I commend this issue to you, let me also pose some questions for my scholarly colleagues: What special issues would you like to read? What disciplines, regions, and time periods are as yet underrepresented? What special issues might you propose and develop in the coming years to enrich the current discussion? While we do have a number of special issues in development, and we continue to receive a regular stream of individual articles and reviews, it is also a good time to brainstorm future directions of the journal. I hope a number of you will soon be in touch to discuss your ideas in this regard. In the meantime, I hope you will find our latest issue of the *JSRNC* as valuable and interesting as I have.

Bron Taylor
Editor in Chief

**Introduction: Climate Change and Religion—
A Review of Existing Research**

Robin Globus Veldman

Department of Religion, University of Florida,
PO Box 117410, Gainesville, FL 32611-7410, USA
rglobus@ufl.edu

Andrew Szasz

Department of Environmental Studies, UC Santa Cruz,
1156 High Street, Santa Cruz, CA 95064, USA
szasz@ucsc.edu

Randolph Haluza-DeLay

Department of Sociology, Kings University College,
9125-50 Street, Edmonton, AB T6B 2H3, Canada
randolph.haluza-delay@kingsu.ca

It has become increasingly clear over the last decade that if current trends continue, anthropogenic climate change will have severe, possibly catastrophic, impacts on both natural and human systems around the globe over the next one hundred years (Solomon et al. 2007). If runaway warming is to be avoided, something dramatically different will have to be done.

But what? And, by whom? National governments? The United Nations? Environmental and/or social justice NGOs? Grassroots activists and campaigners?

A small but growing chorus of voices has suggested that the world's religions may, individually and collectively, prove to be critical actors as the climate crisis unfolds (see, for example, Gardner 2003; Posas 2007; Gerten and Bergmann 2012; Tucker and Grim 2001). Religions affect societies at every level, from the individual to the transnational. What they say and do about climate change—whether they encourage concern or help their adherents recognize and cope with the challenge—could, therefore, make a decisive difference.

But will they?

Although we have a large body of work on 'religion and nature', much less has been written about the specific question of 'religion and climate change'. Moreover, to date much of that literature on religion and climate change is theological and prescriptive, laying out arguments for why it is legitimate for believers/adherents of one faith or another to be concerned about climate change. Comparatively little can be characterized as empirical or social scientific, examining what faiths and their adherents are actually saying or doing about climate change. To our knowledge, this special issue will therefore be the first devoted solely to beginning to answer these questions from a social-scientific perspective.

Climate Change

Scientists have been investigating the possibility that human activity can alter the earth's climate since at least the 1930s (Weart 2003). By 2007, they had amassed enough evidence to state that '[w]arming of the climate system is unequivocal'.¹ In this pivotal report, the Intergovernmental Panel on Climate Change (IPCC), which is the leading international body devoted to coordinating climate change science and policymaking, also affirmed that the warming was the result of human activities, specifically those that lead to the release of greenhouse gases, rather than of some 'natural' (i.e. astronomical or volcanic or other non-human) process (Solomon et al. 2007). Scientists have further warned that the continued build-up of these greenhouse gases would result in dramatic changes at the global level, including sea level rise, coastal erosion, and increased frequency of droughts and floods.

Such changes are projected to harm millions of people all around the world. The poor are among the most vulnerable, as many of them live in low-lying or drought-prone areas.² If global temperatures were to rise even by only one to two additional degrees centigrade, for example, those living in already stressed regions would be unable to grow enough food to feed themselves adequately, leading to increases in the incidence of malnutrition, vulnerability to disease, conflict over resources, and pressure to migrate. In the developed world, economists have predicted that the economic impacts of climate change would also be substantial (Stern 2007). Further adding to the list of threats, the American military

1. [Http://www.ipcc.ch/publications_and_data/ar4/wg1/en/spmssp-direct-observations.html](http://www.ipcc.ch/publications_and_data/ar4/wg1/en/spmssp-direct-observations.html).

2. [Http://www.ipcc.ch/publications_and_data/ar4/wg2/en/spmssp-c-4-coastal-systems.html](http://www.ipcc.ch/publications_and_data/ar4/wg2/en/spmssp-c-4-coastal-systems.html).

and national security establishments have also warned that climate change would be a 'threat multiplier', triggering widespread social unrest, civil war, and ethnic conflict, causing weak states to fail, and unleashing mass migration (Szasz 2011).

The IPCC's projections are sobering enough, but the effects of climate change may even be more severe than it predicted in 2007. Indeed, the IPCC's consensus-based approach may lead it systematically to understate anticipated impacts (Oppenheimer et al. 2007). Research undertaken subsequent to the 2007 report has demonstrated that the pace of change has been faster and the impacts greater than the report predicted (Durack, Wjiffels, and Matear 2012; Barnosky et al. 2012). Although the worst effects may not hit for another one hundred years, many of the changes are already observable and—as some of our papers describe—have been significant enough to have already begun to impact people's everyday lives.

*Religious Engagement with Climate Change:
Assessing their Potential*

Although awareness of the magnitude of the problem of anthropogenic climate change has grown, the international community has been unable to mount an effective response. The Kyoto Protocol, a binding international treaty that established targets for the reduction of greenhouse gas emissions, came into force in 2005, yet its effectiveness was severely hindered by the refusal of the United States, which contributes about a quarter of the world's greenhouse gas emissions, to participate.³ Climate change has continued to be a highly contentious and polarizing issue in the United States, fueled by the efforts of conservative think tanks to disseminate skeptical views and outspoken skepticism from high profile members of Congress (Lahsen 2008; McCright and Dunlap 2000; Brulle, Carmichael, and Jenkins 2012). In the international arena, conflicts and controversies—largely reflecting the divergent needs and interests of developing and industrialized countries—have continued to obstruct meaningful progress.

3. The United States signed but did not ratify the treaty. This did not stop the treaty from becoming binding, but it did cause Canada, Japan, and Russia later to retract their commitments. Canada signed and ratified the treaty in 2002, but repudiated its commitment in 2011 because, in the environment minister's words, '[t]he Kyoto protocol does not cover the world's largest two emitters, the United States and China, and therefore cannot work'. Japan and Russia also signed and ratified the treaty, but later said that they would not take on new commitments after the original ones expired for the same reasons ('Kyoto Protocol' 2011).

With scientists issuing increasingly dire warnings (Hansen 2012; Barnosky et al. 2012), these delays in the policy-making and governance realms make it all the more essential that non-governmental institutions and actors take action. A number of scholars have argued that the world's religions could play an important role in this regard for four main reasons (see especially Gardner 2002, 2003; Posas 2007; Reder 2012; Tucker and Grim 2001; Wolf and Gjerris 2009). First, compared to other sectors of society—such as business, education, healthcare, and the various levels of government—religions tend to see themselves as having an explicit responsibility to address moral issues. Many also have a history of doing so. It is reasonable to hypothesize, therefore, that they would be likely to take up the issue of climate change, which many argue is a paramount ethical issue of our time (e.g. Gardiner 2011). They are also potentially well positioned in that they reach a broad audience of believers, some of whom accept and respect their moral authority and leadership. Even among those who do not find the leadership within their tradition to be compelling, the tradition itself, other believers, or personal religious practices can inspire and motivate concern for social issues. The number of people who could be potentially motivated by either means is impressively large when one considers the global presence of religious groups: some estimate that up to 84% of the world population identify with one of the major world religions.⁴ As pervasive and powerful forces in the lives of the majority of the world's people, religions are, at least in theory, well positioned to mobilize millions of people on the issue of climate change.

Scholars have also argued that religions may be able to encourage a response to climate change via their influence on believers' worldviews or cosmologies. Given the many anthropological studies demonstrating that religions shape adherents' perceptions and treatment of their natural environment (e.g. Rappaport 1967; Reichel-Dolmatoff 1976), the idea that the influence extends to climate change seems plausible—and indeed, the case studies included in this issue do provide evidence of such a relationship. Intriguingly, however, while the anthropological literature suggests that under the right circumstances, locally rooted indigenous religions are more effective than world religions at promoting ecologically sensitive behavior (e.g. Jacka 2010; Robbins 1995), the papers in this issue suggest that in the case of climate change this may not hold true. This is a key way in which the social-scientific studies

4. Here we mean to include a broad array of religious and religion-resembling phenomena. See Taylor 2010 and Saler 1993. The 84% estimate comes from www.adherents.com.

presented here may complicate existing understandings about the relationship between religions and climate change.

Religions are also thought to be well positioned to play a key role in addressing climate change because they have significant economic, institutional, and political resources at their disposal. They are, collectively, the third largest category of investors in the world.⁵ In some countries they also wield considerable political power. At the institutional level this influence enables them to reach a broad audience, not only through their own networks but also via interfaith groups such as the Parliament of the World's Religions, ecumenical groups such as the World Council of Churches, or faith-based relief and/or development organizations such as World Vision, Bread for the World, and the relief arms of a variety of specific denominations. Furthermore, institutions such as the Roman Catholic Church have enough wealth and power to exert significant independent influence when they so choose. Religious leaders' potential spheres of influence are not limited to the members of their faith, either, as the international recognition and respect that leaders such as the Dalai Lama and the Pope have gained can help draw attention to moral issues of their choosing.

Finally, religions are also thought to have potential because of their ability to provide social capital, that is, to foster relationships that enable communities to achieve collective goals (e.g. Smidt 2003; Swart 2006). Local faith communities are often among the first to respond in disaster situations, for example (Wisner 2010). Church affiliation is also one of the most common forms of association, in some countries (including the United States) reaching more people than political affiliation or voluntary associations (Smidt 2003). Worldwide, churches are hubs for the distribution of goods, services, and even emotional support to those who are at risk; this plays a role both locally and internationally via missionary and charity outreach activities (Clarke 2006). Through their ability to foster trust and strengthen social ties, religious associations are apparently well positioned to help local communities respond to climate change.

While there are good reasons to hypothesize that religions will play a key role in the global response to climate change, it is also important to recall that there are substantial obstacles to such action. Indeed, scholars may be overestimating their potential in various ways. Regarding religious leadership, for example, religious leaders may be reluctant to lead the way on climate change, fearing that their constituents would be

5. Alliance of Religions and Conservation, http://www.arcworld.org/about_ARC.asp.

uninterested or that they would see it as straying from the faith's central mission. Other religious leaders may choose to promote positive visions of the environmental future rather than lose adherents by preaching doom. Still other leaders may prefer to direct attention toward other-worldly goals such as salvation rather than this-worldly ones such as the maintenance of the biosphere. Finally, increasing numbers of leaders could decide to advocate against concern about climate change, as has already happened among some evangelical groups in the United States (Kearns 2007). Regarding religions' potential to influence worldviews, it may be that the inspirational power of religious discourse and sentiment will not actually be sufficient to counter the habits of inattention and apathy that are well entrenched in many developed nations (e.g. Norgaard 2011); this inspirational power may also be inadequate to overcome the skepticism and resistance that climate skeptics have encouraged (Lahsen 2008; McCright and Dunlap 2000; Brulle, Carmichael, and Jenkins 2012); or religious worldviews simply may not function to encourage concern about climate change (e.g. Mortreaux and Barnett 2009; Donner 2011). Regarding religions' institutional, economic, and political resources, these may prove inadequate to overcome those with a vested interest in maintaining the current carbon-based economy. And when it comes to social capital, religious communities may, for various reasons (some of which we have just listed), decide not to expend this capital addressing the issue of climate change. Finally, religions could also be obstructive in indirect ways, such as by sparking conflicts that reduce their adherents' ability to adapt to climate change.

In short, one can imagine many ways in which religions (in general) could fail to fulfill scholars' expectations, as well as why specific religions, leaders, denominations, or churches might fail. As social scientists, we recognize the potential for both outcomes, and as new research continues to be published, we urge scholars to weigh the evidence with a critical eye. In either case, whether religions fulfill scholars' expectations, and why some religions and some contexts may be more conducive to promoting activism than others, are key unresolved questions that will help scholars better understand the evolving global response to climate change, whether it is absent, anemic, or strong.

*Religious Engagement with Climate Change:
Examining the Reality*

No detailed review of global religious responses to climate change yet exists, and to produce one is beyond the scope of this introduction. It will nevertheless be useful to mention some highlights of religious

engagement so far, in order to contextualize the articles in this issue (see also Haluza-DeLay, forthcoming; Hulme 2009; Kearns 2012; Smith and Pulver 2009). The general observations we offer should be regarded as tentative, given the dearth of published research. It will also quickly become apparent that this overview is skewed toward the North American context, due again to a lack of literature. It is our hope that this special issue and a related edited volume currently in development will spur others to fill in both of these missing pieces (Veldman, Szasz, and Haluza-DeLay, work in progress).

Denominations

Many Christian denominations in the United States have issued unequivocal, powerful messages which declare climate change to be an urgent moral matter. Such statements generally argue that God wants people to care for and be good stewards of Creation; in some cases, the statements have also contended that because climate change is likely to hurt the world's poor first and hardest, addressing it is an issue of social justice. In the Roman Catholic Church, for example, both Pope John Paul II and Benedict XVI have advocated for 'climate justice'; Benedict has done so repeatedly in recent years and with increasing passion. All the 'mainline' Protestant denominations in the United States have issued statements and developed educational programs targeting climate change. As one might expect, similar positions have been articulated by Christian denominations that have been traditionally politically and/or theologically liberal, including the Unitarian Universalists and the United Church of Christ. More surprisingly, in 1995 the Seventh-day Adventist Church issued a statement urging governments to 'take steps necessary to avert the danger' of climate change, including joining the Kyoto Protocol and reducing their carbon emissions.⁶ Under the leadership of Ecumenical Patriarch Bartholomew, the Eastern Orthodox Church has also been quite active. Sometimes dubbed the 'green patriarch', Patriarch Bartholomew has long been an outspoken advocate for tackling all forms of environmental degradation, including climate change (Leichman 2009; Makrides 2008).

In terms of more concrete actions, some denominations have been more active than others. In 2009, for example, Methodist Bishops asked all Methodist pastors to discuss climate change in their churches and to reduce the carbon footprints of their episcopal and denominational offices. The Unitarian Universalists have a Green Sanctuary program that encourages each church to make its church buildings and grounds

6. [Http://adventist.org/beliefs/statements/main-stat8.html](http://adventist.org/beliefs/statements/main-stat8.html).

more energy efficient. Both Catholics and Lutheran aid agencies have shifted their disaster relief programs to help vulnerable communities cope with and adapt to extreme weather associated with climate change. Additionally, via organizations such as the Catholic Fund for Overseas Development (CAFOD, the aid agency of the Catholic Church for England and Wales) and Caritas International (a confederation of 165 Catholic relief, development, and social service organizations), Catholics have also actively lobbied the governments of developed countries to encourage them to join international efforts to cut carbon emissions (for further examples of concrete actions, see McDuff 2012).⁷ Lutheran World Relief has also integrated adaptation and mitigation into their sustainable development programming.⁸

On the other hand, other denominations have headed in the opposite direction, working to discourage concern over climate change and obstruct activists' efforts. Among American Evangelicals, who claim membership of around 30 million, a proposal to have the National Association of Evangelicals adopt the Evangelical Climate Initiative's declaration on climate change was met with fierce—and successful—opposition from influential, politically conservative evangelical leaders. Similarly, conservative Southern Baptists successfully opposed a proposal to pass a climate change declaration at the 2007 meeting of the Southern Baptist Convention. Other groups, such as the Jehovah's Witnesses, interpret climate change as the fulfillment of biblical prophecies about the end times rather than speaking of it as a problem to be remedied.⁹ Still other denominations have remained silent on the issue entirely, preferring to focus their energies elsewhere.

While a full evaluation of such efforts and counter-efforts is beyond the scope of this introduction, a few summary observations can be made: despite enthusiasm in some quarters, denominational efforts are very uneven; they do not yet appear to have galvanized mass support at the grassroots level; and it does not appear that denominations have made much headway in terms of getting their congregants in developed countries to make dramatic personal lifestyle changes or to engage in more aggressive tactics such as lobbying or protesting (Szasz 2012). It could be said, indeed, that religions are so far failing to live up to the more optimistic assessments of their potential, yet it is too early to come

7. <http://lwr.org/site/c.dmJXKiOYJgI6G/b.6319083/k.C41F/Climate.htm>;
<http://www.cafod.org.uk/news/campaigns-news/climate-change>;
http://www.caritas.org/activities/climate_change/its_the_climate_stupid.html.

8. <http://lwr.org/site/c.dmJXKiOYJgI6G/b.6319083/k.C41F/Climate.htm>.

9. http://www.watchtower.org/e/200808/article_03.htm.

to such a pessimistic conclusion. At present we can say that all these declarations that the faithful should be concerned and should engage with climate change have not produced the kind of responses they had hoped to inspire, but the situation remains open and fluid. More research is clearly needed to evaluate the impacts, strengths, and weaknesses of existing efforts and to evaluate better how realistic the hope is that they will catalyze large-scale change.

Coalitions and Alliances

Religions that individually endorse action on climate change have also tackled the problem by forming coalitions and alliances. Within national organizations, advocacy, education, and behavior change seem to be the most common foci; international organizations include many of the same foci, while also often developing and promoting adaptation and mitigation strategies (especially among the poor in developing countries). International coalitions working on climate change include the World Parliament of Religions, the World Council of Churches (WCC), the Alliance of Religions and Conservation (ARC), and the ACT Alliance. National groups (within the United States) include the National Religious Partnership for the Environment (NRPE), the National Council of Churches, the Coalition on Environment and Jewish Life (COEJL), the Evangelical Environmental Network (EEN), the Catholic Climate Covenant, and Interfaith Power and Light (IPL).

In terms of what international groups have been doing, the WCC has increasingly focused on climate change as a paramount issue (Reuter 2011), sending representatives to all United Nations climate change conferences since 1992.¹⁰ It has also coordinated with other religious groups, from Caritas International to the Asian Muslim Action Network, at the UN's yearly meetings (the 'Conference of Parties'), which assess progress in responding to climate change (Kerber 2011). The WCC also joined with nearly one hundred other religious and secular groups from around the world to sign the 'Interfaith Declaration on Climate Change', a document encouraging action on climate change that WCC representatives presented at several climate conventions, including the 2011 meeting in Durban.¹¹ For its part, ARC has partnered with the United Nations Development Program (UNDP) to help religious leaders of eleven major faiths develop seven-year plans of action to address climate change. In 2000, ARC also developed a 'Climate Change Partnership

10. [Http://www.oikoumene.org/en/programmes/justice-diakonia-and-responsibility-for-creation/eco-justice/climate-change.html](http://www.oikoumene.org/en/programmes/justice-diakonia-and-responsibility-for-creation/eco-justice/climate-change.html).

11. [Http://www.interfaithdeclaration.org/](http://www.interfaithdeclaration.org/).

Initiative' that resulted in fifteen countries agreeing to make it official policy to work with religions on climate change.¹² In addition, non-denominational faith-based organizations, such as Christian Aid and Tearfund (both UK-based Christian relief and development organizations), have incorporated climate change adaptation, mitigation, and/or advocacy into their programming.¹³

US-based coalitions and alliances have also been working steadily, though in some cases hindered by the heated debates over the reality of climate change. IPL, which focuses on promoting energy conservation, energy efficiency, and renewable energy at churches and temples, reports that it has helped hundreds of congregations reduce their energy consumption.¹⁴ Groups such as the COEJL, the Catholic Climate Covenant, and the EEN have embarked upon numerous campaigns to mobilize members of their respective faiths. For its part, the National Council of Churches and its members among the 'mainline' Protestant faiths lobbied in favor of Waxman-Markey, the Clean Energy Bill.

Beyond Christian Faiths

Websites that list official religious statements on climate change (such as the Yale Forum on Religion and Ecology), web searches, and searches for books from popular presses suggest that Christian faiths have been more active vis-à-vis the climate crisis than have other religious traditions.¹⁵ Beyond Christianity, representatives of many of the world's major religions—including Buddhism, Hinduism, indigenous religions, Islam, and Judaism—have issued statements advocating for a proactive global response to climate change.¹⁶ It is less clear at this point what further steps, if any, these groups have taken, but a few examples can be found.

12. [Http://www.arcworld.org/projects.asp?projectID=137](http://www.arcworld.org/projects.asp?projectID=137).

13. [Http://www.christianaid.org.uk/whatwedo/issues/climate_change.aspx](http://www.christianaid.org.uk/whatwedo/issues/climate_change.aspx); and http://www.tearfund.org/en/get_involved/campaign/climatechange/.

14. [Http://interfaithpowerandlight.org/](http://interfaithpowerandlight.org/).

15. We are aware that this may be an artifact of English language dominance in the academic sphere, or the geographical limits of our networks, which is precisely why more research into the interface of religion and climate change is needed. Anecdotal accounts from activists do, however, seem to substantiate the prevalence of Christian action compared to action from within other faith traditions. Rather than suggesting Christianity as superior, our observation should be construed as noting both the early momentum within Christianity and the considerable potential for other faith traditions to make similar headway.

16. It is not always clear how 'representative' these representatives are. The Buddhist Declaration on Climate Change, for example, appears to derive from the US context rather than to represent the Buddhist community worldwide. When examining such statements, it is therefore critical to investigate who is representing or

Within Islam, the Islamic Foundation for Ecology and Environmental Sciences (IFEES) in Britain has distributed materials about how Muslims can reduce their contribution to climate change, and the South Woodford Islamic center 'claims to be the first "carbon-neutral" place of Islamic worship in Britain' (Gilliat-Ray and Bryant 2011: 298). The faith-based relief and development organizations Islamic Relief Worldwide and Muslim Aid have also incorporated climate change into their programming.¹⁷ Also within Islam, as part of the ARC-UNDP partnership mentioned above, the Grand Mufti of Egypt, an influential Islamic leader, pledged to a seven-year action plan that included constructing green mosques and greening pilgrimage cities. At the same meeting, American and Israeli Jews pledged to reduce their carbon footprint by limiting meat consumption, and Shintos in Japan and Daoists in China also pledged to convert thousands of temples to green energy ('World Religious Leaders Promise Climate Action' 2009). Finally, in the UK, the non-profit Hindu Sevika Samiti reportedly participated in a campaign initiated in 2012 known as 'Climate Week' by promoting lifestyle changes that would reduce one's carbon footprint, as well as by holding talks about Hindu Dharma and the environment.¹⁸

When considering the apparent lack of participation on the part of non-Christian religions, it is worth noting that in countries such as the UK and the US, Christian organizations have received a disproportionate share of support from donor agencies, allowing them to become

interpreting the tradition. Secondly, the question of what counts as a world religion is complex and contested (Smith 2004). Our list of religions that have made statements about climate change includes only those religions that are ranked within the top 15 by number of adherents (see www.adherents.com/Religions_By_Adherents.html), as well as indigenous religions, which are sometimes classified as world religions. Many of these statements can be accessed at the Forum on Religion and Ecology's webpage on climate change, <http://fore.research.yale.edu/climate-change/statements-from-world-religions/>. Ohio Interfaith Power and Light also keeps a list, which was more up to date as this issue went to press: <http://www.ohipl.org/resources/faith-based-earthkeeping/climate-change-resources/climatestatements/>. Regarding Buddhism, the statement 'The Time to Act is Now: A Buddhist Declaration on Climate Change', which has been endorsed by the Dalai Lama, can be found here: <http://www.ecobuddhism.org/>. Millais (2006) also contains statements about climate change from 16 religious groups that are active in Australia.

17. [Http://www.islamic-relief.com/InDepth/2-12-environment.aspx](http://www.islamic-relief.com/InDepth/2-12-environment.aspx); <http://www.muslimaid.org/index.php/media-centre/763-muslim-aid-calls-for-a-radical-change-in-lifestyle-to-combat-climate-change>.

18. [Http://www.hssuk.org/samiti/](http://www.hssuk.org/samiti/). Climate Week is billed as 'Britain's biggest climate change campaign' according to the group's website, <http://www.climateweek.com/>.

more influential relative to other faiths in the international development scene; that many Christian organizations are headquartered in developed countries, where they may have more wealthy, educated constituents who are informed and concerned about issues like climate change; and that Christian denominations may be more effective because they are more hierarchically organized than some other religious traditions, such as Hinduism and Islam, which do not have one centralized authority that represents the faith globally (Clarke 2006). Further research is needed to establish whether the examples given above are indicative of a growing trend or of relatively thin engagement on the part of world religions.

Existing Research

As we have argued throughout this review, there are many significant gaps in the literature on religion and climate change. Thus far the bulk of scholarship has focused on linking the theologies and ethics found in religious traditions (especially Christianity) to the climate crisis or on reconceptualizing the divine in light of global environmental change (e.g. McFague 2008; Northcott 2007; Primavesi 2009; Skrimshire 2010; Xia and Schönfeld 2011). A second and somewhat overlapping body of scholarship asserts on a more general level that religious participation will be key in the fight to mobilize the world to combat climate change (Gardner 2003; Posas 2007; Schipper 2010; Tucker and Grim 2001; Wolf and Gjerris 2009). A third (and quite substantial) body of literature is directed toward motivating popular audiences within a particular faith. This group includes numerous works directed toward a Christian audience, such as Hayhoe and Farley (2009), Merritt (2010), and Atkinson (2008), as well as a smattering of works directed toward those of other faiths, such as Stanley, Loy, and Dorje (2009). Fourth, a number of polls and surveys relating religious beliefs and climate change attitudes have been published, many of which focus on the attitudes of American evangelicals (e.g. Barna Group 2007, 2008; Maibach, Roser-Renouf, and Leiserowitz 2009; Pew 2006, 2009; Public Religion Research Institute 2011).

Finally, a fifth body of literature, which is just beginning to emerge and to which this volume aims to contribute, involves social-scientific investigations. Gerten and Bergmann (2012) have included some of this literature in their edited volume (see the review in this issue), and other social-scientific research is beginning to find its way into print (e.g. Crate and Nuttall 2009; Leduc 2010, see the review in this issue; Wilkinson 2012).

Introducing the Papers in This Issue

We were surprised and pleased to receive nearly one hundred submissions to an initial call for proposals exploring the theme presented in this issue, including studies of numerous religious traditions around the world. Broadly reflecting the existing literature, and perhaps the editors' scholarly networks, North America was the most popular region of focus (34 proposals) and Christianity the most popular religious tradition (46 proposals), although many of the world's regions and major religious traditions were covered by at least one submission. Comparing the number of proposals we received to what little has been published on this topic so far suggests that in the next few years there may be a surge in such social-scientific studies. Given the time that in-depth field research takes, it is not surprising that we are only just beginning to see such research appear in print.

The five articles we have included here are just a small slice of research that is currently underway or near completion, but they nevertheless cover an impressive swath of territory; the issue ranges from the Canadian Arctic to the American South, India, and both East and West Africa. This research also explores a variety of religious traditions—indigenous religions (Inuit, Gabra, Boran, and Diola), Christianity, Hinduism, and Islam—as well as interactions among them. Methodologically, they demonstrate how in-depth qualitative research can contribute to what we hope will be a growing, empirically informed conversation about the ways the world's religions are (and are not) responding to climate change.

Starting in North America (and, incidentally, with the most frequently studied religious tradition when it comes to climate change), Carr and his colleagues used interviews to understand better the high levels of climate skepticism that surveys often report among theologically conservative Christians. While acknowledging that religious beliefs are not the only factors influencing attitudes toward climate change, they identify a number of religious beliefs that appear to encourage skepticism, suggesting that religion is an important factor influencing climate change attitudes within this group. Carr and his colleagues' study is by no means the first on this topic (see especially Kearns 2007, 2012; McCammack 2007; Nagle 2008; Prelli and Winters 2009; Simmons 2009; Wilkinson 2010, 2012). With the exception of Wilkinson, however, these have focused on movement leaders, whereas Carr and his colleagues examine whether the alleged greening of evangelicalism has reached laypeople in the pews. Their in-depth interview methodology illustrates how interactions between religious, political, cultural, and scientific beliefs and the

social context of particular churches converge to shape views about climate change. Their work also adds important depth to the existing studies that have analyzed evangelicals' worldviews and discourse via textual accounts, ably demonstrating the usefulness of methodological expansion.

When one expands one's focus beyond the United States to consider the relationship between religion and climate change globally, that relationship proves to be even more complex. As Davidson and Watson and Kochore have found, some local faith communities simply do not engage with climate change even though it is already having significant impacts on their lives (Parry et al. 2007). In other cases, as Drew, Johnson, and Watson and Kochore have found, leaders or members of local faith communities acknowledge the manifestations of climate change, yet the kinds of explanations they give for those manifestations—explanations that are consistent with their faith's beliefs—may not help the community to understand accurately what is happening to it, and may not help believers' ability to cope successfully with the impacts of climate change. In still other cases, as Davidson shows, climate change has indirectly caused conflict between competing faiths.

Like Carr and his colleagues' piece, Noor Johnson's article also looks at evangelical Christianity, but in this case among the Inuit in the Canadian Arctic. She documents how 'Healing the Land', an evangelical movement originating in Fiji, has gained a foothold among the Inuit, in large part because it is able to re-frame the environmental changes they are witnessing as positive signs of God's grace, while also suggesting certain religious remedies which they claim will ensure that the land will continue to heal. While Healing the Land's rituals of repentance do not encourage the kinds of behaviors that climate scientists would deem efficacious, Johnson argues that climate researchers should take note of its appeal, which she attributes to its correspondence with certain traditional beliefs and its ability to furnish locals with a sense of agency regarding their predicament. By contrast, the recommendations of climate researchers typically arise from and cater to non-indigenous international interests, reproducing historical colonial relations and epistemologies.

Moving to Africa, Watson and Kochore argue that in the past, the indigenous religious belief system encoded and embodied environmental practices that were well adapted to local conditions. Such practices could be of great value in an increasingly variable climate, but Christian groups working in the region have implemented relief and development programs that have eroded these beliefs and practices. These programs (some of which are ostensibly designed to help locals

adapt to climate change) have encouraged locals to move away from their traditional pastoral livelihoods, and to become increasingly reliant on food aid and education—changes that Watson and Kochore contend may make them even more vulnerable to changing weather patterns.

In the Himalayas, the Ganges (or Ganga) River is, in part, fed by the Gangotri-Gaumukh glacier. Climate change is now causing the glacier to retreat, making the river's flow more variable and unpredictable. As Drew describes, the women who come to the river see it changing, but many explain it by saying the Goddess of the river is upset because people have recently stopped respecting the river. Others are reassured by the Hindu belief that the river will continue to exist perpetually 'in the heavens and in the ground', in some other realms of reality, unseen, even if it ceases to flow as an actual, physical river.

Though the papers by Carr and his colleagues, Watson and Kochore, Johnson, and Drew describe different societies and different religions, one can discern a common theme: in each case, faith-informed belief systems offer explanations of the observed impacts of climate change that are fundamentally different from the explanations offered by climate science, with potentially adverse consequences for local people's ability to cope with those impacts. Davidson's work in Guinea-Bissau describes quite a different relationship between religion and climate change. To Diola men in Guinea-Bissau, rice cultivation is not just a way to make a living; it is central to status and to male identity. But climate change has already so altered conditions that no matter how hard they work, the men cannot even grow enough rice to meet their basic subsistence requirements, much less the amount of surplus crops that would traditionally be necessary to prove their worth as men and earn others' respect. Having lost one of the major supports for constructing, maintaining, and displaying male identity, status, and pride, the traditional male initiation rites have become increasingly important, even to the point that those families that had converted to Catholicism felt impelled to disobey their priest's explicit condemnation of the practice. Here, by an indirect and circuitous route, climate change unleashes a chain of events that appear, finally, as social conflict between Diola who are fully practicing Catholics and neighbors who retain at least some traditional religious/cultural rituals.

As a cautionary note, although the majority of our authors found, perhaps surprisingly, that the religions they studied have not been helping adherents to develop good coping responses to climate change, it is important to remember that we do not yet know whether this finding is the result of a small and possibly unrepresentative sample, or if it truly indicates a broad tendency or trend. Other religions, in other

places, may well be fostering a more positive set of responses to climate change. As more research is published, it will become increasingly important to theorize the conditions under which religions facilitate or hinder efforts to address climate change.

Directions for Future Research

These case studies demonstrate the complex and nuanced ways in which climate change is affecting people around the world and some of the roles that religions—as faith, values, practices, and institutions—are playing in this interaction. We believe that these studies powerfully demonstrate what social-scientific research on religion and climate change has to offer and look forward to more such research in the near future.

While religion and climate change is a topic whose many dimensions scholars have only begun to explore, we would like to point out a few areas that we think are particularly in need of further research. Geographically, we received few submissions discussing events in East Asia, South America, Russia, and Europe. As for religious traditions, more work on Islam (particularly in the Middle East), Hinduism, and Buddhism vis-à-vis climate change would be beneficial. Topically, little has been written from a social-scientific perspective about transnational and interfaith groups that have worked on climate change, about the participation of religious individuals and groups in climate justice movements, about religion among climate refugees, or about how faith-based relief and development organizations are responding to climate change. In addition, the religious dimensions of climate activism—outside of or at the margins of existing religious traditions—are quite unexplored. How ‘dark green’ religions can (or must) become in order to catalyze a powerful response to climate change, for example, is an important question (Taylor 2010). Work that considers how people choose between religious and secular frames when interpreting climatic changes would also greatly enrich our current understanding of the role of religion. The importance of place and context—e.g. why a denomination in the United States might address climate change, but its African counterpart might not, or vice versa—is also a key question in need of further research.

Thinking more broadly, much work remains to be done examining how social processes like modernization and secularization affect religions and religious responses to climate change; what role, if any, conflicts between religion and science are playing globally; and the significance of apocalyptic eschatologies (both those that are explicitly religious and

those that are embedded within environmental discourses) (Curry-Roper 1990; Swyngedouw 2010). How religious valuations compete with economic and other valuations in climate change policy circles is another important avenue of research. Finally, more rigorous theoretical frameworks that help us to understand whether, and if so under what circumstances, religions will respond successfully to climate change are needed. We therefore strongly urge researchers to apply social theory to their work.

In short, much remains to be done.

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The Faithful Skeptics: Evangelical Religious Beliefs and Perceptions of Climate Change

Wylie Carr, Michael Patterson, Laurie Yung,
and Daniel Spencer

University of Montana

Correspondence should be directed to the lead author:

Wylie Carr, PhD Candidate,
College of Forestry and Conservation,
University of Montana, 32 Campus Drive,
Missoula, MT 59802, USA
wylie.carr@umontana.edu

Abstract

Polling data has indicated that evangelical Christians tend toward skepticism about the existence of anthropogenic climate change. Recognizing that evangelical Christians compose a politically influential population, we conducted interviews with pastors and lay members of churches in Dallas, Texas to assess the relationship between their religious beliefs and their views on climate change. In-depth interviews showed more complex relationships between religious and climate beliefs than has been documented by previous survey-based research. The interviews revealed a set of interrelated religious beliefs, namely in biblical inerrancy, God's sovereignty, human sinfulness, eschatology, and evangelism, from which evangelicals draw to describe their perceptions of climate change. Our analysis shows how common belief interpretations contribute to skepticism of human-induced climate change for many interviewees. We also describe how alternative interpretations of these same beliefs promoted environmental concern and even acceptance of anthropogenic climate change among other interviewees. Results suggest the need to account for how faith shapes the complex and nuanced environmental beliefs that evangelicals hold.

Keywords

climate change, evangelical Christians, qualitative interviews, religious beliefs, religion and environment

No fewer than seven bills related to greenhouse gas (GHG) regulation were introduced in the 112th Congress (2011–2012); all were aimed at *reducing* the Environmental Protection Agency's ability to regulate GHG emissions (CCES 2011). While the United States remains the world's second largest overall greenhouse gas emitter (Boden and Blasing 2011) and second largest per capita emitter (Olivier et al. 2011), federal legislation aimed at cutting greenhouse gas emissions appears to be stalled at best. At the same time, polling data have indicated that responding to climate change is an extremely low policy priority for most Americans (Pew 2009a, 2011).

Evangelical ethicist David Gushee (2008) has suggested that Americans are loathe to address climate change in part because evangelical Christians have not yet deeply engaged the issue. He is not alone in this sentiment, as some natural and social scientists have also argued that evangelical Christians could turn the tide on climate legislation (Kearns 2007; McCammack 2007; Nagle 2008; Wilson 2006). Meanwhile, a number of prominent evangelical leaders have advocated for federal regulation of carbon emissions, and encouraged churches, businesses, and individuals to reduce their carbon emissions (Wilkinson 2010a). For instance, the Evangelical Climate Initiative's (ECI) 'Climate Change: An Evangelical Call to Action',¹ which now boasts over 300 signatories, including presidents of Christian colleges, megachurch pastors, and executive leaders of the National Association of Evangelicals (NAE),² states that, '...we must reduce our global warming pollution to help mitigate the impacts of climate change, as a society and individuals we must also help the poor adapt to the significant harm that global warming will cause' (ECI 2006: 9). However, evangelical leadership has been deeply divided on this issue (Kearns 2007; McCammack 2007; Nagle 2008). Additionally, a plethora of opinion polls have identified evangelical Christians as one of the most climate skeptical groups in America (ABC News 2008; Barna Group 2007; Pew 2006, 2009b). As such, it appears that evangelical leaders, climate scientists, and secular environmental groups face significant challenges if they hope to mobilize evangelicals to participate in climate change mitigation efforts (Wilkinson 2010b).

1. The ECI's 'Evangelical Call to Action' was primarily authored by David Gushee (a professor at Union University at the time) in collaboration with Jim Ball (then executive director of the Evangelical Environmental Network), Richard Cizik (then Vice President for Governmental Affairs for the National Association of Evangelicals), and David Neff (editor of *Christianity Today*) (Wilkinson 2010a).

2. Prominent signatories include President of the NAE Rev. Dr. Leith Anderson, President of Fuller Theological Seminary Dr. Richard Mouw, and megachurch pastor Rick Warren. Visit christiansandclimate.org/signatories for a full listing.

While some scholars have argued that religious beliefs lie at the heart of evangelical climate skepticism (Curry 2008; Gushee 2008), little empirical research has examined this claim. Research using qualitative methodologies designed for rich, contextualized investigation of the ways that evangelicals describe the interplay between their faith and views on climate change in their own words is particularly uncommon. Using in-depth interviews, we explored the relationship between evangelical pastors' and churchgoers' religious beliefs and their views on climate change. These interviews revealed that common interpretations of core evangelical beliefs led primarily to climate skepticism but also that there was potential for religiously based environmental concern and action. The results promote a deeper understanding of how commonly held religious beliefs present both opportunities and barriers to evangelical climate action.

Evangelical Christians

We defined evangelical Christians as Protestants holding theologically conservative beliefs. A number of beliefs common to evangelicals across denominations have been identified by researchers and differentiate evangelicals from their theologically 'mainline' and 'liberal' counterparts (Bebbington 1989; Greeley and Hout 2006; Smith 1998). Bebbington (1989) describes four categories of differentiating beliefs. First, evangelicalism is marked by a fierce devotion to the Bible, which is believed to be the inspired word of God. A second evangelical priority is the doctrine of the cross as the core message of the gospel, which includes believing in the divinity of Christ and the biblical accounts of his life, death, physical resurrection, and imminent return to earth. Third, evangelicals emphasize the importance of having a 'born again' experience where an individual personally accepts Christ's death as atonement for his or her inherent sinfulness. Finally, this emphasis on personal salvation leads to evangelism, or a belief in a spiritual and moral imperative to tell non-Christians about the 'good news' of salvation, or the opportunity to be 'saved' by accepting Jesus Christ as Lord and Savior.

Evangelicalism and Climate Change

Some prominent evangelicals have been publically discussing climate change since the early 2000s (Nagle 2008; Wilkinson 2010a). However, conflicting opinions have emerged as to whether or not climate change should be an issue of concern. The Evangelical Environmental Network's 2002 'What Would Jesus Drive?' campaign, for instance, urged

evangelicals to consider the impacts of automobile pollution because it 'contributes significantly to the threat of global warming' (EEN 2002). In contrast, the Cornwall Declaration on Environmental Stewardship, produced by a coalition of evangelical clergy, theologians, and academics, cautioned against 'unfounded or undue concerns includ[ing] fears of destructive manmade global warming' (Cornwall Alliance 2000). Tensions between divergent evangelical positions on climate change became particularly pronounced in 2006, when the ECI released the aforementioned public statement entitled 'Climate Change: An Evangelical Call to Action'. This document accepted the existence of anthropogenic climate change, noted that its consequences would be significant and most detrimental to the poor, and urged evangelicals to respond (ECI 2006). The Interfaith Stewardship Alliance (ISA, now the Cornwall Alliance for the Stewardship of Creation) responded via a report entitled 'A Call to Truth, Prudence, and Protection of the Poor: An Evangelical Response to Global Warming' (ISA 2006), which argued that the ECI's claims about climate change were erroneous and that action to address climate change would in fact harm the poor. Both the ECI and ISA reports boasted endorsements from prominent evangelical leaders, scholars, and scientists.³ This divide among evangelical elites has received significant academic attention in recent years (Ackerman 2007; Kearns 2007; McCammack 2007; Nagle 2008; Prelli and Winters 2009; Simmons 2009). However, with the notable exception of Wilkinson (2010b), empirical analyses of the views of the evangelical public have been largely absent from the broader discussion of evangelicalism and climate change (Curry-Roper 1990; McCammack 2007; Nagle 2007).

Is the evangelical public aware of the disagreement between evangelical leaders and scholars on this issue? Polling data have suggested not. A study by the Barna Group in 2008 indicated that only 11% of all Christians polled (not just evangelicals) had heard of 'creation care', a phrase commonly used to promote environmentalism as a biblical concept, and the title of EEN's bimonthly publication. Furthermore, 64% of Christians polled reported that they had never heard a sermon on environmental issues. While such data do not deal with climate change or focus on evangelical Christians, they indicate extremely low awareness

3. Notable ISA signatories include President of the Family Research Council Tony Perkins, Executive Vice President of Focus on the Family Tom Minnery, and climatology research scientist Dr. Roy Spencer from the University of Alabama, Huntsville. A more complete list of signatories is available at: <http://www.cornwallalliance.org/blog/item/prominent-signers-of-an-evangelical-declaration-on-global-warming/>.

of Christian environmental efforts and little engagement by pastors with environmental issues. Similarly, a 2009 analysis of American attitudes towards global warming found that those who were 'disengaged, doubtful, or dismissive' of climate change were significantly more likely to identify as evangelical Christians than those who were concerned about the issue (Maibach et al. 2009). In an examination of evangelical churchgoers' responses to the ECI's 'Call to Action', Wilkinson (2010a, 2010b) found that broad concern for the earth and the poor resonated with evangelicals in a focus group setting. However, engagement with climate change among study participants was diminished by distrust of scientists and government regulation, alongside an emphasis on individual responsibility that inhibited viewing climate change as a systemic problem requiring large-scale solutions. Wilkinson (2010b) also found that participants were largely unfamiliar with the ECI and its 'Call to Action' before participating in her study. As a result, these focus groups revealed what Wilkinson described as 'a gulf between many churchgoers and the ECI signatories' (2010b: 53).

In sum, the evangelical public appears largely unaware of climate-related statements and initiatives by activist groups like the ECI and ISA. If this is the case then it stands to reason that evangelical climate skepticism noted in polling data might be connected to commonly held religious beliefs among the wider evangelical culture (among other factors). Our research aimed to determine whether religious beliefs contribute to evangelical perspectives on climate change.

Methods

We chose the Dallas, Texas metroplex for our study site. Previous research has identified Texas as a state in which evangelical Christians are particularly socially and politically influential, and the Dallas-Fort Worth area is home to a number of prominent evangelical ministries and seminaries (Gilbreath 2002; Silk and Walsh 2008). We selected nine churches that were either part of larger denominations classified by previous research as subscribing to the differentiating beliefs of evangelicalism described above (Kellstedt and Green 1993; Melton 1996, 2005), or, in the case of non-denominational churches, their public profession of adherence to these beliefs as documented on websites or discussed in initial phone calls with pastors. These nine churches also represented different denominations, congregation sizes, and locations relative to downtown Dallas to capture a variety of evangelical perspectives. We then conducted individual interviews with pastors and laity from these churches to gain an in-depth understanding of whether and how study

participants connected their religious beliefs with their perceptions of climate change. Thirty-six interviews were conducted in total, with interviewees including nine pastors (all male) and 27 lay church members (14 men and 13 women). Interviews averaged 42 minutes in length. Tables 1 and 2 below provide demographic information for both churches and interviewees. All interviews were conducted between 1 May and 1 September 2009.

Table 1. *Church Demographic Information*

Church Pseudonym	Denominational Affiliation	Size	Location
Cornerstone Baptist	Southern Baptist Convention (SBC)	Small	Rural
Crossroads	Independent Fundamentalist	Small	Urban
Downtown Presbyterian	Presbyterian Church in America (PCA)	Large	Urban
Easton Baptist	Independent Baptist	Medium	Rural
Faith Bible Fellowship	Independent Fundamentalist	Medium	Rural
Mosaic	Independent Evangelical	Large	Suburban
Redeemer Lutheran	Wisconsin Evangelical Lutheran Synod (WELS)	Small	Suburban
Trinity Bible	Non-denominational Bible Church	Medium	Urban
Uptown Bible Church	Non-denominational Bible Church	Large	Suburban

Table 2. *Interviewee Demographic Information*

Age		Highest Education Level Completed	
18–29	6 (17%)	High School Diploma	3 (8%)
30–39	11 (31%)	Associates/Technical Degree	5 (14%)
40–49	7 (19%)	Bachelors Degree	15 (42%)
50–59	6 (17%)	Seminary Degree	6 (17%)
60–75	6 (17%)	Non-Seminary Advanced Degree	7 (19%)
Political Affiliation		Political Ideology ⁴	
Republican	27 (75%)	Conservative	27 (75%)
Independent	7 (19%)	Moderate	7 (19%)
Democrat	2 (6%)	Liberal	2 (6%)

4. While the numbers of individuals identifying as Republican, Independent, and Democrat are the same as those who classified themselves as conservative, moderate, and liberal respectively, not all individuals who classified themselves as Republicans also self-identified as politically conservative. More specifically, both individuals who identified themselves as liberal were registered Republicans, while the two Democrats considered themselves moderates. Similarly, several independents identified as conservative while several Republicans considered themselves moderates.

An interview guide ensured that similar questions were explored in every interview, providing for systematic comparison across the sample, while also allowing each interview to follow its own trajectory (Hesse-Biber and Leavy 2006). Interview questions explored participants' self-defined religious affiliation and faith history; overall perceptions of climate change; how participants saw their faith relating to their views on climate change; where they had received information about climate change; and basic demographic information, including which political party they affiliated themselves with and whether they identified as conservative, moderate, or liberal.

With regard to the relationship between faith and climate change, interviewees were first asked whether they felt their religious beliefs informed their views on this topic and, if so, how. Follow-up questions assessed whether interviewees felt that certain beliefs (identified as germane in previous academic literature and preliminary interviews) were relevant to such views. If they did not bring it up on their own, all interviewees were asked, for example, whether they thought their perceptions of climate change were influenced by their beliefs about the relationship between God, humans, and nature; God's and humans' ability to affect the global climate; and the end times. Interviews were digitally recorded and transcribed verbatim.⁵

Data analysis consisted of identifying and coding key themes within and across interviews, assisted by NVivo 7 software. Analysis began with an examination of each individual interview and progressed to an examination of recurrent themes across interviews (Patterson and Williams 2002). The first five interviews were read and analyzed in conjunction with a small group of researchers who assisted in validating interpretations of both individual interviews and the themes emerging across interviews. The remaining interviews were analyzed in their entirety by the lead author, with the co-authors examining extensive selections.

Results and Discussion

All 36 interviewees affirmed that their faith had some impact on their views on climate change, though to varying degrees. Interviewees could, and often did, state that a specific religious belief brought up by the interviewer had little or no relevance to their views on climate change. Every interviewee, however, discussed at least one of the following five

5. One interviewee asked not to be audio recorded. Copious notes were taken during this interview.

beliefs in relation to climate change without prompting: biblical inerrancy; God's sovereignty; human sinfulness; eschatology; and/or evangelism. Although participants described these five beliefs as influential, they did not interpret or apply them in a uniform fashion. While these beliefs are difficult to separate from one another and often operated in conjunction, they have been teased apart below for ease of presentation and to illustrate unique characteristics of each belief that informed, at least indirectly, climate change perceptions. We have provided interview excerpts to allow readers access to participants' views in their own words. Participants are identified by pseudonyms; individual pastors and church members are not associated with their respective churches in order to protect anonymity.

Sources of Information

All interviewees were asked what sources of information they had consulted about climate change. None referred to the ECI, the ISA, or any of these organizations' publications. One interviewee, Pastor Cecil, was aware that the National Association of Evangelicals (NAE) had a public position on climate change because they had mailed him an informational DVD. However, he was dismissive of their position and the information provided:

I think they got it wrong... I think they were not really responding biblically and theologically to the issue. They didn't build a good case. What they did is they responded politically. They just responded to the sound bite of 'no, of course we want to be responsible to the environment. And yes, global warming is happening, because the scientists say it is.' And they're assuming so much that I think is contested ground.

As a result, Cecil did not think that the NAE's information had influenced his views. None of the three pastors whose churches were associated with larger denominations⁶ were aware of a denominational position on climate change. Similarly, they had not consulted denominational resources for guidance on the topic. One lay member of the Wisconsin Evangelical Lutheran Synod had searched the denomination's website for an official position. She found two brief posts in a Q&A section that were dismissive of the existence of climate change, but as of our last visit to the website, these posts have been removed. No other lay interviewees had sought out denominational positions on climate

6. Wisconsin Evangelical Lutheran Synod, Southern Baptist Convention, and Presbyterian Church in America. See Table 1 for more information about denominational affiliations.

change. One non-denominational church had produced a 'Theology of Creation Care' document and conducted a seminar entitled 'Is God Green?' Both espoused evangelical environmentalism in general but intentionally avoided discussion of climate change. In sum, and consistent with previous research, interviewees were not familiar with the debate about climate change among evangelical leaders, formal statements by evangelical climate activist groups, or formal statements by their denominations (Barna Group 2008; Wilkinson 2010b).⁷

The large majority of interviewees indicated that popular media provided most of the information they had encountered about climate change. For instance, Pastor Barry stated, 'Well I don't check out books from the library and read them. What I get is on the internet, what I get is on Fox News, CNN, newspaper.' As Pastor Barry does here, interviewees readily acknowledged tendencies to receive information only passively rather than seeking it out actively.

Perceptions of Climate Change

All interviewees were asked to discuss whether they thought climate change was occurring and, if so, whether changes were attributable to human actions. The responses to these questions indicated that the evangelicals in this sample embody the full range of views about the existence and causes of climate change found in the broader American public. For instance, four of the 36 interviewees⁸ were doubtful that climate change was occurring at all. Margery, for example, said, 'I don't think it's happening. From what little I've read, most of the scientists are leaning against that.' Only two interviewees, both of whom identified as conservative Republicans, fell on the other end of the spectrum and were completely convinced that climate change was happening and derived

7. In addition to the statements by the ECI and ISA described above, other evangelical statements on climate change include the Evangelical Environmental Network's *Global Warming Briefing for Evangelical Leaders* and *On the Care of Creation: An Evangelical Declaration on the Care of Creation*, both available at <http://www.creationcare.org>. The only denomination within this sample to have an official statement on climate change was the Southern Baptist Conference. Their statement questions the existence of anthropogenic climate change and cautions against legislation or actions to reduce greenhouse gas emissions. The full statement can be found at: <http://www.sbc.net/resolutions/amResolution.asp?ID=1171>.

8. Numbers are utilized throughout the article to provide readers with a concrete sense of the proportion of the sample who subscribed to a given perspective. We are not claiming to represent statistically the distribution of beliefs among the evangelical public; however, the numbers provide transparency about the distribution of views within this sample.

from human actions, as seen in this quote from Sandy's interview: 'Have we created this [global warming]? Do I think it's going on? Absolutely. As simple as sin from the beginning; we've not taken care of what we were given.' The large majority of interviewees fell somewhere in between, with 12 interviewees expressing the view that cycles in the earth's climate do exist, are completely natural, and are not impacted by humans; 14 stated that climate change was most likely happening and humans most likely play some role, but the exact relationship is unclear; and finally four undecided interviewees were unsure if climate change was happening, and what role humans were playing. These findings corroborate Wilkinson's conclusion that while heavily leaning towards climate skepticism, evangelical Christians 'are by no means monolithic in their opinions on the topic...; rather, they encompass a full spectrum of opinions' (2010b: 53).

Interviewees also displayed a range of views regarding their levels of concern about climate change, although here again they leaned toward skepticism. The large majority (24 interviewees) fell somewhere between 'not at all concerned' and 'not very concerned'. This quote from Brandon represented a common sentiment:

I would say global warming is not something I'm concerned about...
I think we should be good stewards of what God's given us here...
So I think being environmentally aware and taking care of the
environment...and not being wasteful, I think that's common sense.
But I would contrast that with doing everything in radical ways
because of something that hasn't been fully proven...in scientific
research.

As with many other interviewees, Brandon indicated little concern about climate change, though he supported taking care of the environment in general. Another 11 interviewees expressed 'some concern' over climate change, while only one participant was 'very concerned'. While again displaying the full spectrum of concern (or lack thereof) found in the broader public, the individuals in this sample tended not to be worried about climate change.

Biblical Inerrancy

When prompted to describe whether, and if so how, religious beliefs informed their views on climate change, interviewees frequently began by stating that the Bible served as their starting point for judging climate change narratives. Consistent with Bebbington's (1989) description of devotion to the Bible as an evangelical priority, interviewees explained that believing the Bible to be inerrant was a foundational aspect of their

faith. Pastor Darin, for instance, discussed how he believed scientific information to be legitimate only if it corroborated biblical narratives:

The Bible, although it is not a history book, when it speaks historically it is considered accurate. Although not a science book, when it has anything to say about science, it is accurate. And with that in mind, views such as some of the archeological finds, or scientific views, if they are correct, they would have to line up with The Word.

As such, interviewees' understandings of the Bible provided a litmus test for judging information about climate change. Four interviewees, for instance, compared what they had heard about contemporary climatic changes to what they considered biblical references to historical climatic changes, as illustrated by Julie:

We've already done the global warming by water thing, right? The ice caps have already all melted and submerged the earth, and that's already happened. I'm not saying that couldn't happen for certain regions of the earth, but I know from scripture that it isn't going to happen a second time. God said, 'I'll never flood the earth again...' So in that regard, I cannot believe in global warming as something that is going to affect the entire planet.

In other words, Julie did not think that global warming impacts would be as serious as what she had heard in popular media, because the global scale of purported impacts contradicted her interpretation of God's promise never again to destroy all life through a flood in Gen. 9.11-15. Another four interviewees felt the Bible was silent about climate change. This was interpreted as a meaningful silence, indicating that climate change should not be an issue of concern. Pastor Preston, for example, said that he has not spoken about it in his church because, 'The Bible doesn't address global warming and we're just getting it from people in the world... [I]t's just something that's not addressed in the Bible, so we don't go there'.

In sum, believing the Bible to be inerrant, some interviewees turned to it for answers about climate change. What they found (either references to past changes or meaningful silence) led them to be skeptical of the existence and importance of current changes. This skepticism was particularly pronounced when participants thought that climate scientists did not share their regard for biblical narratives. According to Brandon:

I believe God created all of this... So that shapes my beliefs on how all this came to be... If you look at a lot of these folks that are talking about climate change, they're big bang guys, they're evolutionists... their science is based on some very flawed assumptions about how

the world came to be. And so they're making huge leaps on the most fundamental things... whether it be warming trends or CO2 levels in the atmosphere. It destroys a lot of their credibility in my mind.

Brandon's quote poignantly illustrates the presence of a general suspicion of science, noted among seven other interviewees as well, that can be traced directly to the longstanding creation–evolution debate (Larson 2007). This data corroborates Wilkinson's (2010b) findings of similar skepticism and backs Ackerman's (2007) and Nagle's (2008) suggestions that evangelical climate doubts could be related to distrust of science. Interviewees also discussed other factors that made them reluctant to trust climate science, such as politically rooted concerns about federally funded research, indicating that their distrust of science has multiple sources. However, the above quote demonstrates how belief in the inerrancy of the biblical account of the earth's creation can contribute to deep-seated suspicion of scientific claims about climate change.

Other interviews, however, indicated that not all evangelicals perceived a conflict between their beliefs and scientific narratives about climate change. Trent, who attends the same church as Brandon, described how, in his opinion, certain aspects of science supplement the biblical narrative to help humans understand the world. In fact, Trent⁹ was not only concerned about climate change but had even discussed it at church:

We always talk about the weather [at church]... I say, 'How hot is it today? Well, don't you remember in 1980 when we had 100 days of 100 plus? That's what I call extreme'... And that's how you're able to get at it... I try to ground them in not taking it lightly. Say, 'That was one heck of a hurricane several years ago'...same thing with the weather. People understand that, and that sparks conversation.

Trent attributed his receptivity to scientific observation to an educational and professional background in engineering and a general interest in understanding how things work. Trent described learning about climate change through popular scientific magazines like *Smithsonian* and *National Geographic* and conversations with scientists and fellow engineers at work. He stated that when science and the Bible say two different things, the Bible is always correct. But in his reading, climate science does not pose a discrepancy between biblical and scientific histories of the world. Brandon's and Trent's contrasting quotes exemplify the diversity of views about climate change that can be present within a single congregation.

9. Trent identified himself as a politically conservative Republican.

God's Sovereignty

In addition to biblical inerrancy, a second belief interviewees frequently invoked to discuss their views on climate change was God's sovereignty or omnipotence. One-third of the interviewees stated without prompting, as Agnes does below, that God is in control of the earth's climate, *period*:

I think that we've had warming and cooling, and we're going to do whatever God wants, and I don't think that human beings are going to make a big difference. I do think that we must be conservative of the earth, and we can't just run roughshod, but I don't think as far as the emissions of the gasses [that we're] going to change the climate.

Participants who interpreted God's sovereignty in this manner were divided on whether or not climate change was happening but agreed that, regardless, God was in control and humans cannot do much about it. This led several individuals to be dismissive of what they perceived as scientists and politicians claiming that humans could *control* the climate. For instance, Pastor Barry stated, 'A resolution passed recently to hold global warming to two degrees, did you see that?... Wow, if that isn't man trying to play God.' For some of these interviewees, a belief in God's sovereignty served as a basis for dismissing concern about climate change, and led them to view climate-related science and policy as religiously unenlightened hubris.

For many respondents, beliefs in God's sovereignty operated in conjunction with those about scriptural teachings regarding the relationship between God, humans, and the rest of the created world. When asked about this relationship, respondents frequently referred to biblical passages as clearly communicating a 'created hierarchy' placing God at the top, humans in the middle, and nature at the bottom of the cosmic order. In this view, the earth was given to humans for their use, but with an obligation to take care of it. As Pastor Peter explained,

...having been made in the image of God and having been given the commission to fill the earth and subdue it, we have a certain responsibility to use the earth well...to be, as we've said, 'stewards' of it. So to put it under our power, not in the sense of dominating it to make ourselves feel powerful, but where it can be harnessed for good... We have the capacity to use the forces of nature for our good, for our enjoyment, for our sustenance, for our flourishing. But we're also to have in mind...that God has given it to us, and so we're not to use it in ways that are destabilizing to the overall system.

This idea of both acknowledging and respecting the created order had serious implications for what interviewees viewed as proper motivations for responding to environmental issues and climate change in particular.

First, interviewees emphasized that humans enjoy a special status among God's creation because they were made in God's image. For participants that discussed the created order, this special status meant that humans take priority over the rest of creation. Therefore, as Pastor Peter describes above, humans have been given power and permission to utilize the earth for their flourishing. These same participants, however, all went on to insist that humans were to use their special status to *care for* God's creation. Janica, for instance, stated, 'God made the earth for us. In my favorite chapter in Matthew, [Jesus says] "I'm gonna take care of you. I take care of the birds, why wouldn't I take care of you?"'¹⁰ That would lead me to believe that God would think we are more important than nature.' When asked how humans are supposed to interact with nature based on this passage, Janica replied, 'We're supposed to respect it because it's God's creation for us, so obviously we need to respect it; God wants us to respect it'. In other words, a religiously grounded anthropocentrism was evident in interviews and did appear to influence how participants thought about environmental issues. However, this anthropocentric worldview was mediated by a belief that God commanded humans to respect creation.

The evangelicals in this sample were, in fact, unanimously supportive of environmental awareness and action *if motivated by concern for God's creation*. They explained that while fully in control of the earth, God has entrusted humans with its care. Interviewees frequently used the term 'stewardship' to describe a 'biblically based' environmental concern centered on this understanding of the created order. Alice explains:

I think that creation was created by God for His glory. He entrusted man to rule over it in such a way that would honor Him and that [humans] would care for the earth. And so we are stewards of the earth and of what God has entrusted to us. I don't think we have been good stewards and have thus created global warming.

Alice specifically used the stewardship concept to explain her reaction to reports of global warming. The key was that her concern was motivated by obedience to God and therefore appropriate.

While discussing stewardship, interviewees frequently raised concerns about what they perceived to be the motivations of non-Christian environmentalists. Reese, for example, felt that issues like climate change can come to replace God in a person's life:

10. Reference to Matt. 6.26: 'Look at the birds of the air; they neither sow nor reap nor gather into barns, and yet your heavenly Father feeds them. Are you not of more value than they?' (New Revised Standard Version).

One of the things as I read some global warming stuff...was just how people exchange the glory of God for worshipping created things... It's easy to exchange worshipping God and being a steward of creation for worshipping the earth, where you get people so focused on the cause of global warming or environmental issues that really [it] becomes an idol. I don't think anything should do that in our lives, but we're constantly tempted to make something that's not ultimate, ultimate.

Twenty-one interviewees in addition to Reese were at least somewhat resistant to engaging with climate change because they associated it with earth worship, which in their view inverted the proper relationship between God, humans, and nature. Such statements provide empirical support for Simmons's (2009) suggestion that apprehension about nature worship may prevent some evangelicals from embracing environmental causes.

Pastor Jason and Max were particularly cognizant of this tension. Together, they had worked to prepare a 'Theology of Creation Care' document¹¹ for their church, and hosted a well-attended discussion session at the church entitled 'Is God Green?' Both the document and seminar carefully framed 'creation care' as a response to God's instructions to humans to care for the earth as stewards. Max and Jason had also intentionally avoided any mention of climate change. When asked why, Max said:

We didn't believe that it was necessary to talk about global warming in order to communicate the call of the gospel on our lives to be stewards of the earth, God's creation... The other side of that is all the controversy that is then wrapped up in global warming. I have no interest in getting into a political debate with somebody over whether to care for the earth... You can have a different conversation with people when you start on a mutual ground.

This quote crystallizes the doubts raised by Wilkinson (2010b), Kearns (2007), and Hulme (2009) as to whether the issue of climate change will ever provide fertile ground for environmental engagement among religious communities because it is so infused with other divisive issues. As was the case in Wilkinson's (2010b) focus groups, no participants in this study objected to the idea of biblically grounded environmental stewardship. Therefore, the stewardship concept provides a gateway for discussing environmental issues, but it is not a panacea for engaging evangelical Christians on climate change because this issue has become so politically polarized.

11. Max was the primary author and stated that he only consulted the Bible in preparing the document.

Human Sinfulness

A third key religious belief was human sinfulness. Interestingly, ideas about sin most commonly reinforced concern about climate change. Several individuals suggested climate change was a result of human sinfulness; for example, see Sandy's quote above in the 'Perceptions of Climate Change' section. Others, when asked if they thought human sinfulness had any bearing on climate change, drew connections with their beliefs in the God-human-nature relationship and biblical creation narratives. For example, when asked if sin impacts the human relationship with nature, Ralph responded:

Yeah, definitely. For example, there are businesses and industries that just trash nature, trash creation, simply for their lack of compassion or consideration of what creation is for itself... It's usually because of selfish ambitions... I definitely think sin enters into a human's heart and therefore influences his life's ambitions and influences his actions, and I feel nature can take a toll because of it... Before Adam and Eve sinned in the Garden of Eden, Christ created creation in shalom, perfect peace and perfect harmony. But then sin entered...and steamrolled or snowballed into what we have now: global pollution.

Thus, the concept of human sinfulness allowed conceptual space for Ralph to consider the existence of serious, human-caused environmental degradation.

For some interviewees, human sinfulness also provided a counterbalance to the belief that humans could not affect the global climate. Seven interviewees stated that while they believe that God is in control, humans also exercise freedom to act upon the world positively or negatively. Camden, for example, said:

I think man can have an effect [on the environment]. Does it catch God by surprise? No. Does He allow it to happen? Yes. Does He know it's coming? Yes. Does any of that make sense to me? Not really, but that's where my faith comes in...in spite of it not making sense I'm going to believe it. So I think there's an element to which God is allowing things to happen... Now is that God saying, 'I'm going to cause this to happen'. Or, 'I'm going to allow it to happen, and man, you're going to have to deal with the outcomes of it'... I believe it was the latter.

Camden exemplifies here how the tension between God's sovereignty and human sinfulness can make the existence of anthropogenic climate change both plausible and something to be concerned about. According to this interpretation, if God allows humans to bear the consequences of

their sinful behaviors, climate change could be human-caused even though God is ultimately in control. As such, this theological tension helps to account for some of the diversity in participants' views. Those who stressed only God's sovereignty were predominately unconcerned about climate change, while those who incorporated an emphasis on human sinfulness into their reflections on climate change were open to the possibility of human induced, large-scale environmental change, and felt some responsibility to respond.

Eschatology

As with the previous three beliefs, some individuals, without prompting, related their views on climate change to their eschatological beliefs, namely, understandings about the end of the world and the events leading up to it. While a distinctly minority view, two such interviewees felt there was no need to worry because this world would end before climate change had any serious impacts. When asked whether or not he was concerned about climate change, Marcus replied, 'I think Jesus is coming back a lot sooner than we have to worry about the climate change'. Similarly, when asked if she thought climate change was occurring, Margery replied, 'Global warming—you know one day God's going to burn it up and we're not going to have any say-so whatsoever'. These two individuals described what theologians have classified as premillennial dispensationalist eschatologies, wherein Christians will be 'raptured' or removed from the earth before its ultimate destruction (Curry-Roper 1990; Marsden 2006). While not widespread in the sample, these quotes provide some empirical support for concerns that premillennial dispensationalist beliefs are antithetical to evangelical environmentalism (Curry-Roper 1990; Truesdale 1994).

A second, and in our sample more prevalent, premillennial dispensational perspective focused on political prophecies in the book of Revelation regarding the rise of a one-world government. Seven interviewees stated they were concerned about climate change not from an environmental standpoint but because of the political ramifications that regulation might have. Simon, for instance, stated:

I think that Revelation tells us...that there is going to come a one-world government in which Christians are going to be persecuted... I can see [climate change] as being a potential mechanism to trigger this one-world government, because you can see that, obviously, it's *global* warming, so you're going to have a *global* solution. And a global organization, like the UN...is going to be controlling this.¹²

12. As Taylor (2010) observed, individuals associated with the Cornwall Alliance have made similar arguments about the dangers of addressing climate change at the

Simon's quotation illustrates a concern previously voiced by Ackerman (2007) that evangelicals may associate calls for international treaties on climate change with the sorts of political arrangements that presumably would be advocated by the antichrist, who they expect to unite the world under one government during the end times. Such an eschatological perspective led interviewees expressing it to be strongly opposed to international greenhouse gas regulation.¹³

When interviewees who did not bring up eschatology of their own accord were asked specifically if their beliefs about the end times influenced their thinking on climate change, the large majority linked their eschatological views to their belief in God's sovereignty. All such participants expressed some variation of the idea that God will be in control of the end times, as is evident in Margery's quote above. Rather than emphasizing the earth's imminent destruction, though, most interviewees interpreted this theological linkage to mean that humans do not have the power to destroy the earth, so human-induced climate change would not be a cataclysmic event. Lily representatively stated, 'I don't know exactly how God will do away with this earth and make the new one. But the point is that He's the one doing it.' Another six individuals felt climate change could be a cataclysmic event, but if so, then God was responsible for it, in which case there was nothing that humans could do to stop it. For example, Tyler stated, 'I believe that if it got to a point where global warming was the destruction of the earth and that's what God's will was, then it would happen'.

Other participants thought that secular accounts of climate change came across as apocalyptic and directly contradicted their eschatological beliefs. Interviewees like Drew reacted negatively to these 'alarmist' claims, stating, 'If the icecaps are going to melt, they're going to melt. I don't see it as a catastrophic, "oh my gosh, the sky is falling" scenario as the media makes it out to be.' Overall, eschatological beliefs, premillennial and otherwise, predominately reduced concern about climate change, while some eschatological perspectives left no room for concern at all.

global level (see for example Beisner 2010). Our interviewees were not, however, aware of these types of statements by evangelical leaders. Some of the power of the quotations, therefore, lies in the fact that individuals are making these connections between core evangelical beliefs and climate change of their own accord.

13. Once again, this quote from Simon also indicates that religion and politics are connected in complex ways. As described previously, these connections are important and evident in the interviews, but are not our focus in this article (for more explicit discussion of the politics of climate change, see Hulme 2009; Maibach, Roser-Renouf, and Leiserowitz 2009).

Evangelism

Finally, evangelism, the fourth of Bebbington's (1989) defining evangelical priorities, appeared to influence interviewees' perceptions of climate change. The importance of evangelism became clear primarily when interviewees discussed how churches should respond to climate change. Interviewees unanimously agreed that climate change should not be their church's top priority, but they disagreed over whether or not churches should discuss it at all. Julie was representative of interviewees concerned that attention to climate change would detract from the true mission of the church:

I would shudder to see them espouse anything from the pulpit or even a banner on the street that would declare caring for our planet before they would espouse faith in Christ... It would disappoint me greatly if that was our new vanguard, if that was our bandwagon instead of what Christ has done for you. Because ultimately if we die by some effect of global warming...but we don't know Christ, it doesn't matter, you're dead anyway. Knowing Christ is the opportunity to live forever.

Julie's quote coheres with Simmons's (2009) concern that climate change may be viewed as a distraction from evangelizing. Almost a third of the interviewees, however, felt that churches could address environmental issues without displacing other priorities. In fact, interviewees like Shelly wanted to hear more about climate change from church leaders:

I would be interested just to know what their opinion is on it...some interpretation of, how do I take this view that the world is giving me and the culture's giving me, and how do I take the Bible and turn it into a biblical worldview?... There are Christian scientists, what do they think about this?

Shelly and others would not only be receptive to dialogue about climate change in churches, they appeared to be seeking faith-based guidance on how to respond. Pastor Cecil said congregants were increasingly asking him for information. Climate change, he continued,

is such an extraordinary [issue]; it goes into so many areas of science... And to do a responsible job, I just haven't felt able to do that... And yet as people have emailed me and asked my opinion, I've voiced it. I've tried to guide them to good resources... I do see it as part of my job...to help individuals formulate a biblically credible, theologically rigorous response to issues like this.

While dismissive of the resources provided by the NAE as discussed above, Cecil indicated that he was being spurred towards deeper engagement with the topic from within his own church.

Two interviewees went much further, suggesting that an environmental focus in the church could actually complement the goal of evangelism. Pastor Jason saw church engagement with environmental issues, which his church was pursuing, as a way to connect with non-Christians through a shared interest:

I think for [my church] it's an opportunity to be missional...like my parents are not believers and climate change and the environment is a really important issue for my dad. So for me as a believer...to champion that is a way for me to engage with the non-believer and say, 'You care about the creation, let me tell you why you care about it. It's not just because you think that it's pretty.'

As with other key beliefs, an emphasis on evangelism was interpreted as either an opportunity to engage with climate change or dismiss it depending upon the individual. Study participants employed evangelism as a lens for thinking about responses to climate change, but there was substantial variability in how this lens affected their perspectives: if viewed as an outlet for expressions of faith, discussing climate change was a welcome opportunity, but when viewed as a competing priority, climate change had no place in the church.

Conclusions

Our research first and foremost provides evidence about how evangelical religious beliefs contribute to perceptions of climate change. To be sure, interviewees discussed a number of other factors, such as political beliefs, thoughts on science, and/or educational backgrounds that also underpin climate change perceptions. Yet while certainly worth consideration, as other studies have demonstrated, these factors were not our focus here. Instead, we chose to focus on evangelical religious beliefs, in large part because our interviewees unanimously described religion as an integral part of their views on climate change. Indeed, all 26 interviewees drew upon their understanding of their Christian faith to describe their opinions about climate change. Secondly, our findings also corroborate previous studies indicating that rank-and-file evangelicals are currently unaware of the debate about climate change taking place between evangelical activist groups like the ECI and ISA (Barna Group 2008; Wilkinson 2010b).

Given these findings, we agree with Wilkinson (2010b) that engaging evangelical Christians in a discussion about supporting policies and actions that would address climate change poses significant challenges. Evangelicals' concerns about secularism, evolution, and earth worship

influence their perceptions of climate change, and may be difficult to overcome. And at least among some of the interviewees, beliefs that God controls the climate and that climate change is irrelevant compared to the rapidly approaching end of the world clearly preclude concern about climate change and its impacts. These dynamics have led Wilkinson (2010b), Simmons (2009)—and two of the interviewees in this study—to question whether explicit discussion of climate change may simply present too much of a distraction from efforts to promote creation care to be worth the effort. That interviewees unanimously affirmed that caring for creation had a place in their faith leads us to conclude that faith-based climate activists might have more success if they utilize concepts of stewardship and creation care than if they tackle climate change directly. Promisingly, the concepts of stewardship and creation care can be used to encourage emissions-reducing behaviors without raising potentially counterproductive conflicts over beliefs about the Bible, the sovereignty of God, and eschatology.

Our research also indicates some potential for engaging evangelicals more directly. That small variations in interpretations of shared religious beliefs sometimes resulted in greater acceptance of the idea that humans are detrimentally altering the earth's climate suggests that faith is malleable and thus no absolute barrier to evangelical climate action (McCammack 2007; Nagle 2008). Indeed, it is worth noting that the majority of interviewees were willing and interested to discuss climate change, particularly from a faith perspective. Moreover, quite a few participants indicated that they wanted to hear from Christian scientists and their pastors on this issue, suggesting that they would be open to information about climate change if provided by these trusted individuals. Our results therefore corroborate Wilkinson's (2010b) suggestion that the most effective way to bring the climate change issue to the evangelical public would be through discussions initiated by pastors in local churches. Evangelical climate groups might attempt to engage pastors directly in hopes of building broader evangelical interest in climate change.

We caution, however, that providing information and facilitating discussion will not guarantee transformed attitudes or behaviors at the church or individual level. As we have seen, the ECI and similar organizations have not been effective at reaching the broader evangelical public, even though they have (wisely, in our view) been careful to couch climate change within key theological tenets of evangelical faith (Wilkinson 2010b). Part of the challenge is that while many evangelical Christians appear open to discussing climate change in their faith community, they are not seeking out such discussions. In other words,

while interested in hearing a sermon on the topic, very few of the participants in this study would introduce the topic on their own in small group discussions or actively seek out a conversation about climate change with a pastor. The challenge for groups like the ECI, then, is to get compelling information to an evangelical public not actively looking for it. Yet even if evangelical climate action groups are able to spread their message, our research indicates that environmental issues will often be marginalized and receive less attention because they are not viewed as central to the mission of the church.

Finally, our results indicate that non-evangelical scientists, environmentalists, and other outsiders wishing to promote evangelical cooperation in climate change mitigation should be aware of the religious beliefs discussed above. In addition to the complexity and nuance of different belief interpretations, non-evangelicals must recognize that evangelicals tend to be skeptical of both climate change and the motivations of secular environmentalists and scientists. As such, non-evangelicals can expect even carefully prepared and religiously sensitive attempts to discuss climate change to be met with skepticism in some quarters. Therefore, future social-science research should investigate different approaches to discussing climate change with evangelicals, further clarifying barriers and opportunities for more meaningful evangelical Christian climate action.

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**'Healing the Land' in the Canadian Arctic:
Evangelism, Knowledge, and Environmental Change**

Noor Johnson

Department of Anthropology, McGill University,
224 Peterson Hall, 3460 McTavish Street,
Montreal, Quebec, H3A 1X9, Canada
noor.johnson@gmail.com

Abstract

Beginning in 2006, an evangelical movement called 'Healing the Land' was introduced to a number of Inuit communities in the Canadian Arctic. Healing the Land (HTL), which promoted an ethic of environmental stewardship through prayer and repentance of sin, also helped Inuit make sense of rapid environmental change. Rather than linking shifts in weather and plant and animal distributions to climate change, HTL leaders argued that they resulted from communal processes of prayer and repentance that miraculously restored the environment to an Edenic state of plenty. In this article, I explore the appeal of HTL's theology and ritual practice to Inuit residents of Clyde River, Nunavut. I argue that residents found HTL's explanations of environmental change compelling because HTL offered a vision of integrated action through which individuals and communities could address social and environmental issues simultaneously.

Keywords

Arctic, Inuit, environmental change, evangelism, healing

When I shut up the heavens so that there is no rain, or command locusts to devour the land or send a plague among my people, if my people, who are called by my name, will humble themselves and pray and seek my face and turn from their wicked ways, then will I hear from heaven and will forgive their sin and will heal their land (2 Chron. 7.13-14).¹

1. The New International Version (NIV) of the Holy Bible is used throughout this article.

On a Wednesday evening in July 2009, a special church service was held in Clyde River, an Inuit community of around 1,000 people on Baffin Island, north of the Arctic Circle, in the Canadian territory of Nunavut. Usually, services are held on Sundays, but this week the church community was welcoming a group of visitors from Fiji. I was in Clyde River to conduct anthropological research on climate change knowledge and governance, and I had heard through the general excited gossip of the community about the men and women from Fiji who were returning to Clyde River for the third time in as many years. I knew that they practiced an evangelical form of Christian worship, with song and dance, which contrasted with the relatively formal Anglican services that were normally held in the church. And so when a friend invited me to accompany her to the service, I tagged along, curious to see what the fuss was about.

The pews of the small, plain church hall were filled that evening. As we waited for the service to begin, children ran up and down the aisles shouting and laughing, and women sat talking, their babies hidden inside their *amautiit*.² After welcome speeches from the *Inuk*³ church minister and the mayor, a large *aallunaat*⁴ man in neatly ironed slacks and a button-down shirt went to the podium. He introduced himself as Roger Armbruster from Canada Awakening Ministries in Niverville, Manitoba.

'I'm so pleased to be back in Clyde River', he said. 'When I got off the plane, I was greeted by the sight of tall, green grass and flowers. There was a great light reflected from the ground. I can see that the Lord's work is alive and well in Clyde River and that all the hard work you have been doing to heal the land and to heal yourselves has been working.' Armbruster was accompanying two men from Fiji, Pastor Vuniani Nakauyaca and his son, Savenanca Nakauyaca, or 'Savi'. When the younger Nakauyaca, a heavy-set man in his thirties, came to the podium to preach and testify, he shared more good news with the congregation. They had just come from the Inuit hamlet of Pangnirtung, he said, where community members had been experiencing many changes through the power of prayer and healing. 'In Pangnirtung, they told me that there are two new species of fish they have never fished before that they are now able to catch. And in addition to new fish, Pangnirtung is now mining diamonds and gold', Nakauyaca Jr. said.

2. An *amauti* (plural: *amautiit*) is a traditional parka worn by women that features a large hood in the back used to carry infants and toddlers.

3. *Inuk* is the singular form of Inuit.

4. Non-*Inuk* or white.

This was my introduction to Healing the Land (HTL), a gospel-based movement founded by Nakauyaca Sr. that has spread through evangelical networks from Fiji to Papua New Guinea to the Canadian Arctic and beyond. Many of the observations of change that the group attributed to prayer, such as more grass and flowers and new species of fish, were also changes that had been observed in the Arctic by scientists researching the impacts of climate change. In contrast to sentiments of skepticism about the value of climate change research I had encountered in the community, there was clearly something very compelling about HTL's vision of change, which had attracted more than one hundred individuals to attend the service that evening. Many in attendance come forward and testified to the power of the movement and its impacts, sharing personal observations of environmental changes that they related to the prayer and healing work.

HTL offered an alternate narrative of environmental change to more dominant narratives that were also present in Clyde River. Over the past decade, the community had hosted a number of researchers and other visitors interested in climate change issues. These projects included research on glaciation patterns (Briner, Davis, and Miller 2009), sea level rise and coastal erosion, freshwater availability, and Inuit observations of climate change (Gearheard et al. 2006; Fox 2004; GN 2005); a community-based sea ice monitoring initiative (Huntington et al. 2009); the collection of testimony for a legal petition on climate change and human rights (Watt-Cloutier 2005); filming for a BBC production entitled 'Frozen Planet'; and a 'Global Warming 101' dogsledding and education expedition led by Arctic explorer Will Stegar.

Clyde River residents therefore had access to both Inuit and scientific knowledge about environmental change. Results from a survey that I conducted on environmental knowledge that asked respondents 'How have you learned about climate change?' reinforced the perception that Clyde River residents draw on a variety of knowledge sources.⁵ These included personal observation ('seeing changes on the land around Clyde River') (70% of respondents), observations of other elders and hunters in the community (17% of respondents), scientists who conducted research in Clyde River (40% of respondents), and the media (62% of respondents). Religion was a write-in category, with 13 percent of respondents, mostly older women, adding 'the Bible' or 'at church'. The majority of

5. I surveyed 60 community members, selected through a random sampling process, with equal numbers of men and women distributed across a range of ages. Surveys were administered in Inuktitut by research assistants.

survey respondents reported learning about environmental change from a number of different knowledge sources.

In this article, I compare the narratives of environmental change offered by Healing the Land with other perspectives on change, including scientific and Inuit knowledge. Inuit understandings of environmental dynamics are based on careful observation and extensive engagement over time. They are also rooted in a social cosmology that traditionally viewed human and animal agency as interconnected. Their understandings have often contrasted with perspectives from ecology and wildlife biology that have contributed to the establishment of hunting quotas on particular species, leading to a mistrust of scientific research. Furthermore, scientific and media discourses about climate change are often alienating to Inuit, who feel left out of the production of scientific knowledge, and who may prioritize other, more immediate areas of concern for research and policy. Among these are challenges of health and healing of trauma associated with the fast pace of cultural change and with the impact of colonial governance practices. In this context, the spiritual approach of HTL presented an alternate way of engaging with change that resonated with local needs and priorities.

My ethnographic research was conducted in Clyde River in 2009 (July–September) and 2010 (March–May). This research included in-depth semi-structured interviews with community members and leadership from the HTL movement, observation of church services, as well as the surveys noted above. Other sources included the *Manual for Healing the Land* (Nakauyaca and Ani 2007), a DVD of a healing ritual from Clyde River shared with me by Armbruster, and blog posts and updates about Healing the Land from the Canada Awakening Ministries website.

Healing the Land Theology and Rituals of Stewardship through Repentance

Anglican missionaries first introduced Christianity to the eastern Canadian Arctic at the end of the nineteenth century (Laugrand and Oosten 2010). Prior to the introduction of Christianity, shamans or *angakkuut* served as intermediaries between the human world and the world of nonhuman beings, assisted by *tuurngait* or helping spirits. They played an important role as healers of physical illness and they used their powers to help address transgressions that caused fissures in human–environment relations. Inuit played an active role in the spread of Christianity, sharing hymns and stories from the Bible as they travelled (Laugrand and Oosten 2010). In some areas, families had already converted to Christianity by the time a missionary arrived (Tungilik and

Uyarasuk 1999). Former shamans and their relatives described how *angakkuit* sent away their helping spirits when they converted to Christianity, since they were no longer needed (Tungilik and Uyarasuk 1999; Laugrand and Oosten 2007).

The introduction of the HTL ministry to Inuit communities in the mid-2000s followed several decades of growth for evangelical churches in the Canadian Arctic. Since the late 1970s, Armbruster had been a central figure in promoting evangelism in the region. Armbruster was part of a loosely affiliated network of church groups in the United States and Canada that funded missionary outreach overseas (Laugrand and Oosten 2010). In 2004, Armbruster travelled with Nunavut political leader Tagak Curley to Fiji, where they met Nakauyaca Sr. In 2006, they brought Nakauyaca Sr. to Nunavut for the first time, organizing a regional Bible workshop in the town of Pangnirtung, which several church leaders from Clyde River attended. In 2007, Armbruster and a team from Fiji arrived in Clyde River to share the Good News, returning the following two summers.

While evangelical Christian churches enjoyed a strong following in some communities of Nunavut, Clyde River did not have a formal evangelical congregation. Instead of emphasizing a particular ecumenical affiliation, HTL leaders presented their work in Clyde River as an interdenominational effort focused on healing rifts, including those that had developed between Anglican and evangelical traditions in some Inuit communities.

Although its service was well attended and featured testimony from residents of different ages, this could partly be explained by HTL's entertaining worship style with its focus on song and dance. On a Wednesday night with little else happening in Clyde River, many people may have attended out of curiosity more than religious conviction. On the whole, Clyde River elders tended to be more religious than younger community members; some younger adults shared with me their discomfort with the way that some forms of Christianity denigrated traditional Inuit beliefs and told me they were against formal religion.

After attending HTL's public worship service, I decided to take Armbruster and Nakauyaca Jr. up on their open invitation to visit them at the house where they were staying. When I arrived, they were eating lunch—a meal of pork chops cooked by their host's wife—but they courteously invited me to sit with them in the living room, where they answered my questions about HTL's theology.

'You should read Leviticus 26', Nakauyaca Jr. advised me. 'It explains how God cursed the land because of the sins of the people'. Armbruster offered me a copy of *A Manual for Healing the Land* (Nakauyaca and Ani

2007; hereafter referred to as the Manual), a guide that outlined a series of teachings drawn from the Scriptures.

The ethic of stewardship in the Manual centered on several key points. The earth and all its creatures were viewed as 'belonging to God' who is the Creator (Ps. 24.1). Stemming from this principle, the Manual described the responsibility of stewardship: 'Those to whom land has been entrusted are responsible to be good stewards, for one day they will be held accountable' (Matt. 25.14-30). HTL's vision of stewardship was based on avoidance of sin since 'the sinner defiles the ground' (Lev. 18.20-28). Sin also caused animals to suffer (e.g., Jer. 14.5-7). Since environmental degradation was understood to result from sin, the basic responsibility of stewardship was therefore to receive the Gospel and repent.

According to Nakauyaca Jr., there were four major sins that defiled the land: bloodshed (murder); adultery or immorality; breaking the covenant; and idolatry. According to the Manual, immorality included fornication, prostitution, pornography, homosexuality, abuse, and bestiality (2007: 31). 'Breaking the covenant' referred to divorce (2007: 33), although Armbruster also used the term to refer to broken treaties between the government of Canada and Inuit and First Nations communities. The Manual explained that idolatry, which is related to witchcraft and 'demonic oppression', included 'worshipping... anyone or anything else other than God' (2007: 29). According to this theology, Inuit were guilty of idolatry before they converted to Christianity, although this was never explicitly stated in the interviews I conducted with HTL leaders or in church services.

'There were some good shamans and some that worked with the devil', Armbruster explained. 'The good shamans', he continued, 'were the ones who paved the way for the arrival of Christianity. But the bad ones, those who refused to convert, used their powers for evil' and were implicated in the sin of idolatry.⁶ By recognizing both 'good' and 'bad' shamans, Armbruster tried to strike a balance between condemning idolatry while also respecting Inuit traditions.

One of the central tenets of HTL was that defilement from sin was transmitted from one generation to the next until it was 'healed'. As Nakauyaca Jr. declared from the pulpit during the worship service: 'The sins of the forefathers can cause a curse upon the land that will last until

6. In interviews, community members also made a distinction between 'good' and 'bad' shamans, although they did not always associate good shamans with Christianity. Good shamans used their powers to heal and assist people in times of need, while bad shamans used their powers to inflict harm.

the third or fourth generation'. In order to 'heal' intergenerational sins and restore proper communal relations, these sins had to be identified and named publicly.

The ritual process of this work was clearly delineated in the Manual. First, sins were identified through conducting outreach and household visits, and particularly by talking with elders who had a longer memory of past events. Specific locations on the land were then chosen for healing rituals based on their association with past events. In Clyde River, for example, a healing ritual was conducted across the inlet where the community was located before the government moved it to its current site in the 1960s.

The next step involved a public confession of sin. During the ritual in Clyde River, community members recounted events and behavior that they associated with the former community location and considered to be defiling or sinful; participants then asked for forgiveness from the individuals and families who had been affected. Once the parties involved had repented, the facilitator made a statement rededicating the land to God. An anointing salve made up of oil, salt, and water was poured on the ground. As Armbruster explained, at this point, the sin that defiled the land was 'transformed and released'.

These activities required the intermediating practice of intercession, in which the group as a whole prayed to God on behalf of those who had sinned. Intercession was central to Christian missionary work and practices of conversion, but it also had its parallels in pre-Christian practices in the eastern Arctic. Transgression of social norms and taboos resulted in acts of retaliation by the non-human world, which could only be healed through confession. It was the role of the shaman to seek out or even force confessions that were not forthcoming and to then conduct the proper rituals to restore balance (Laugrand and Oosten 2010). As such, the rituals of HTL, while particular to the evangelical Christian context through which they were introduced, also had parallels in pre-Christian practice.

God's Miracles: Agricultural Metaphors and Ecological Relations

In Clyde River, scientific, Christian, and Inuit conceptions of human-environment relations intersected and diverged in complex ways. Historically, agricultural metaphors supported interventions into Inuit lives and livelihoods on the part of both Christian missionaries and government biologists. These metaphors continued to shape the rhetoric of HTL leaders, even as they voiced their support for Inuit hunting practices. Meanwhile, HTL's perspectives on environmental change both

responded to and contradicted scientific narratives. These diverse framings became apparent in HTL's description of miracles as a sign of God's grace.

According to HTL theology, miracles were the visible manifestation of communal prayer and healing, taking different forms in different places. They included both social and environmental transformations. In 2009, for example, the former mayor of Clyde River spoke about how, since HTL had come to the community, the hamlet's past financial difficulties had been reversed. In particular, however, HTL leaders claimed to specialize in miracles associated with the environment. Nakauyaca Jr. told me, for example, that 'In my own village, after the healing work we did, a river that was heavily polluted, that the scientists said we shouldn't drink from, became restored overnight'.

Armbruster shared an example from Fiji about coral reef destruction from bleaching, which is the process of warm water temperatures causing coral to expel the symbiotic algae that gave them their color (Kaufman 2004). Substantial bleaching had occurred in 2000 and 2002, yet some reefs had apparently grown new algae and come to support life again. 'Scientists can't explain it', Armbruster said. From his perspective, these reefs were restored through the HTL process.

While Armbruster's theory of causation was faith based, he adopted the scientific community's interpretation of coral bleaching as ecosystem decline and regrowth as ecosystem renewal. His engagement with scientific narratives points toward the complex ways that individual actors engage with multiple frames to make sense of environmental change. While evangelical leaders may reject science in certain contexts, they also reference scientific knowledge at other times, reinterpreting it to fit into faith-based understandings.

In the Arctic, HTL's restoration narrative directly contradicted scientific interpretations of environmental change indicators, particularly those relating to plant abundance and the northward shift of the tree line. The Arctic Climate Impact Assessment, a well-respected, comprehensive study assessing the impacts of climate change on the Arctic, stated that 'arctic [plant] diversity is very likely to respond strongly and rapidly to high-latitude temperature change' (ACIA 2005: 257). Scientists had described how rapid warming and the early onset of the spring ice melt had resulted in a longer growing season (Hudson and Henry 2009), with plants flowering up to 20 days earlier (Høye et al. 2007; Post et al. 2009). Ranges of low Arctic trees and shrubs have extended northward (Post et al. 2009), and a climate modeling study predicted that up to 40% of Canada's northern tundra may be replaced by shrubs and boreal forest by the end of the century (Feng et al. 2011). Scientists therefore viewed

plant growth as an indication of larger, systemic change that they predicted would be detrimental to ecosystem stability and would add stressors to certain species, including marine and terrestrial mammals that Inuit hunt.

In contrast, HTL leaders interpreted plant growth as an indicator of restoration and renewal attributed to their healing work in Arctic communities. When the HTL team arrived in Clyde River in late July, Arctic Cotton (*Eriophorum*), a type of sedge grass with a white, cottony head, was blooming so profusely that some areas around town looked like they were carpeted in a soft, white blanket. In his opening remarks for the worship service, Armbruster referred to the plentiful Arctic Cotton as a 'great light reflected from the ground', evidence of God's grace and forgiveness. He expanded further on his vision of environmental restoration on the Canada Awakening Ministries website:

I am told that now in some places, even in the High Arctic, edible berries are beginning to grow... There has never been a berry season in the High Arctic—only desolate wilderness... trees are now starting to appear above the ground... Could it be that the treeless Arctic tundra was once covered with trees, and was once like a garden, and that it will once again be covered with trees, and become like a garden once again? (in Laugrand and Oosten 2007: 248).

In this example, Armbruster evoked an Edenic metaphor to reinforce his claim that the abundance of plants and even trees on the tundra was evidence of restoration to a past state of glory, despite the fact that the Arctic tundra was never suitable for agricultural production.

The metaphor of agriculture is profoundly engrained in the Western consciousness, both in Christian missionary activities and in the language and metaphors of science (Comaroff and Comaroff 1997). In the New World, missionaries equated cultivation of the human spirit with cultivation of the land, often incorporating instruction in agriculture and gardening as a first step towards converting native peoples (Scott 2005). This belief in the civilizing force of agriculture was so strong that missionaries sought to apply it even in northern Canadian contexts where, as Jamie Scott noted, 'the discourse of cultivation seems almost to displace the realities of physical geography' (2005: 28).

Agricultural thinking also influenced the development of scientific approaches to wildlife management. As Paul Nadasdy (2011) explored in the context of the Kluane First Nation of Canada's Yukon Territory, agricultural metaphors structured the way that wildlife managers related to animals, as for example, through adoption of the terms 'yield' and 'harvest'. These agricultural terms reflected the perspective that animals could be managed through scientific study and the establishment

of hunting quotas or other policies. In a few noteworthy cases, the Canadian government actually introduced agricultural schemes based on the domestication of northern animals, including an effort to introduce domesticated reindeer to the Inuvialuit region of the Mackenzie Delta in the 1930s (Piper and Sandlos 2007).

In contrast, Inuit and other First Nations people have traditionally viewed animals as part of an extended network of sociality. While these views vary across different communities and households and may be changing somewhat in younger generations, conversations I had with Clyde River residents reflected a widespread belief in and respect for animal intelligence, which has also been documented in social-science literature (Stairs and Wenzel 1993; Gombay 2010). From their perspective, wildlife management initiatives were often a mechanism to control and manage people rather than animals, since animals could manage themselves perfectly well without human interference (Gombay 2010; Nadasdy 2011).

In order to connect with the important role of animals in maintaining social and subsistence ties for Inuit, HTL leaders transformed the Edenic metaphors of plants, trees, and flowers described above into an emphasis on animal health and well-being. Thus the HTL miracles that featured most prominently in Clyde River testimonies were those relating to 'abundance of animals'. HTL participants testified that they had caught more ptarmigan (small game birds), seals, narwhal, and polar bear. One woman described the transformation of fish in a particular lake from skinny and healthy to fat and healthy. In another testimonial a male hunter explained:

When I was a child, there used to be a lot of animals around like ptarmigan. But for a long time, we never had them around very much anymore. And then after the workshop, you noticed more people bringing you ptarmigan or saying they had got enough ptarmigan so if anybody wants some, just come around.

During the Clyde River prayer service, Armbruster shared another dramatic example of animal abundance that he related to healing work in the nearby community of Pond Inlet. In late November of 2008, a pod of narwhal became trapped in an area of open sea near the community when the winter sea ice closed in over them. The Department of Fisheries and Oceans Canada and the Nunavut Wildlife Management Board agreed with the Pond Inlet Hunters' and Trappers' Organization (HTO) that the community should be allowed to harvest the animals, since they would likely have died from being trapped under the ice. Initially, hunters believed the pod to number around 200, but more than 600 were harvested by the end of the cull.

'After the harvest, the head of the HTO came to church and gave thanks to God for the blessings', Armbruster told the worshippers. 'He said he could not only feel the presence of Christ but could also smell the aroma of Christ'.

In this way, HTL related its ethic of stewardship to the specificities of Inuit subsistence and animal harvesting. This was an adaptation of the movement's emphasis on the connection between human communities and the environments they dwell in, an emphasis that helped them connect in particular with indigenous groups.⁷ When I asked Nakauyaca Jr. about whether he felt there were similarities between Fijians and Inuit, he hesitated before stating he guessed that they were the same in their 'commitment to the land'.

'Yes, commitment to the land and to abundance of wildlife', Armbruster concurred. 'They don't have the same separation that we do in our culture between people and the earth'. His statement and the ritual practice of HTL reflected an understanding of the holistic and socially embedded ways that Inuit understood and related to the land and animals. By addressing Inuit hunters' desire for animal abundance, HTL leaders were able to downplay their faith's agricultural heritage and appeal to the Inuit in ways that scientific narratives could not.

Inuit, Healing the Land, and Scientific Interpretations of Environmental Change

Although HTL's focus on environmental 'restoration' through repentance of sin ran counter to Western science, it did so in ways that seemingly resonated with concerns that Inuit had about the hegemony of science-based policy making and wildlife management. Though ultimately denigrating some aspects of traditional beliefs, this appeared to be an important part of HTL's success in the region.

Inuit traditional knowledge and Western scientific knowledge have conflicted over stewardship practices, conservation, and the foundations of belief about the relationship between humans and animals. One source of the conflict between Inuit knowledge and Western science lay in different beliefs about stewardship practices. One way to 'care' for animals in a scientific management context was to place quotas on hunting and human use of animals. In contrast, Inuit hunters traditionally believed that animal souls were reincarnated, and that the best way to ensure abundant animals was to hunt them (Campbell 2004; Gombay 2010).

7. HTL has active groups in Fiji and Papua New Guinea and is affiliated with initiatives in Guatemala and Thailand.

The different beliefs about animal behavior and stewardship held by Inuit and government scientists have led to disagreements about the resilience and health of animal populations, including large marine mammals, such as beluga and narwhal, as well as caribou and polar bear. Biologists who study wildlife dispersed across the vast Arctic tundra often rely on aerial and boat surveys to make their population estimates. Inuit have maintained that this is an unreliable way of tracking populations, suggesting that their longstanding knowledge of animals offers a more accurate basis for understanding population numbers.⁸ Inuit have also been concerned about some of the practices that wildlife managers use to study animals, suggesting that helicopter surveying and the use of tranquilizers and radio collars can be harmful (Aupilaarjuk et al. 2002; Kunuk and Mauro 2010).

While Inuit knowledge and scientific knowledge about animals has sometimes conflicted, Inuit and scientists agreed that caribou numbers had been declining in recent years on Baffin Island and across Nunavut as a whole (N.A. 2010). Studies of wild reindeer and caribou have pointed toward a worldwide decrease in population by 33% since their most recent peak in the early 2000s, suggesting that climate change may be making it harder for caribou populations to recover after a decline (Gunn et al. 2009).

Caribou has historically been an important and popular seasonal food for Inuit. Clyde River residents were therefore concerned about caribou and hoped to see greater numbers in the near future. As such, it was probably not a coincidence that the Arctic HTL miracle that Armbruster cited most often was a story of caribou herds returning to Resolute, a community located on Cornwallis Island, one of the two northernmost communities in Canada. Promotional videos for HTL showed herds of caribou running across the tundra, while a narrator described how, after prayer and healing work, 'tens of thousands of caribou returned to Resolute'. Armbruster explained that caribou 'circled the spot where they had prayed and where the healing took place. It was as if they knew that something had happened there. And it was enough to convince even the non-believers.'

Through these stories, HTL emphasized a spiritual connection between human emotional wellness and the well-being of animals, which resonated with traditional Inuit conceptions of human–animal relations (Stairs and Wenzel 1993). As one HTL participant described her

8. For examples and discussion of some of these conflicts about wildlife, see Armitage 2005; Collings 1997; Dowsley 2007; and Suluk and Blackney 2009. Space does not allow a full discussion of the relevant conflicts in Clyde River in this article.

perception, since HTL, 'the animals even seem happier. If we are not at peace, then we could contaminate the land and the animals. But if we become at peace with ourselves and the land, the animals are more at peace, too.' These narratives contrasted with Western scientific and medical conceptions of human and animal health, which limit their focus to the biological organism and its physical environment (Wenzel 1981). Social ties between humans and animals are not part of the biomedical or scientific models of health.

HTL's conception of defilement of the land as a form of pollution also contradicts Western scientific perspectives and may have resonated to a certain extent with traditional Inuit beliefs about the power of particular places in the landscape and the proper way of relating to these places. As discussed previously, HTL defines stewardship as avoidance of sin, based on the belief that sin defiles the land. A Clyde River resident who had been involved with HTL rituals reframed this theological tenet through the language of traditional belief, stating: 'Inuit have a belief that if you do bad things on the land, bad things will happen to you'. She told me that there was a lake near Clyde River where a young woman had been crushed by an iceberg and killed. 'This was due to the negativity that was left on that land'.

'What happened in that place?' I asked.

'Have you seen the film *Atanarjuat* (the Fast Runner)?⁹ That's the same lake where it happened, on the ice there, where the people were killed.'

'How is *Atanarjuat* related to that woman being killed by an iceberg?' I asked her, confused.

'Because of the negativity people had towards it, because people had not forgiven that part of the land, so negativity is put on the land'. She explained that HTL involved forgiving and releasing grudges held against the land that form because of negative associations, such as the death of a loved one, or the experience of hunger in a certain place.¹⁰

'How do you heal those things?' I asked.

'We have to apologize and pray at the same time, like forgiving the land. You don't even actually have to go there, you can just talk to another human being about it and then pray together.'

9. *Inuk* director Zacharias Kunuk (2001) directed this film based on an Inuit legend. *Atanarjuat* is a young man who must overcome a curse that caused an evil spirit to wreak havoc in his community. The film won the Camera d'Or for best first feature at the Cannes film festival. Although *Atanarjuat* was filmed in Igloolik, elders in Clyde River claim the nearby landscape as the place where the events recorded in legend actually happened.

10. This story has some synergy with Julie Cruikshank's (2005) description of the Tlingit of British Columbia's belief in the agency of glaciers.

While this individual's description reflected her involvement in HTL, traditionally Inuit did identify particular places on the land that required special respect or care. These places were understood to be inhabited by spirits or invisible beings with the capacity to harm humans and were to be avoided or approached very carefully. Burial places were respected as the home of spirits, and these places were governed by particular rules about how humans should approach them and how they should act. Awareness of space and place included knowledge of how to respect and respond to these beings (Laugrand and Oosten 2010). Thus while HTL and traditional Inuit beliefs both identify particular places in the landscape as holding power to harm Inuit, HTL describes these as places of human sin mediated by God, rather than the more diffuse conception of non-human spiritual agency reflected in traditional Inuit beliefs.

In spite of the synergies between HTL and traditional Inuit ways of relating to land and animals, the movement also disrupted these relationships. As Joel Robbins has noted, scholars tend to explain the global appeal of Pentecostal and charismatic Christianity by emphasizing the similarities between the 'enchanted and ecstatic' rituals of these Christian traditions and indigenous beliefs and rituals (Robbins 2004: 126). He notes that this position often fails to take into account the ways in which these Christian forms 'accept local enchanted cosmologies only to attack them, thus profoundly altering the way they are understood' (2004: 127). This was certainly the case with HTL in Clyde River, as illustrated by the testimony offered by a hunter during one of the prayer services:

One time, I came upon a polar bear, and it ran away when it saw me. When it was gone, I saw it had killed a baby seal and left it there—it hadn't eaten it. When I took it back to camp, my wife asked me if I had thanked the polar bear, and I said no, and we agreed that all thanks and praise should go to God for everything.

This hunter's statement that 'all thanks should go to God' can be understood as a response to HTL's preaching against idolatry. In the HTL worship services, Nakauyaca Sr. emphasized the sin of idolatry, stating emphatically: 'It would be a sin to worship the whales!' While traditional Inuit belief in the intelligence of animals might suggest that the bear had left the seal under its own agency, the Christian version emphasizes God's complete and total authority. The direct relationship between the hunter and the animals he hunted was thus redirected in this evangelical Christian framework, with God now positioned as the provider and mediator of all relations.¹¹

11. This discourse about God as mediator between humans and animals was also present in Anglican Christianity (Laugrand and Oosten 2007).

*Conclusion: What's to be Learned from the Local Appeal
of Healing the Land?*

Residents of Clyde River draw on both Inuit and scientific ways of knowing in their everyday understandings of and engagements with the environment, including climate-related changes. Some community residents have collaborated with scientists to investigate environmental issues that concern them. My research suggests that the knowledge categories that are often viewed as separate from one another in a scientific or even religious context may be more fluid and dynamic than they appear on the surface. Agricultural metaphors have shaped both religious and scientific narratives; HTL leaders reference scientific understandings of change in some contexts even as they refute them in others; and Inuit in Clyde River use hybrid knowledge traditions to make sense of social and environmental change. They draw on the variety of world-views and perspectives available to them, emphasizing those that support their ability to pursue agendas that they deem important.

Yet because of the history of conflict with biologists over animal populations, Inuit are at times skeptical when scientists claim expertise about the Arctic environment, particularly when they do so in ways that diminish Inuit understandings and ways of knowing. Over the past decades, through negotiating land claims and establishing the Nunavut government, Inuit have become increasingly attuned to the ways that non-local perceptions and understandings can impact their lives at the local level. Inuit are concerned, for example, that research on polar bear populations and climate change, disseminated through academic journals and environmentalist networks, may result in reduced hunting quotas (Dowsley and Wenzel 2008). Many Inuit feel that their knowledge is still treated as less valuable than scientific knowledge, in spite of the establishment of co-management boards and protocols for local input into wildlife management.¹²

Scientific researchers, attuned to processes of change that are global in nature, often arrive in northern communities with research agendas that do not correspond to local priorities. Situated far from the centers of decision-making and industrial production where emissions targets are set and the bulk of emissions are created, many Inuit feel that there is little they can do to address global climate change directly. From such a

12. Co-management boards were established as part of the Nunavut Land Claims Act of 1993. For more on co-management, see references in n. 8. For a discussion of how these institutions are likely to constrain Inuit adaptation to environmental change, see Wenzel 2009.

perspective, pursuing research on climate change is wasteful and rarely leads to concrete action.

HTL sets itself apart from these dynamics by offering a theory of agency that connects group engagement and action with local environmental impact. With its ritualized group healing ceremonies, HTL may appeal to Clyde River residents because it offers an immediate way to take action, encouraging a sense of collective agency in dealing with change. Over the past century, Inuit have navigated many changes, including the transition from a semi-nomadic life on the land to living in permanent settlements, which largely took place in the 1950s and '60s. They associate many social challenges of the present time, such as the struggle for healthy food, a lack of good housing, high rates of drug and alcohol use, and a high suicide rate, with the legacy of these changes, including the colonial practices that have guided government engagement with Inuit.

In this context, HTL's emphasis on local practices of prayer and healing offers a framework through which community members can directly engage with processes and outcomes of change. HTL's integrated vision links the social world with environmental resilience, offering a way for community members to engage with social issues while also, according to the movement's leaders, supporting the well-being of animals and healing the land. By doing so, participants also reframe environmental change as an issue that can be addressed through local agency.

Of course, many would argue that this sense of control is false. From a secular perspective, the idea that social and environmental problems can be healed through prayer is misguided or even delusional. HTL's conception of stewardship as avoidance and repentance of sin redirects action toward spiritual ideals and practices and away from addressing the political, economic, and social causes of environmental issues. To suggest that prayer will miraculously restore caribou populations, for example, sidelines the potential for Inuit and scientists to use their significant bodies of knowledge to cooperatively address this area of mutual concern. Finally, by labeling certain practices of the past—such as shamanism—as 'sinful', HTL reinforces a discourse that denigrates pre-Christian Inuit beliefs and implicitly suggests that Inuit identity is inferior to *Qallunaat* identity.

Social and natural scientists and environmentalists concerned about global environmental change have much to learn from being attentive to the conditions and processes by which alternative narratives of change, such as HTL, gain persuasive power. In Clyde River, the appeal of HTL points simultaneously toward gaps in social policy as well as a sense of alienation from the norms and processes of Western science. Most

noticeably, the dominant position of scientific knowledge in national and international contexts means that local people rarely set the terms of engagement. Yet from the perspective of community members, what is most important is not so much the acquisition of scientific knowledge as it is being able to address the issues that they find most pressing in their own lives, such as the availability of game or the maintenance of social harmony.

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**Religion and Climate Change in Northern Kenya:
New Moral Frameworks for New Environmental Challenges?**

Elizabeth E. Watson

Cambridge University, Department of Geography,
Downing Place, Cambridge CB2 3EN, UK
eew1000@cam.ac.uk

Hassan Hussein Kochore

National Museums of Kenya,
Box 40658—00100, Nairobi, Kenya
hkochore@museums.or.ke

Abstract

In the arid lands of northern Kenya, the pastoralist livelihoods of Boran and Gabra peoples are already under pressure from environmental changes that are increasingly perceived as related to climate change. Indigenous religions, different forms of Christianity, and Islam all co-exist in this region; each potentially has a role to play in responding to the environmental crisis. Our research suggests that indigenous religions provide a valuable and integrated set of institutions that could potentially facilitate adaptation to climate change. In contrast, the Abrahamic religions have not explicitly engaged with climate change. Moreover, through their relief and development work they have indirectly undermined many of the qualities of mobile pastoralism that might enable herders to cope with more unpredictable weather in future. Noting that religions appear to be playing a powerful role in the region, we argue that the subject deserves greater attention among scholars of climate change.

Keywords

Religion, climate change, pastoralism, mobility, northern Kenya, development, environment

Religion and Climate Change in Northern Kenya

Climate scientists agree that Africa will be greatly affected by climate change. Despite a paucity of meteorological data, there is consensus that the continent is already getting warmer, and is likely to face 'more climatic variation and extreme weather events' (Conway 2009: 7). Indeed, some areas are already experiencing changes 'at a faster rate than anticipated' (Boko et al. 2007: 435). Beyond these rapid physical changes, however, researchers have also identified Africa as one of the continents likely to be hardest hit by climate change because it intersects with 'multiple stresses' already in effect there: poverty, high dependence on environmental resources, environmental degradation, and low adaptive capacity (Boko et al. 2007).

The drylands of Marsabit County in northern Kenya experience all of these stresses. The pastoralists who live there depend heavily on rainfall for pasture for their animals, and they are already vulnerable to extreme weather events such as droughts. They are among the poorest groups in Kenya¹ and, historically, have received low levels of support from the Kenyan state. Recent analysis of data from around Marsabit town has confirmed perceptions that longer-term changes to rainfall patterns have already occurred (Witsenburg and Adano 2008: 93). Furthermore, existing environmental degradation, especially from under-grazing or over-grazing, is likely to compound any climate-related impacts.

For these reasons, although many uncertainties about the nature, scale, and impact of climate change remain (Conway 2009), it is a real and growing concern in the region. Not surprisingly, climate change now appears prominently in the discourses of development workers, the media, and government officials working in the region. It also influences the perspectives of residents and observers, who have begun to note changes in the weather. Despite this surge in interest, however, those studying environment or development matters have tended to overlook what may be an important factor: religion. Religion is an extremely important aspect of everyday life for many of the people in northern Kenya, and influences relations to the environment in various ways. In this region, indigenous religions have historically played a central role in human–environmental relations: for the Boran and Gabra peoples, indigenous beliefs centre on *Waaqa* (God), who is also the sky (Bassi 2005), and who is thought to provide the rain essential to good pasture.

1. 2011 Kenya Government data place Marsabit 44th County (out of 47) for poverty (<https://opendata.go.ke/COUNTIES/KENYA-COUNTY-FACT-SHEETS-DEC-2011/zN6m-25cf>).

The roles of indigenous leaders, who mediate between *Waaqa* and people, include ritual and practical administrative responsibilities that relate to the use of pasture and water: they give legitimacy to rules that govern how land should be managed, who should graze where and when, and how water should be used and shared. According to indigenous religious cosmologies, peace, ritual, rain, human welfare, animal health, and environmental well-being are closely linked. The rhythms and practices of mobile pastoralism are closely integrated with the indigenous beliefs, institutions, and practices (Dahl and Megerssa 1990).

These indigenous institutions do not exist in a vacuum, either. Islam has been present in the area at least since the early part of the twentieth century and Christianity has flourished since the 1960s. Since Kenya achieved independence in 1963, churches and mosques have multiplied, just as they have across the rest of Africa. In northern Kenya, where the State has not functioned effectively, these religious communities and organizations have provided practical as well as spiritual support. The churches and the mosques have also been important venues for sharing and forming opinions. As places where people meet and decide to work together, they have also been important sources of social capital. Interestingly, many of the Christian and Muslim religious groups that are active in the region have expressed concern over the environment and climate change at the international level. Still, little is known about whether such statements have had any effect at the local level.

Questions about the extent to which religion shapes local pastoralists' beliefs about and attitudes toward climate change, as well as about whether any religious groups have taken or encouraged any steps to address climate change, are therefore highly pertinent. Accordingly, our study examines whether, and if so, how, the co-existing indigenous and Abrahamic religions may be collectively influencing how locals are thinking about and responding to climate change. Although the research presented at this stage is preliminary, we argue that indigenous religions provide a valuable and integrated set of institutions that could potentially facilitate adaptation to climate change. In contrast, the Abrahamic religions have not explicitly engaged with climate change. Moreover, through their relief and development work they have indirectly undermined many of the qualities of mobile pastoralism that might enable herders to cope with more unpredictable weather in future. Noting that religions appear to be playing a powerful role in the region, we argue that the subject deserves greater attention among scholars of climate change.

Research Methodology and Premises

Our research examined the extent to which religious ideas, debates, and performances (in meetings, sermons, and rituals) engaged with the new challenges (developmental or environmental) that are produced by climate change. Our aim was to understand how the different religions shaped qualitative relations to and practical management of the environment, as well as to understand how they influenced responses to climate change. Our understanding of indigenous religiosity is based upon the lead author's research on indigenous environmental management institutions (which have religious dimensions) as well as attendance at various rituals in 1986, 1999, 2000, and 2007.² This first-hand experience was further informed by consulting the existing literature on Gabra, Boran, and Oromo societies. The fieldwork that informs this paper was conducted primarily in 2010, and focused explicitly on the relationship between religions and climate change. The authors spent one month in Marsabit County carrying out semi-structured interviews and attending religious meetings.³ Twenty-six semi-structured interviews were carried out with local residents: six with Christian priests or pastors; two with Imams; two with ritual leaders of the indigenous religion; and sixteen with individuals of different ethnicities and religions. Every effort was made to interview a range of people by age, livelihood, and gender.⁴ Nine interviews were also carried out with professionals working in environment and development organizations in the region. These included four working for faith-based NGOs, four working for secular NGOs, and one working for a government organization. One group interview was also carried out at a settlement near the Ethiopian border. Where possible, the research draws on interviewees' own words to reveal their personal perspectives on the processes taking place. Most of the interviews were carried out in the vernacular language (*Borana*), and translated in situ by one of the authors. Pseudonyms have been

2. Interest in this region was first initiated when the lead author attended a Gabra ritual in northern Kenya in 1986. In 1999 and 2000, two months' fieldwork was carried out with the Gabra and Boran on the Ethiopian side of the border. This research, funded by the Department for International Development UK, focused on indigenous environmental management practices (Watson 2003). At this time the lead author also interviewed key Gabra and Boran ritual leaders and observed Boran rituals leading up to the installation of the next head of the *gada* generation grade system (*aba gada*).

3. Funded by the British Institute in Eastern Africa.

4. We managed to interview a good range of people by age and livelihood. We found it more difficult within this short field study to interview women.

employed to protect individual identities, but information is provided in order to locate the speakers' positions and cultural identities. In addition to conducting interviews, we also attended five church services and visited two mosques. The 2010 research built on fieldwork conducted in 2007, in which the authors joined a team of geographers, anthropologists, historians, and archaeologists studying the changing landscapes of religion and identity in this county (Watson 2010).⁵ While the interviews conducted in 2010 are by no means comprehensive, our findings are therefore informed by research on the role of religion in the region carried out over more than a decade.

Following Clifford Geertz, we view religion as 'a system of symbols' which 'tunes human actions to an envisaged cosmic order and projects images of cosmic order onto the plane of human experience' (Geertz 1993 [1973]: 90). According to Geertz, religion shapes 'ethos', 'mood', and 'motivation', and plays a normative role in shaping action. Given that religion appears to play just such a role in the indigenous as well as in the other forms of religion considered, we have chosen to extend this approach further, identifying four interconnected ways in which religion is relevant to human–environment relations and to the challenge of climate change in northern Kenya.

First, religions (particularly the indigenous religions) help set the institutional dimensions of everyday environmental management, establishing rules-in-use, routinized practices, and sets of rights and responsibilities. These structuring principles have been identified as central to the successful management of the environment (Ostrom 1990). Many authors have identified ways in which these institutions are enmeshed in culture (see Watson 2009 for review). But in northern Kenya, at least, few have explored how environmental management institutions in that culture and society are shaped by religious beliefs and practices.⁶ Using Geertz's idea of ethos, which refers to 'an image of cosmic order—a world view' (1993 [1973]: 118), we explore the ways that the indigenous religious ethos is integral to the indigenous institutions involved in everyday management of the environment.

Second, religions influence the qualitative nature of human relations to the environment—how people perceive it, how they feel about it, how

5. This research was funded by a combined grant from the Economic and Social Research Council UK and the Arts and Humanities Research Council 'Religion and Society Programme'. During this field visit, more semi-structured and group interviews were carried out, and another church service in Marsabit town was attended.

6. Literature exploring this topic in other regions includes Lansing 1987 and Schoffeleers 1979.

they value it, and how they treat it. Motivation, mood, and ethos (which embody moral and aesthetic values) are key in this regard.⁷ Their precise effect is difficult to capture, but it can be seen in the values that locals attach to different natural resources, and the degree to which the environment is respected, revered, or considered dispensable or indispensable. How indigenous religions make connections between societies' origins and important environmental sites such as mountains and wells, for example, illustrates the intimate connection between people and the environment, and the nature of the values that are attached to it.

Third, religion can be a source of social capital: much work in development studies on 'faith-based organizations' has explored how individual members of organizations are motivated to work together by their beliefs, sometimes doing difficult and undesirable work (see Clarke 2006 for a review). There is an additional emotional element to religious organizations that can be helpful and positively transformative, though it can also be harmful, leading to self-righteousness, dogmatic attitudes, and conflict (Jones 2002). This organizational function is particularly relevant in the case of climate change, which will require just the type of collective action that religions can help promote.

Fourth, religious worldviews seek to provide explanatory conceptions of and narratives regarding general orders of existence, and thus to create understandings of events and processes in the world (Geertz 1993 [1973]). Explanatory narratives for climate change are crucial to the ways in which problems are identified and causes are diagnosed, and hence to how particular solutions are designated as appropriate. If religious ideas and teachings shape locals' explanatory narratives, they will consequently also powerfully shape the selection and implementation of different practical responses.

In summary, religion represents a powerful force that offers a framework in which worldviews and cultural imaginaries frame practical actions, understandings, and relations. Religion's influence reaches far beyond the personal and spiritual to other realms of human action.

The analysis that follows employs broad categories of religion, including 'the Boran indigenous religion', 'the Gabra indigenous religion', 'Catholicism', 'Anglicanism', 'new urban churches', and 'Islam'. Such terms are necessary, but—it should be remembered—also obscure

7. 'Motivation' is defined as 'a persisting tendency, a chronic inclination to perform certain sorts of acts and experience certain sorts of feeling in certain sort of situations' (Geertz 1993 [1973]: 96). 'Mood' refers to a similar sort of emotional disposition invoked by ethos or ritual performance. Although a diffuse emotional disposition, it can still play a powerful role in shaping engagement with the world.

a great deal: the variety within each category, as well as the ways in which these traditions have related to and influenced each other in the past. To avoid inappropriately reifying these categories, we have therefore made a point of highlighting syncretic characteristics when they are evident and relevant to this discussion.

As a final caveat, climate change is a 'slow-onset pervasive hazard' (Wisner 2010: 132) and its processes are global in scale. On the ground its specific effects are difficult to disentangle from other observed environmental changes. In what follows, climate change is used to refer to larger global-scale climate processes, and environmental change refers to more localized experiences, challenges, and effects, some of which may be linked to wider climate change processes.

Background: Northern Kenya, Indigenous Religions, and the Environment

Covering approximately 70,000 km² and abutting the Ethiopian border in the north and Lake Turkana to the west, Marsabit County is the largest county in Kenya. Of the region's many ethnic groups, we focus on the Boran and Gabra, herders whose rangelands stretch from Kenya into Ethiopia (herders are able to cross the border without much difficulty). Marsabit County is very arid and rocky, and in the wide lowland plains rainfall averages only 200-250 mm. On the more limited areas of higher land, rainfall can reach 800-1000 mm per year, and can support some agriculture (Witsenburg and Adano 2008). The area is multi-ethnic and, historically, different groups have specialized in either camel or cattle pastoralism, supported by small stock (sheep and goats). The ethnic groups' different livestock specializations have allowed them to exploit different ecological niches. Despite this, there have been many incidents of conflict in the past, and they continue up to the time of writing.

We chose to research the Boran and Gabra people because they both have strong indigenous religious worldviews and also histories of conversion to Christianity and Islam. They are considered Oromo peoples, and they have close, mutually intelligible languages and similar cultural practices (Baxter 1978; Tablino 1999). For instance, both have generation grades or '*gada*', which organize all members of society into a series of generation classes with specific administrative, political, and ritual responsibilities. They also have ritual office-holders who live in sacred camps known as '*yaa*'. In both cases, the members of the *yaa* are responsible for performing rituals and prayers that are thought to protect and ensure the well-being of their people. The leaders also play key roles in decision-making: their advice is sought and they make

judgments when disputes cannot be resolved at other levels. In this way, as respected spiritual leaders, members of *yaa* play a role in the mundane everyday life and affairs of their people (Baxter 1978).

For both the Gabra and the Boran, the everyday management of their environment, so integral to their practices of mobile pastoralism, is infused by and inseparable from their religious cosmologies and practices. The rules governing access to pasture land and water, for example, are enshrined in well-defined indigenous principles known locally as custom (*aadaa*) and law (*seera*). These rules encompass valuable indigenous knowledge and have the potential to regulate the human use of the environment in a sustainable and inclusive manner (Watson 2003). These practical 'rules' are thought to be given by God (both groups are monotheistic). As Kassam explains:

For the Oromo,⁸ human beings occupy a unique position in the universe created by One Divinity (*Waaqa Tokkicha*). Unlike all other creatures human behaviour is not regulated by mere instinct but by a set of cultural values founded upon and derived from laws of nature. These rules of custom (*aadaa*) and law (*seera*) regulate a person's behaviour in society and his/her relations with nature (1999: 489).

For the Boran and Gabra, practical environmental management might be seen as a secular affair, therefore, except that the principles along which resources are used, and the structures of authority that underpin those principles and decision-making powers, are interwoven into a cosmology in which the relationship of people to each other and to their environment is mediated by ritual and is seen as given by God.

A second key feature of Boran and Gabra religiosity is that it connects the natural world with the social. Among the Boran, for example, certain natural resources are imbued with sacred qualities: many of the rituals that accompany the rites of passage of the *gada* generation grade take place at particular sacred sites forming patterns of pilgrimage through the landscape. The names of the nine old and deep well complexes in Ethiopia, for example, are evoked in prayers and blessings. Dahl and Megerssa (1990) explain that these wells are important materially to the maintenance of life, but, more profoundly, they are considered to be the sources of life itself. Some wells represent the ancestors and, at the same time, are thought to *be* (and not just to represent) the principles of life. As they describe, Boran ideas of life, divinity, and nature are thus profoundly interconnected:

8. Here Kassam means all Oromo, including the Boran, Gabra, and other related groups.

The Boran view of cosmology, ecology and ontology is one of a flow of life emanating from God. For them, the benignancy of divinity is expressed in rain and other conditions necessary for pastoralism. The stream of life flows through the sprouting grass and the mineral waters of the wells, into the fecund wombs and generous udders of the cows. The milk from the latter then promotes human satisfaction and fertility. When people are satisfied by the yield of their herds, they live happily and peacefully according to the 'Law' (seen as both consensually formulated and divinely inspired), thereby creating a balance between people and Divinity, and reproducing favourable conditions (Dahl and Megerssa 1990: 25).

The Boran indigenous religious ethos is woven into their environmental management practices. The beliefs and ritual practices are so much part of the fabric of everyday Boran life that Baxter's comment still rings true: 'Boran society sometimes seems to float on a river of prayers and blessings' (1978: 155).

Many similar ideas and practices are present among the Gabra. Like the Boran, the Gabra subscribe to the notion of *nagaa*, in which human well-being is united with the existence of enough rain and with the absence of quarrelling and conflict (Aguilar 1998). In the Gabra *yaa*, prayers—said twice every morning and twice every evening—ask for guidance, rain, and protection. For the Gabra, certain mountains and water sources are the sites of particular rituals, and they have long pilgrimages to particular known and named sites that accompany their generation grade rituals. Schlee (1992) describes the whole of Gabra landscape as a 'ritual topography' in which trees, mountains, and water sources are imbued with sacred qualities.

Mobile pastoralism is not what it was, however. Since the 1960s, many herders have lost animals because of drought or conflict and are no longer able to practise a mobile life; improved water sources, agricultural development projects, food relief, and health, education, and social opportunities offered by growing towns and emergent settlements, mean that many have chosen to pursue a more sedentary life. Therefore, the connection that is made in the indigenous religious cosmologies between ritual practice, social well-being, and good environmental conditions has come under pressure from more than one direction. The environment has been changing, but so has the way of life of the people.⁹

9. It must be emphasized that the changes to social life, particularly sedentarization, are driven by multiple factors, political, economic, social, and environmental (see Fratkin and Roth 2005). Sedentarization cannot be seen as inevitable or as a straightforward adaptation to climate change; it is a more complex and multifaceted process.

Drawing on the cosmological connections between the well-being of society and the well-being of the natural world, indigenous explanations link climate change to these transformations in society.

Indigenous Religions and Climate Change

In interviews with Gabra and Boran men and women, many commented that they believed the environment had undergone observable and significant changes. For example, a group of Gabra men told us that

The rainfall patterns have been changing. The short rains fail and the long rains are not that long. It started about 20 years ago, and since then every year the rain is reducing. The grass has been reducing and some of the species of grass have disappeared altogether. And the wind is much stronger (Gabra men at Forolle 2010).

By a pond at Elle Bor (which is near Forolle), a Boran man who was watering his cattle explained:

Now there is drought twice a year. This started in the *gada* of Liban Jaldesa (2002–2009).¹⁰ Out of these 8 years, 3 years were drought years. Many people lost their animals (Guyo Duba 2010).

Halake Elema, a Boran elder and ritual leader on Mount Marsabit, explained:

That time [when his family first came to Marsabit], on Saku it was always raining. You can't even know the short rains from the long rains—the rains came all the time. It was always misty. But now there is no rain. Now there are only a few drops (Halake Elema 2010).¹¹

The Boran and Gabra men and women we interviewed often explained the changes they had observed as God (*Waaqa*) punishing people for fighting each other, and for not 'respecting the culture' as they ought. For example, Guyatu, a Boran woman on the lower slopes of Mount Marsabit whose family had recently changed from cattle to camel herding because of drought, explained what she thought had caused a decline in rainfall:

It is God who knows the real reason. People have an explanation. It could be true or false. People, when they live in villages, when they don't talk to their neighbours, then there are quarrels. There are farms, and people try to extend the boundaries of their farms. And then there is fighting among

10. Liban Jaldesa was the name of the *aba gada* or 'father' of the *gada* for this period.

11. Saku is the Boran name for Mount Marsabit. Calculating from his reference to different generation grades in this interview, we estimate that his family first came to Marsabit between 1928 and 1936.

ethnic groups. Probably these are some of the reasons that God is punishing people (Guyatu Golicha 2010).

Unlike pastoralists who move with animals across a landscape, farms involve exclusive use of territory, which, in contrast to the communal grazing lands, increases the potential for conflict over borders. Guyatu viewed sedentarization, increased farming, and the quarrelling neighbours, combined with the conflict that has taken place between ethnic groups, as provoking God to withhold rain.

Halake Elema, the Boran ritual leader we interviewed, explained what he thought was causing the changes by quoting a well-known Boran prophet:

This is something that was prophesized. Arero Boosaro, a wise prophet, said:

'Gaalole Gabr tae—The Boran will own camels and become Gabra

Ree Rendil tae—They will own goats and become Rendille

Eele safar tae—They will use the metal cooking pot and become Somali

Woltille garan ad'a wol gata tay—People from the same womb will fight one another and decimate each other' (Halake Elema 2010).

For Halake Elema, the changes to climate had come because the Boran had abandoned lives that depended materially and symbolically on cattle, thus 'becoming' Gabra, Rendille, and Somali, all ethnic groups who specialize in camel keeping. He saw the loss of key markers of Boran identity as leading to a 'decimation' that was both social—in terms of loss of social harmony—and environmental, leading to climate change.

An elder from a Gabra *yaa* also developed this theme of cultural loss. For Sora Adi, changes to climate have resulted from the younger generations' lack of respect for Gabra cultural practices and institutions. His words revealed that, in addition to believing God was punishing people because they showed insufficient respect for his authority and no longer carried out religious rituals or respected each other, he was also punishing them because they did not value their 'traditional' livelihood practices:

The reason for these changes is because people have become spoiled. God gives you what you wish for. The young people don't respect the elders... When I was young and growing up the only thing I knew was looking after animals. And I liked it. But now the young people don't go and look after animals. I have five sons and all of them have gone to school. Now they say 'what are these animals?' 'What is this culture?' If they don't want the animals, they don't want the rain. So why should it rain? (Sora Adi 2010).

The group of Gabra men we spoke to at Forolle also thought the changes to climate were a punishment from God, but in addition to sedentarization, they highlighted an increased reliance on food relief and more formal education as factors drawing God's wrath:

Before, Gabra never used to live in town or live on maize flour, and there was no writing. It is these things that have spoilt our lives. People don't like animals as they did before. And so this [the change to climate] is a punishment from God (Gabra men at Forolle 2010).

Similar ideas were expressed by Boran. Here, not looking after animals was seen as an abdication of social and moral duty, which in turn was seen as a threat to the well-being and continuity of society (*jireena jiru*). In Guyo Duba's view:

It is just God that has done that. Generations have changed. The youth are not the same. Probably God has changed in the same way. The younger generation, they don't answer when you call. They don't take animals to water. They don't listen to advice. Before old men gave animals to the young men. Now things are reversed. God has changed in the same way (Guyo Duba 2010).

A consistent explanatory narrative emerged from our interviews with those Boran and Gabra who subscribed to the indigenous religious worldview. They blamed themselves and their societies for the changes taking place, pointing especially to changes in livelihood strategies that involved increased farming, sedentarization, reliance on food aid, and education. The youth were particularly implicated in these developments. As Guyo Duba pointed out, the lucky, successful ones were able to buy animals for their fathers, instead of waiting to inherit from them and therefore being subject to them. Here the power relations enshrined in the *gada* generation grades have been reversed. The consequences of this transformation to the social order were thought to be that God withheld rain. God changed from a God who provided to a God who punished.

Interestingly, interviewees did not discuss factors beyond the Boran or Gabra universe. Only in one encounter did the horizons of our interviews broaden, after Sora Adi in the Gabra *yaa* asked us what we thought had caused the changes to climate. We suggested that the changes had come from many sources, including pollution from the expansion of industries, factories, and cars. The elder picked up on the idea of 'factories' but only to reinforce the view outlined above:

I have lived through two periods, the colonial period and the one after Independence. Before Independence the environment was very much the same. So if you say it is factories, why didn't it happen then? I will tell you what has brought the problems. People do not respect the elders. The

'people factory' has become spoiled. Culturally you should not just go and shave anywhere. I shouldn't shave outside my house. My wife will bring me water to use. But now because of Islam and Christianity we shave anywhere [such as in a hairdressers in town]. It is not the factory you are talking about but it is the 'people factory' that is bringing a lot of development and is spoiling things (Sora Adi 2010).

In other words, among people who still valued their culture's 'traditional' lifeways, conflict, development, social change, and lack of respect for custom and religious ritual were the most common explanations for the region's increasingly erratic weather. In this last quote, Sora Adi explicitly blamed conversion to Christianity and Islam, and he was not the only interviewee to do so. Several explicitly linked what they saw as a lack of respect for custom and indigenous religious ritual to the rising influence of Abrahamic religions.

Abrahamic Religions and the Environment

Catholicism

At time of writing, the Catholic Church has the most adherents of any of the Christian churches in the region. It was established in the region in 1963 (Tablino 2004). From the beginning, the Catholics brought to their mission a passionate commitment to working with the local culture and beliefs. They were influenced by the Directive of Vatican II (1962–66), according to which indigenous rituals and religious ideas were seen as a potential source of communion with God. As Tablino¹² explained:

Our missionary approach to the Gabra...consisted of a serious study of the Boorana [*sic*] dialect spoken by the Gabra; the use of this vernacular language in liturgy and prayer; a respect for, and careful preservation of, the positive aspects of the culture, including the sincere wish for the traditional nomadic life to be kept alive; the gradual involvement of the laity in assuming responsibility for the outreach work; in short the incarnation of the Gospel in the culture (Tablino 2005: 42-43).

These attitudes and practices on the part of Catholic missionaries have engendered a close relationship to the Gabra.¹³ Many Gabra explained to us how Catholicism was compatible with their customs:

As far as Christianity is concerned, we pray to God, we sing, there is no friction between Christianity and tradition. Christian religion is easy

12. Tablino was one of the first Catholic priests in the area. He has written extensively on local culture and church history.

13. Also to the Rendille. Historically, the Gabra have also had a close relationship to Islam (see Kassam 2005).

because nothing is slaughtered that conflicts with our rituals. *Sorio* [ritual] is for rain and general blessings for peace and harmony. In church it is also praying to God. It all adds up to maintaining peace (Gabra elder 2007).

In their teachings and rituals, therefore, the Catholic Church has not encouraged a radical rethinking of people–environment relations. In discussions with nomadic pastoralists and town-dwellers who were Catholic, we found no specific reflections on the causations of climate change that were different from those expressed in the indigenous worldview.

The Catholic support for pastoralism, however, and for the indigenous religious ways of managing and relating to the environment, must be placed in a wider context. The Catholic Church has been part of wider processes that have materially transformed people's lives and have significantly changed their relations with their environment. In fact, the Catholic Church has probably done more that is of practical development significance than any other organization in the area. During the *Shifita* War (1965–69), for example, it provided those fleeing the conflict with a safe place to stay, with housing, and with water. In subsequent conflicts it has provided similar assistance. Generally, it has provided some of the best schools in the region, as well as dispensaries and health centres, and it has supported hospital facilities. It has engaged in re-stocking and livestock programmes and agricultural support programmes. It has even provided individuals with legal support when they have been imprisoned. In many ways, it has taken on some of the responsibilities of the State towards its citizens.

These processes have helped shift people's relations to their environment in several ways. First, the Catholic Church's activities have been connected to increasing levels of sedentarization, as people have settled in order to gain access to food aid, to improved water supplies, to schools and dispensaries, and to other services provided by the Church. Although sedentarization has enabled the Church to provide services more efficiently, evidence suggests that, for many, in the long term, it has also increased vulnerability: people who do not move from pasture to pasture find it harder to gain a living from livestock; diets have become poorer as milk is no longer easily available; and environmental degradation has occurred around settlements where there is overgrazing, and away from settlements where there is undergrazing (Fratkin and Roth 2005). Many have not found alternative livelihoods to pastoralism and have become more reliant on food aid.

Secondly, the Catholics have contributed to the neglect of indigenous rituals. Tied to a nomadic lifestyle, pilgrimages to sacred sites at particular times in the ritual calendar help maintain 'traditional' indigenous

relations to the environment by encouraging movement across large areas of land that could be used for grazing. Local Catholic leaders have expressed support for these pilgrimages, but in practice the combination of education and church attendance has meant that the rituals are increasingly left undone. As one educated man explained, 'the new generation are not practising rituals... I support it [in theory], but in life I have left it completely' (Gabra NGO worker, see also Watson 2009). For people like this man, the indigenous institutions governing access to land and water, and which maintained '*nagaa*' (peace, rain, and well-being), have become largely irrelevant. As a consequence, they have been weakened. The Catholic Church in northern Kenya has therefore brought wider changes to lives and livelihoods that in practice have undermined the indigenous worldview and the indigenous forms of environmental relations and management practices.

Climate change was not a significant concern or priority for the Catholic Church in Marsabit prior to the turn of the twenty-first century, but more recently it has begun to appear prominently in the documents of the Church-related development organization, Catholic Diocese of Marsabit (CDOM). For example, a 2010 project document claims (without a great deal of supporting evidence), that '[a]s a result of climate change, the ecosystem within Marsabit is no longer favourable to pastoralism' (CDOM 2010: 15). It is implied in this and similar documents that development projects supported by the Church need to support alternative forms of livelihood, such as agriculture, employment, and income-generating activities, and that pastoralism is no longer viable.

In summary, although the Catholic Church was clearly aware of the potential impacts of climate change in the region, it did not seem to have discussed it more broadly with the locals, by either their own accounts, or the accounts of the leaders with whom we spoke. In addition, although the local Catholic Church has supported the indigenous ways of relating to the environment in theory and through many of its ritual practices, in practice the development projects it has implemented have promoted forms of development—education, health, agriculture—which are more associated with a particular kind of modernity in which there is a reduced reliance on herding. Broadly its association with sedentary livelihoods has undermined human–environment relations based on mobile pastoralism. Climate change has become the latest factor that has justified what has been a longstanding direction in policy and action—a direction that has also been blamed in the indigenous narrative for causing the decrease in rain.

Anglicanism

The Anglican Church was established by the Bible Missionary Society (BMS) in the 1930s. Like the Catholics, the Anglicans combined an interest in spiritual welfare with more practical development work among the local communities. Anglican missionaries provided, for example, a school and a health station, and they extended support for agriculture on the slopes of Mount Marsabit.

When asked about climate change issues, one of the Marsabit pastors we interviewed told us about a workshop he had attended in Limuru, central Kenya, in 2006. In the absence of other exposure to discussions about climate change issues, this workshop had strongly shaped his understanding of climate change and the Church's responsibility with regard to it. This workshop was organized by Care of Creation Kenya, an evangelical organization founded by Craig Sorley in 2005, whose mission is stated as 'to pursue a God-centered response to environmental challenges that brings glory to the Creator, advances the cause of Christ, and leads to a transformation of the people and the land that sustains them'.¹⁴ The pastor had attended the workshop with support from the Christian NGO, Food for the Hungry.

Showing us the materials he had collected at the workshop, the pastor explained that the book of Genesis stated that 'God created Heaven and earth' and that 'Man [*sic*] [had been] created in the image of God to rule over Creation (Genesis 1.26-28)'.¹⁵ Rather than interpreting this as a license to exploit the environment, he emphasized that Man has also been given the responsibility to act as 'steward' and 'to tend, serve, and cultivate', and 'to keep, preserve, and protect' the environment that God gave 'Man' in the Garden of Eden.¹⁶

Further, the approach that the Anglican pastor had taken from the workshop was that climate change and environmental degradation had resulted from deviance in human behaviour: specifically, the relationship between 'Man' and nature had been broken by original sin in the Garden of Eden. The original sin had generated a linked 'suffering' of 'Man' and nature, which would be remedied by religious salvation and the love of Christ. As with the indigenous religions, the 'sin' was framed in this view as related to personal behaviour, but unlike the indigenous

14. Care of Creation website: <http://www.careofcreation.net/about/vision/>.

15. All quotes in this section come directly from the pastor's notes on the workshop.

16. This shift from depicting the human relationship to nature from one of dominion to one of stewardship has been identified as a broader trend in Anglicanism (Gottlieb 2006).

religions, the original sin was in the distant past, and not related to recent or specific transgressions. Also, in contrast to environmental discourses, there was no evidence of an attempt to relate the environmental crisis to specific actions such as the human race's degradation of the planet.

Although climate change was thus seen as caused by sin, in contrast to the indigenous explanatory narratives climate change and environmental problems were not portrayed as divine punishment. God was still a loving God, and environmental salvation (saving society from climate change) was portrayed as something that could be achieved through personal salvation.

Beyond the religious interpretations of climate change, according to the pastor, the workshop advocated some practical actions, including:

Working together—e.g. farming together, 'being your brother's keeper';
The Church being a channel of blessing on earth to the needy; Compassion
driven work through support for organizations like Food for the Hungry,
World Vision and Farm Africa; Sharing our resources with each other.

As with the Catholics, the actions advocated by the workshop delegated some of the engagement with environmental issues to development and food aid organizations. Food for the Hungry, for example, won the tender in 2010 to carry out food aid distributions for the World Food Programme. These NGOs performed valuable work, but they were also drivers of some of the social changes that, as we have seen, pastoralists saw as detrimental. In particular, NGOs were one of the main sources of employment for the educated, Christian sons of pastoralists, which had led to the upsetting of the indigenous generation grade hierarchy. The perspective on climate change promoted by those we interviewed in the Anglican Church was strongly influenced by the network of Christian NGOs, evangelical and developmental, with whom they cooperated. Together, they have—intentionally or unintentionally—encouraged the Boran and Gabra to shift from mobile pastoralism and from their customary means of relating to and using their environment. In this way, the Anglican Church has contributed to some of the same outcomes as the Catholic Church.

New Urban Churches

In Marsabit town there are also numerous smaller churches, which go under many names, such as the Pentecostal Evangelical Fellowship of Africa, First Born Church, and Living Faith Gospel. Their services range from the staid and traditional, to more exuberant manifestations of spirit possession (such as mass speaking in tongues), and some involve very lively music, dancing, whistle-blowing, and general celebratory enjoyment.

While it is not possible here to examine the characteristics of all these churches or their different perspectives on the environment, in discussions with pastors and lay members of these town churches we generally found that they saw environmental issues as having very little relevance to people's lives. Their issues of concern related to health, education, and employment. Many in the new churches spoke of the ability of certain pastors or members of their congregation to heal through a special relationship with the Holy Spirit. Others, like the Living Faith Gospel, fit the description of a 'prosperity church':

Our God is a God of prosperity. He brings life. He doesn't want you to die in your sin but to go forward and preach the Gospel. Every day you wake up alive it's for prosperity and a purpose. We contribute to our church. Those who give tithes get so many blessings. One man who gave everything he had, his child got the best results in the school! (Living Faith Gospel Church member 2010).

The new urban churches mainly served a sedentarized urban population. Their members saw their fortunes as rising and falling according to whether or not they (or their children) stayed healthy, obtained educational success, and had opportunities for further education and employment. Their lives may have been affected by the environment—especially as drought and deforestation often results in water being expensive and even hard to come by—but they typically framed environmental matters as relevant only to the world of farming and herding which they had left or aspired to leave behind. Education and employment was seen as the route away from dependence on—and therefore vulnerability to—a changing environment. It was almost as if those who attended the new urban churches believed that God and his endowed prosperity would prevent them from experiencing any negative impacts caused by environmental change.

Islam

The first mosque was built in Marsabit town in the 1920s, but the Boran and Gabra were exposed to Islam long before this time. One idea that we frequently came across, and which was expounded by Muslims and non-Muslims alike, was that the Boran and Gabra 'were always Muslim' (see also Kassam 2005). The relationship with Islam has become complicated, however, as it is also associated strongly with Somali peoples, with whom relations have been tense since the *Shifita* War (1965–69).

When asked about environmental issues, a Marsabit Imam named Omar Abdumalik explained that the Koran provides all the answers that people need: it teaches that 'when the land is dry, Allah will bring it to

life' (2010). He continued, 'the Koran teaches people to respect the environment, and only use it for their needs, not to waste it. It teaches that trees have lives, and you don't take lives without a reason' (2010).

A second Marsabit Imam subscribed to ideas that were more similar to those we heard from pastoralists who propounded the indigenous worldview. Here environmental change was linked to a lack of respect for religious principles and rituals, resulting in conflict:

People used to co-exist harmoniously. Christians, Muslims, and traditional people all followed their own ways. But people stopped following their culture and clashes began and people started moving away from their religion and culture. The environment is also changing as people move away from their traditions because people are killing each other. So they are being punished. God punished people in three ways: he made the land dry; he made the teats of the cattle dry; he gave us bad and corrupt leaders, from the village elders to the chiefs, from the DC [District Commissioner] up to the President (Al-Noor Hussein 2010).

In highlighting the role of conflict and the 'move away from tradition', Al-Noor Hussein's analysis was thus similar to the indigenous religious viewpoint, perhaps indicating a degree of syncretism. His analysis is also similar to that identified elsewhere in Kenya, suggesting wider influences. Taylor (forthcoming 2013), for example, has argued that the call for a resurgence of culture and 'tradition' as a means to reverse environmental degradation can also be seen, in part at least, as a critique of colonialism.

The Imams with whom we spoke did not, however, only present a religious analysis of environmental problems. Rather, they were among the few people we interviewed who expressed a more political and even somewhat ecological analysis of the situation. Al-Noor Hussein continued:

One old man, he was a wealthy person. He used to go to the forest and burn charcoal. He got more land from the government, and his son opened a sawmill. They finished the forest. He has created a disaster. He has made money and bought cattle. But all his cattle have died in the drought. He is reaping the consequences of his actions. Once there was a forest officer who used to teach people. He taught that trees are like a blanket on the surface of the earth. If you remove this, the earth will become naked. And I believe this (Al-Noor Hussein 2010).

And Omar Abdumalik commented:

This area is marginalized, totally marginalized. Now the government has started to remember us with the tarmac road, but before there was no good road. And there is no water, no life in this area. Because of poverty, people have been cutting trees and making charcoal (Omar Abdumalik 2010).

Interviews with other Muslims contained similar elements but they were less explicit and are not discussed here. While the views of two Imams does not necessarily reflect those of the entire community, that two influential members of the Muslim community articulated a critical analysis of the situation in Marsabit suggests that there may be, within Islam in Marsabit, a view of environmental issues that connects them to political corruption, greed, and poverty. Still, this critique had not yet translated into any concerted practical efforts regarding the management of the environment. In addition, the Muslim leaders to whom we spoke constructed environmental problems as only local or national rather than global concerns, limiting the scope and usefulness of their critique.

Conclusion

This study is preliminary in nature, yet some tentative conclusions can be drawn about how the different religious worldviews shape engagement with the environment and contribute (or fail to contribute) to meeting the challenge of climate change in northern Kenya. To do so, let us return to the four ways in which religion plays a role in people–environment relations there.

First, in terms of the institutional dimensions of environmental management, the indigenous religions provided a valuable and integrated set of institutions that governed rules-in-use, access to pasture and water, and patterns of movement through the landscape. The institutions themselves can be seen as religious, as they were integrated with ritual practices and seen as given by God. These institutions were valuable and effective because they grew out of local herding practices and needs, and were embedded in the pastoralists' social and religious lives. They employed a flexible use of the environment, allowing people to move to where it had rained, and included mechanisms for controlling and sharing access to resources. These institutions are valuable for ensuring sustainable environmental management (Ostrom 1990) and, although they have not been immune to challenges from multiple directions, scholars have also suggested several reasons why they also have potential value for facilitating adaptation to climate change.

First, many analysts argue that pastoralism is still 'the most appropriate system in drylands because moving the herds opportunistically is the best way to exploit the highly variable availability, in space and time, of pasture and water resources' (Ayantunde et al. 2011: 31). As climates become more variable, the qualities of flexibility inherent to mobile pastoralism are likely to allow people to adapt more easily to increasingly unpredictable weather patterns (Grahn 2008; Hesse and MacGregor

2006). Secondly, successful adaptation to climate change depends on the existence of legitimate and effective institutions to manage those changes. Many have pointed to the value of community-level institutions and have argued that they are 'best suited to promoting resilience to climate change' (Nelson, Adger, and Brown 2007). Legitimate, smoothly functioning institutions are very difficult to engineer socially. In northern Kenya, sets of institutions already exist that are embedded in the religious beliefs and practices. They have adapted to changes in the past, and, if supported, could help to facilitate adaptations to this latest challenge.

In contrast, the Abrahamic religions have intentionally or unintentionally undermined many aspects of the indigenous environmental management practices. Many attending churches or mosques no longer lived a nomadic lifestyle, and, even in the case of the Catholics who professed sympathy for nomadism, many no longer saw the indigenous institutions as central to their lives. Generally, the new religions have acted as the main conduits of modernity, and, under the values encompassed by this modern moral framework, they have promulgated the dominant teleological view of history which presumes that pastoral livelihoods will inevitably give way to agricultural livelihoods, from which people will ultimately 'progress' to urban lives and paid employment (Niamir-Fuller and Turner 1999). Such a progression is most explicitly celebrated in the new urban churches, but it informs the actions of all the Abrahamic faiths working in the region.

The Abrahamic religions provide some support for livestock activities, but in the main they focused on supporting agriculture and employment at a time when agriculture has become more precarious, and jobs have been very hard to come by. Although some support for non-herding livelihoods may be desirable, it is problematic when—as seems to be the case here—the approach simultaneously casts pastoralism as 'of the past'. The danger is also that approaches that encourage sedentarization and further reliance on agriculture may leave people more vulnerable to the impacts of climate change. Religion—or in this case Christianity—may not be the sole driver of these processes, but we have seen that the wider institutions of the Church lend support and legitimacy to policies in this direction.

Second, regarding the qualitative nature of relations to the environment, the impact of the 'newer' religions seems to have been to increase people's distance from the natural world. The pastoralists themselves described a decline in the values young people placed on nature. To paraphrase Sora Adi: 'if people don't want rain, why should it rain?' The educational and development support provided by some of the religious

organizations seems to be at least partly to blame for this shift away from valuing nature. Though well intended, such support may actually hinder locals from responding appropriately to climate-induced environmental changes.

Third, regarding the organization of society, the churches and mosques were evidently providing important sources of meaning and social capital for people, but where environmental matters were concerned they largely abdicated responsibility to NGOs. The churches and mosques have huge potential for organizing people to work together in novel ways but as of yet it has not been realized.

Fourth, in terms of the explanatory narratives for climate change and environmental degradation, the majority of the religions explored here continued to look inward and to place the responsibility for climate changes on the behaviour of individuals in the local communities. For the indigenous religions, their explanatory narratives drew on the close cosmological connection between nature and societal well-being, and can be read as conservative pleas for support for 'tradition', calls for the continuation of mobile pastoralism, and/or as critiques of colonialism and modern development. Where the Christian churches were concerned, their narratives can be viewed as another manifestation of the historically dominant approach to environmental degradation, that (often erroneously) blamed the local and 'traditional' for environmental problems, while wider and more powerful drivers of change went unexplored and unchallenged (Leach and Mearns 1996). Some of the Muslim leaders we interviewed had developed a more critical analysis that pointed to the role of powerful elites, but they also shared the same limitations of all other faith-based perspectives, indigenous and non-indigenous: their horizons of analysis were limited to the local or, at most, national level. Our interviews with members and leaders of Abrahamic religions suggest that while there was some limited awareness of climate change at the level of leadership (among Anglicans and Catholics), they had made little attempt to discuss the issue with local residents.

In conclusion, therefore, this research suggests that religion has played a powerful role in the management of the environment and conceptions of climate change in Marsabit, one that merits further exploration. Worryingly, this preliminary material suggests that the ways in which the Abrahamic religions have acted as major conduits of modernity means that they have implicitly undermined many of the qualities of mobile pastoralism that might enable herders to cope with more unpredictable weather in future. In terms of a more explicit engagement with climate change, we found that their narratives were fragmented and

sometimes contradictory. Discussion of or engagement with climate change as a global process requiring international cooperation was also conspicuously absent. Approaches that linked climate change to ill-defined original sins obfuscated the matter further, and may lead to the inappropriate scapegoating of certain groups or individuals, potentially exacerbating conflict in the region. Thus while effectively undermining the indigenous relations to nature, the Abrahamic religions have not as yet offered a constructive alternative narrative or moral framework that is likely to help the pastoralists of northern Kenya understand and adapt to the challenges they face in this era of climate change. These findings suggest not only that scholars should carefully attend to the unhelpful role that some religions may be playing in the struggle to address climate change, but also that they should critically examine whether rhetoric encouraging a response to climate change at the international level is truly supported by on-the-ground practices.

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A Retreating Goddess? Conflicting Perceptions of Ecological Change near the Gangotri-Gaumukh Glacier

Georgina Drew

India China Institute, The New School,
66 Fifth Avenue, New York, NY 10011, USA
drewg@newschool.edu

Abstract

The Gangotri-Gaumukh glacier is a significant body of ice in the Indian Himalayas whose loss could cause ecological turmoil, the disruption of livelihoods, and possibly even threaten the continuity of cultural-religious practices intertwined with the sacred Ganga River into which its runoff flows. Although there is reason to fear for the Ganga's longevity, the issue of its potential decline is layered with ambiguity, uncertainty, and debate. In this article, I present the science-based discourse on glacial melt, which continues to evolve, along with ethnographically documented perspectives on retreating glaciers and other ecological transformations. I demonstrate how faith in the enduring nature of the Goddess Ganga impacts interpretations of environmental change, regardless of the climate change science, and how ideas about the river's impermanence in Hindu texts can sometimes deter conservation efforts. In doing so I offer a variety of views that enlarge discussions about the causes for, and the range of responses to, climatic change.

Keywords

Himalayan glaciers, Ganges River, climate change perceptions, Hindu religion

Extensive ecological transformations are in progress around the globe and awareness is growing over the degree to which human activities are responsible. In addition to the contributions of climate science, many public debates help to circulate varied understandings of the issues and the challenges ahead. The emerging emphasis on climate stewardship

and justice from Christian, Jewish, Muslim, Buddhist, and Hindu practitioners, among others, shows the degree to which religious orientations influence the way that many perceive the proper response to the stakes at hand. In some cases, however, cosmological orientations are a resource that people draw upon to make sense of ecological change in ways that do not necessarily support the established science or motivate participation in conservation efforts. This article focuses on the multiple points of discussion and contention over climate change phenomena as I observed them in the Indian Himalayas from 2008–2009. By exploring a particular case, that of how people understand and respond to the potentially threatened Ganges River, or ‘Ganga’ as I will refer to it here, I examine somewhat contradictory discourses. In particular, I look at the ways that scientific framings on Himalayan glacial retreat are offset by regionally circulating epistemologies (such as ways of acquiring, expressing, and sharing knowledge) and the influence of Hindu framings on the current moment of change.

To highlight the varied perceptions and epistemological tensions that inform people’s responses to transformations along the Ganga, I focus on circulating perceptions in three arenas. First, I address the influence of international climate science and some of the controversial predictions of glacial retreat. The second realm that I engage is a space of devotion to the Ganga at a location some 85 miles below the river’s glacial source. I share perspectives about the Ganga’s agency and resilience that I encountered when speaking to river devotees in places such as Manikarnika ghat in Uttarkashi. The third realm pertains to understandings of the Ganga’s potential impermanence that are informed by Hindu texts and cosmologies.

My exploration of these arenas demonstrates the production of meanings about environmental change and the influence that distinct perceptions have on behavior. The investigation is relevant to a growing body of literature on the social causes and implications of climate change phenomena. This scholarship recognizes the inextricable linkages between humans and the environment evident in ecological anthropology, historical ecology, and political ecology, among others. The vast literature originating from these fields attends to the values that people ascribe to themselves and the environment along with the relationships that connect them.

Importantly, more attention is emerging within particular fields, such as anthropology, on the role that climate change can play in altering subjectivities, cosmological orientations, and cultural practices (Crate 2008; Crate and Nuttal 2009; Orlove, Wlegandt, and Luckman 2008). A focus for some scholars is the role that religion has, or could have, in

helping to inform responses to climate change phenomena. This is a complex area of inquiry that highlights the degree to which religious views and practices draw from and influence the ecological contexts in which human societies are embedded. These connections are particularly important to examine along the Ganga. The river is considered divine by millions, is an integral part of Hindu sacred geography and cultural practice (Eck 1996), and is also an iconic symbol of religious reverence for nature. The physical, spiritual, and religious grace that the river bestows, however, could be threatened by the ecological transformations linked to climate change. To begin exploring these threats and the debates that the topic of the Ganga's potential disappearance inspires, I first turn to the international concern for the Himalayan glaciers that feed into the river.

A Glacial Range and a River in Peril? Context and Controversy

Glacial melt is one of many deleterious effects of the warming temperatures associated with climate change. In the scholarship and the media, numerous estimates of glacial melt have forewarned of vast hydraulic changes in places such as the Himalaya, where the runoff from glacial mass feeds rivers that help support some two billion people in South Asia and China. Often, the picture painted is one of dwindling resources combined with occasional floods as the glaciers lose a bulk of their mass in the hot summer months (WWF 2005). In the feared scenarios, food security would likely be compromised in downstream regions. This is worrisome in countries like India that struggle to meet production targets under already extreme and erratic weather conditions tied to the annual monsoon cycle. While the long-term food and water concerns merit proactive measures, especially among those who are the most vulnerable socio-economically, there are still uncertainties about how the transformation of the Himalayan glaciers will progress and what the shifts will mean for the lived realities of people residing nearby.

A problem that climate scientists have struggled with is the paucity of long-term data on glacial movements in the Himalayas. Whereas the records for glaciers in areas like North America, Europe, and the Arctic follow their movements over hundreds of years in some cases, consistent ground-based data on Himalayan glaciers extends back only a few decades. In South Asian countries like India, for instance, much of the early research relied on limited field investigations and aerial photography.

Among the glaciers studied, the Gangotri-Gaumukh glacier is one of the better documented. This ice mass feeds into the upper stretch of the

Ganga in the Indian State of Uttarakhand. It is located near India's northwestern border with the Tibetan Autonomous Region of China. Other than a few sketches and photographs taken over the years since 1937, the regular monitoring of the glacier's snout only began in 1971 when the Geological Survey of India undertook the task (Dobhal 2009: 72). Satellite imagery and remote sensing were introduced later in the 1990s. Some of the data shows that the Gangotri-Gaumukh glacier retreated 1.25 miles (2 km) in the 200 years leading up to 2001. In roughly the last 25 years of that period, the glacier receded more than half a mile (850 meters), indicating a significant increase in the rate of retreat (Naithani et al. 2001: 94).

Unfortunately, the ground-based data have been inadequate for the entire glacial range of which the Gangotri-Gaumukh glacier is a part. Scant funding and the difficulty of accessing glaciers higher than 2,000-2,500 meters have been a part of the problem. The dearth of historical information, other than what can be derived from satellite images, has made the movement of Himalayan glaciers in places like India subject to speculation. Because of this, postulations regarding the quantity and quality of ice loss have sometimes been based on a limited selection of glaciers, including the Gangotri-Gaumukh range, rather than the region's ice masses as a whole. And, based on the relatively stable movements of a few terminal points (snouts), some Indian glaciologists have even dismissed the fears over Himalayan glacial decline (Raina 2009).

At the other end of the spectrum are those who have predicted the imminent disappearance of the Himalayan glaciers. This perspective was fuelled by a 2007 report of the Intergovernmental Panel on Climate Change (IPCC) that cited the year 2035 as a likely timeframe for Himalayan glaciers to vanish (Cruz et al. 2007: 493). That date was quoted in numerous environmental circles from 2007 up until the middle of 2009. Many reports, drawing on this prediction, painted a picture of coming doom. One narrative, for instance, warned that the glacier's potential loss represents an environmental calamity that foretells an 'unimaginable future for the world as we know it'.¹ The use of such discourses was tempered in mid-to-late 2009 when, after substantial criticism and calls to revoke the 2035 estimate, the IPCC conceded that the timeframe was based on reports of dubious scientific rigor. But, representatives of the IPCC cautioned, the Himalayan glaciers are still threatened by ecological shifts and warming temperatures. They and others called for an escalation of data collection on Himalayan glaciers and cautioned against complacency given the potentially high stakes (UNEP 2009).

1. Online: 'On Thin Ice' <http://video.pbs.org/video/1146684618/>.

Also at issue is the observation that the rate and scope of glacial retreat can vary on a case-by-case basis. A study by Immerzeel, van Beek, and Bierkens asserts that the contribution of glacial water and snow melt into the Ganga may only be a fraction of its overall flow due to limited upstream precipitation, the relatively smaller size of the glaciers in that system, and the recharge contribution of monsoon-dominated downstream climates (2010: 1383). The Brahmaputra and Indus, by contrast, depend on glacial melt to a much greater extent. Given the geographic variation of melt rates and the divergent ways that river systems will be affected, such scholarship concludes that while Asia's 'water towers' are threatened by climate change, the effects on water availability and food security will differ by region and thus cannot be generalized (Immerzeel, van Beek, and Bierkens 2010; Rees and Collins 2006). This reminder tempers some apocalyptic visions for the coming changes while encouraging us to think in terms of the differential impacts that will be felt along distinct waterways and the adaptation strategies that could be formed in response.

Beyond the need for more careful research, what the debates underscore is that our knowledge of climate change processes and outcomes can be a moving and uncertain terrain. In addition to differing opinions among scientists and ecologists, there are other perceptions that soften narratives of impending ecological collapse. In the Himalaya, there exist multiple and conflicting interpretations of environmental change and its significance, especially in relation to the longevity of the Ganga. The perspectives, which are influenced by everyday Hindu practice and regional cosmological orientations, indicate diverse connections to dynamic bodies of water and ice. These entities are infused with varied religious meanings and are perceived to exert various levels of agency over the elements. In the discussion that follows, I highlight the perceptions of ecological change and glacial melt that residents of the Indian Himalaya provided to me from along the upper stretch of the Ganga.

*Assessing Knowledge of Ecological Change
at Manikarnika Ghat, Uttarkashi*

In 2008 and 2009, I conducted ethnographic research in Garhwal, in the ethnolinguistic region of Uttarakhand State and in urban centers such as New Delhi to understand emerging religious–environmental conflicts over the use of the Ganga's Himalayan stretch. At the time, I sought to examine the points and counterpoints that circulated about the construction of new hydroelectric dams on the Ganga. A related and overlapping interest was the concern for the river's longevity due to factors such as

anthropogenic climate change. The current discussion focuses on the latter issue and is based on the commentary provided to me by people living along the Ganga in Uttarkashi, a district capital of Garhwal.

Uttarkashi sits at an elevation of 3,800 feet. It is located roughly 230 miles northeast of New Delhi and approximately 85 miles downstream from the Gangotri-Gaumukh glacier. One of Uttarkashi's biggest claims to notoriety is that it is considered to be one of the famous 'Kashi' or abodes of Lord Shiva. 'Uttar' means 'upper' in Sanskrit so the city's name translates to 'Upper Kashi'. In ancient texts, it is also referred to as Saumyakashi. The *Skand Puran* (1994), one of the many books associated with the sacred Puranas, elaborates at length on the importance of this particular Kashi. The prose of the *Skand Puran* emphasizes Uttarkashi's significance as a *tirtha*—or sacred place of pilgrimage—in which many Hindu gods reside. It is also a strategic place for pilgrims and travelers to rest on their way up to the seasonal town of Gangotri where the Ganga descended from the heavens at the bequest of a mortal, King Bhagirath. Gangotri is home to a renowned temple with an embodiment of the Ganga and it is the gateway to a narrow trail leading 15 miles up to the glacier.

Given Uttarkashi's relative proximity to the Gangotri-Gaumukh glacier, I anticipated that I would encounter many of the familiar discussions about glacial melt and climate change that were already in international circulation at the time. Soon after I arrived, however, I was surprised to find that the estimates for glacial retreat and the scientific discourses on climate change were not yet topics about which many of the people I spoke with expressed extensive familiarity. My conversations with people at Manikarnika ghat were particularly indicative that not everyone was aware of climate change or that, at the very least, they did not perceive it or fear for its effects in the same way I was trained to.

Manikarnika ghat is one of the most important places to worship the Ganga in Uttarkashi. The ghat, or series of steps that descend to the riverbank, is situated at a point where the Ganga rounds a bend on the outer part of the city. It is a prominent site for people to gather on auspicious days in the Hindu calendar, pray to the Goddess Ganga, and cleanse themselves in the sacred waters. Its location adjacent to a main market also makes it a convenient stop that people make time for in their daily routines.

I visited Manikarnika ghat regularly throughout the period of my fieldwork. It was while sitting on the steps leading to the river that I was able to observe in detail the practices of reverence and devotion to the Ganga, which have their own rhythm and mountain flair compared to the more notorious places of worship in the Indian plains at Haridwar

and Varanasi (Benares). For major celebrations, men, women, and children frequented the ghat along with a myriad of regional gods alight in palanquin decorated with red and gold fabrics and carried on long wooden poles atop the shoulders of men. Whatever the occasion, it was often the women—representing a range of socio-economic backgrounds—who stayed the longest, charged as they were with woven baskets full of spices, flowers, and foodstuffs that they ceremonially offered to the Goddess.

Upon reaching the waters, the women would place the palms of their hands together in a gesture of greeting and reverence. After offering a murmured prayer or Sanskrit mantra, they would then take out a bronze pot from the basket, which they dipped into the waters of the Ganga. Devotees held this water up to the Sun and its God, Surya, before pouring it back into the river's flow. They repeated this about three times and most often they would spin clockwise while they let the water descend back into the current that rushed around their feet. Devotees then proceeded to offer the other items in their baskets: a pinch of turmeric, a note of sandalwood, and a bit of the vermilion dye (*sindoor*) that married women place at or along the part in their hair. They would also sprinkle dry rice and milk sweets into the waters. When asked why these items were offered, amused women explained patiently to me, the white foreigner (*gori*), that the Goddess enjoys these tastes and adornments as much as any other woman.

In addition to observing practices of worship, Manikarnika ghat was a place where I witnessed several acts of Goddess possession. These moments of rapture were often very brief. The people experiencing possession included rural women visiting the city for the day and the seemingly middle-class women who lived in Uttarkashi. There was no telling who would be possessed at any given moment. Women would just approach the waters, perform their ritual practices, and then immerse themselves. When the Goddess came to them while bathing, they would suddenly scream and shake uncontrollably. If the current was particularly swift, nearby devotees would grab the possessed woman to keep her from falling deeper into the rushing waters as she writhed and flailed. Lasting between thirty and ninety seconds, these moments of possession would desist almost as quickly as they had begun. Sometimes, women standing near to someone who they believed to have experienced an authentic possession² would touch her feet,

2. Some of my informants told me that they were able to discern who had experienced a 'real' possession and who had only pretended to experience one. As to why one would fake an encounter with the Goddess, one of my informants said that

shoulders, or head in a gesture that symbolically transferred the power (*shakti*) of the Goddess onto them. On a particularly auspicious day that celebrates the Ganga's 'birthday' (Ganga Dussehra), the commemoration of her descent into earth from the heavens, I counted seven instances of Goddess possession in a half-hour period alone.

Initially, I assumed that perhaps the Goddess Ganga had entered the women's bodies. When I asked some of those who had been possessed, they clarified that it was not Ganga that visited them. They most often explained that it was the family Goddess (*ghar ki devi*) that they worshiped at home and who protected them. The reasons for why their family Goddess would come to them while they bathed in the Ganga were not always clear to the women I asked. One woman, however, did have an answer. She explained: 'The Goddess who watches over our home gets happy when we are near Ganga and she comes to worship her through us'. This comment exemplified the degree to which reverence for the Ganga forms part of human social life as well as the sociality of regional Gods and Goddesses.

Along with being a central location for worship of the Ganga in Uttarkashi, Manikarnika ghat was one of the locations with a high variability of flow. In the summertime, when rain was plentiful and the rate of upstream glacial melt was high, the river would swell. In the **fall and spring**, the water could be nearly absent from the ghat. Devotees would either have to bathe in a small trickle that flowed past the steps of Manikarnika or they would cross a dry embankment. It was because of the high variations in the river's flow past Manikarnika that I chose it as a location to ask people about their perceptions of change in the region.

In speaking with roughly thirty women at Manikarnika over a series of some ten visits to the ghat, I came to realize that very few of them were concerned about the changes they had seen in the riverbed. Not one of my informants at Manikarnika, for instance, expressed a fear that the Ganga would one day cease to flow. When I reminded them of the scant levels of water in the **fall and winter months**, people told me stories about the river's movements and capricious nature, including anecdotes that the Ganga's path used to cut through a different part of the city hundreds of years ago. In recent memory, they said, the Ganga used to flow near Manikarnika ghat no matter how little water there

the act was meant to gain attention and increase a woman's esteem among her peers because the Goddess had selected her as a medium. This explanation was akin to saying that Goddess possession can help increase a person's symbolic capital in the sense explained by Bourdieu (1977).

was. Over the last few decades, the river shifted and now flows most of the year on the far side of the riverbed opposite to the ghat.

The general lack of concern for the Ganga's condition did not mean that the women I spoke with at Manikarnika ghat had not noticed and were not worried about ecological shifts. Many, in fact, commented on the growing water shortages and unpredictable weather patterns. They noted that these phenomena inhibited the timely maturation of crops and endangered the agricultural cycle. Water scarcity—in terms of the water that was available via groundwater and springs—was a topic that many elaborated upon by sharing examples of water stress from villages near and far.

My conversations with people at Manikarnika, therefore, indicated that although people had observed environmental change, they often perceived that those transformations would not lead to a significant decline of water in the Ganga. This meant that many people viewed the Ganga as an exceptional entity that was independent of the variations in the water cycle that occurred around it. Because of this perception, these river devotees did not perceive that the Ganga's flow was threatened.

To further explore this apparent lack of a preoccupation for the Ganga's longevity, I tried to pose hypothetical questions about the river's loss. I asked people at Manikarnika, for instance, 'Could you ever imagine a time when the Ganga would stop flowing [by the ghat]?' Numerous people replied to this question with a gasp, a strong 'No', or a caution that the Ganga's disappearance would signal the end of the world. The difficulty imagining life without the river demonstrated the monumental value that people placed on its existence.

One of the reasons why it was challenging to engage people on the subject of the Ganga's potential loss perhaps has to do with the particular significance of Manikarnika ghat. In the aforementioned *Skand Puran*, for instance, Lord Shiva speaks to his devotees and tells them that he can be found residing in Uttarkashi during even the worst of times and that they should worship the Ganga at Manikarnika ghat to attain salvation. Shiva further asserts that the performance of sacred rituals will be more beneficial when done at Manikarnika than at other sites because the location will retain its holiness far into the cycle of physical and moral corruption that marks the Hindu époque of Kaliyug, the current and most degenerate period in a four-part cycle of cosmological time.³ For

3. The 'yug' mark cycles of time in a progression from righteousness to degeneracy and back. The first, Satyayug, is a period of pure goodness. Tretayug, which follows, is characterized by a growing rate of sinfulness. In Dvaparayug, the world is supposedly half bad and half good. In Kaliyug, an age of corruption and

river devotees, such scriptures likely influence ideas about Uttarkashi's importance while providing reassurance that the Ganga's flow through the city at Manikarnika will continue to provide grace in times of decay.

In my initial visits to Manikarnika ghat, I would ask people what they knew about climate change. Many of the people I spoke with were unfamiliar with this term and its Hindi equivalent. In place of a common language, I would share my understanding of climate change and sometimes even the predictions of glacial retreat that I had read and which had filled me with fear for the future of Himalayan water resources.

The responses I received contrasted sharply to the urgency with which I thought about glacial melt. When I stated the estimates for retreat, for instance, they were often met with nonplussed expressions. Numerous people even refuted the estimates outright. Others looked dubious when presented with the predictions but deferred to information with a shrug of the shoulders or a seemingly unconvinced tone of concession. Some even suggested that I speak with the priests of various nearby Hindu temples because they assumed that these religious authorities would have a definitive understanding of the potential transformations in question.

When I inquired about the state of the upstream glaciers, some mentioned that they had seen changes from its previous form while on pilgrimage to the source or that they had heard that the ice mass was undergoing a transformation from friends and other pilgrims. From these sources of information, they knew that Gangotri-Gaumukh no longer looked like the mouth of a cow as per the namesake for the glacier's snout, 'Gaumukh'.

There were several reasons cited for the changing ice formations upstream. Some respondents pointed out that pollution has grown in the world and that this is a cause of the changes to the regional ecology. Conceptualizations of pollution, however, were not limited to plastics, carbon emissions, and the brown clouds that cover many of the world's cities. It also included corrupt human nature or 'internal pollution'. This moral degeneracy was linked with the inevitable increase in sin (*paap*) that accompanies the aforementioned Kaliyug. Reinforcing this view, a few informants at Manikarnika ghat pointed to litter and sewage along the river to argue that people are 'no longer good' and have lost respect for the sacred Ganga. Numerous river devotees reasoned, moreover, that the Goddess was upset at such sinful behavior and that the changing ice formations at Gaumukh were signs of her displeasure. That is to say,

turmoil, there is little goodness in the world. Each of these yugs have internal phases lasting thousands of years. When Kaliyug ends, the cycle starts over.

even though the Goddess is associated with the water that *flows* from the glacier and technically not the glacier itself, many informants indicated that she was in command of the glacial mass.

Since the Goddess Ganga is a powerful agent with a degree of control over her riverine condition and that of the glacier, many asserted that she could revive her physical manifestations if humans were to amend and improve their moral caliber. Stressing this, a fortuneteller who channeled one of the regional Goddesses proclaimed that the glaciers did not have to go back, that they could also surge. She reasoned that the Goddess Ganga could turn the tide of retreat if people adhered to higher standards of conduct—a point to which her children sitting nearby readily agreed. This shows how some viewed the glacial recession to be potentially reversible given the context of action and response in which humans and non-humans engage. The ways in which the condition of the ice mass was linked to behavior were reminiscent of studies in places as far away as Alaska where Athapaskan and Tlingit natives understood glacial movements to be linked with human conduct in landscapes where glaciers can hear, smell, and react to actions of which they disapprove (Cruikshank 2005). These ways of knowing are not just narratives about ‘nature’ but modes of sharing a multitude of historical, cultural, and social values that challenge positivism and scientific frames of reference (2005: 258).

*Hindu Interpretations of Change:
The Influence of Texts and Cosmologies*

By the summer of 2009, the number of public and private discourses circulating in Uttarkashi about ‘climate change’ had increased. When overhearing or engaging in climate-related discussions, I found that Uttarkashi’s teachers, business owners, and middle-class professionals were prominent among those who had quickly become versed in the topic. They were exposed to the issue via newspapers, coverage of the topic disseminated on cable television, and in some instances from the children who attended schools with updated environmental studies curricula.

When I spoke with such people, I asked them to clarify what climate change entailed. These informants associated the term with a global rise in temperature, a lack of snowfall in Himalayan winters, and changing monsoon patterns. They were also aware of the global inequities associated with climate change phenomena. Media coverage of the climate summit at Copenhagen was particularly influential. It educated people about the tensions between the ‘developed’ countries emitting the bulk

of the world's carbon emissions and the 'developing' countries who defended their rights to economic growth even if it meant increasing emission levels. With this came hostilities directed towards the biggest polluters (such as the USA and China), and concerns that the pace of India's rapid economic growth could stall because of dwindling resources, declining agricultural production, and the myriad other repercussions of a global ecology tipped out of balance.

Even as people began talking more about climate change, their concerns often stopped short when they were asked about the Ganga's future. Yes, some of my media-savvy informants conceded, the Gangotri-Gaumukh glacier is receding due to 'global warming' and the continuity of the Ganga's flow could be in jeopardy. Yet even when citing concerns for the glacier that feeds the Ganga and the alarming lack of snow and snowmelt, many refuted the idea that the river—and especially its Goddess—could completely disappear from the earth. In some cases, informants pointed to the climate change controversies and the lack of scientific agreement on glacial melt to support this perspective. In other cases, informants argued that the Ganga is more than the sum of its surface flows and the glaciers that feed into them. This point was made to assert that climate change phenomena cannot entirely sever people's connections with the divine that resides in the sacred waters. In an interview, for instance, a schoolteacher drew from Hindu framings to say that the Goddess Ganga can never leave the earth because she simultaneously flows on three levels: in the heavens, in the riverbed, and beneath the surface of the earth. The subterranean zone is known in Hindi as *patal*. The teacher cited the Saraswati River as an example of a river that has disappeared from the surface of the earth but that continues to flow underground. As she and others reminded me, Hindus still worship the Saraswati even though the river dried up many centuries ago. For her, this meant that the Ganga would continue to bless humans from *patal* as long as they pray and keep her in their thoughts. In this logic, the glaciers may melt and ultimately disappear but the Goddess that flowed from them will never recede from devotees' hearts.

The idea that the Ganga will continue to live in the heavens, in the underworld, and within her devotees, some suggest, is evidence that the Ganga will always remain an important entity in Hindu practice regardless of what happens to its waters. Contemplating the glacier's decline—and with it a portion of the Ganga's flow—a Hindu swami commented that even if the flow were drastically to decrease, the Goddess Ganga would not lose her 'holiness'. After all, he asserted, 'That is in the mind'. He noted morosely, however, that she could lose her greatness as a river if the water disappears. That particular swami was active in efforts to

promote awareness about the potential transformations along the Ganga and he regularly urged people to protect the river. He was, however, an exception. Although Uttarkashi was heavily populated with hundreds of Hindu religious leaders and their *ashram*, or centers of spiritual retreat, hardly more than a dozen of them were involved in efforts to address the environmental and development challenges that impact the river's course.

I was initially confused by the apparent lack of concern for the Ganga's future condition that I encountered when I spoke with Hindu sadhus, priests, and swamis in Uttarkashi. One of the Himalayan city's main attractions, after all, is the Ganga itself. In addition to its cultural importance, the river's contemplation is believed to increase focus and spiritual progress. I imagined spiritual aspirants, or *sadhak*, would be motivated to undertake environmental campaigns to safeguard their access to the Ganga. At least for the period of my research, I was proven wrong. What, I wondered, could explain what seemed to me to be an anomaly? Initially, I imagined that perhaps some of the spiritual aspirants and religious leaders had adopted a philosophical stance, preferring to contemplate the illusory nature of reality as advocated in the Advaita Vedanta of religious leaders past such as Shankaracharya. This proved an inadequate explanation, however, because many of my informants' daily lives were intertwined with the Ganga's flow and they acknowledged the importance of respecting the material conditions of existence and of honoring lived experience.

Over time, I realized that scriptures that predict the *eventual* disappearance of the Ganga were influential. When I spoke with learned priests and swamis, they often explained their thinking on the river's inevitable decline by drawing from ancient texts such as the Puranas (which they often named generically without offering more specification) or perhaps the *Srimad Bhagavatam*. Such informants cited these sources, composed millennia ago, to confirm that the Ganga's destiny is to one day leave the earth. These respondents clarified, however, that the Ganga is predicted to disappear in the third or the fourth stage of Kaliyug. And, they asserted, we are only in the first phase of époque—a period which, depending on the calculation, can last up to 432,000 years.⁴

For some of the Hindu religious leaders that I spoke with, the assurance that the Ganga will continue to flow for many more years supported the argument in favor of the river's manipulation via

4. The *Srimad Bhagavatam* notes that Kaliyug may last 1,200 celestial years (Canto 3, Chapter 11, Text 19). Since one celestial year is equal to 360 human years, this equates to 432,000 years.

government-backed projects that sought to expand the number of roads, hydroelectric dams, and other development projects despite the signs of ecological change and turmoil. One particular swami shared this perspective with me during an interview. He cited the unsuccessful efforts that he and others exerted decades earlier to stop existing dams on the Ganga and to halt tourist activities in the town of Gangotri. Now, years removed from these campaigns, he believed that new development projects should be allowed. He first argued that it is futile to fight against the government. Secondly, he asserted that in a country of high economic growth and potential, 'a little sacrifice' should be made by river devotees to support the nation's progress. And, thirdly, he countered that the already installed development projects had a nominal impact on religious practice. Despite the transformations along the river, people still interact with the Ganga as they did before. Their faith is intact, he reasoned, and they continue to worship the river despite the imposition caused by the existing projects. 'So in what way [has] it affected culture?' he asked rhetorically before adding his own response: 'Very little'.

Hinduism and Ecological Sustainability: Some Limits

Thus far, I have highlighted the different arenas in which people come to believe that the Ganga is or is not endangered and the ways that people mediate climate change discourses and predictions of glacial melt with their own understandings of the river and the agency of its associated Goddess. I have also showed how Hindu religious interpretations are sometimes employed to substantiate a lack of proactive efforts on the river's behalf. These complexities indicate that religious reverence for nature does not always lead to the enactment of ecologically sound behaviors, especially when multiple circulating epistemologies are layered within regional policies and politics.

This observation complicates some of the scholarship that posits that reverence for the natural world promotes sustainable ecologies. Sponsel, for instance, argues that enactments of religious reverence for the non-human could foster more environmental stewardship because 'Religions are alternative ways of representing nature; affording it spiritual, moral, and cultural meanings and values; and defining the place of humans in nature, including how they should and shouldn't act toward nonhuman beings and other natural phenomena' (2001: 185). Based on the points that I have highlighted, his presentation of 'spiritual ecology' is perhaps overly optimistic regarding the role that religion has in reorienting our ecological interactions. In an edited volume on religion in environmental

and climate change, Vogt likewise asserts that the religions of the world have a unique role to play in fostering sustainability because, among other reasons, 'All religions identify themselves as embodying long-term thinking' (2011: 76). My discussion, however, has shown how long-term perspectives on the cycles of time can also deter proactive environmental behaviors and initiatives.

Commenting specifically on Hindu 'traditions', there are some who argue that religious practices can help in the quest for sustainability by reminding us to think about our intrinsic physical and spiritual interconnectivity with nature (Gosling 2001). Shiva (1988), for instance, argues that Hindu reverence for nature is a counterweight to the conceptual separation between humans, ecologies, and the divine that post-enlightenment modernity has helped to create and which has fueled humankind's extensive practices of resource extraction and destruction.

Although communion with nature is prominent in many religious and spiritual practices, the case of ecological change on the Himalayan reaches of the Ganga shows that concern for a natural entity can be offset by a myriad of factors and perceptions that have distinct historical, cultural, and political influences. Supporting this observation, Nagarajan (1998) asserts that it is problematic to think that ritual care for a place, object, or natural entity directly leads to 'ecological behavior' and conservation. Critiquing the above-mentioned work of Vandana Shiva, she argues that reverence for nature might be a part of some Indian sociocultural systems but it does not necessarily lead to environmental protection because even though 'non-Western religions' may have a reverence towards landscapes and they may contain innumerable 'embedded ecologies', these beliefs do not necessarily lead to ecological practices that resemble conservationism in the sense that the West has come to know it (Nagarajan 1998: 284).

The work of Alley (2000) concurs with elements of the above caution. Her writing draws from ethnographic fieldwork to explain the contradictions of pollution along the Ganga in Varanasi in the 1990s. Alley's detailed study demonstrated how faith in the Goddess' perpetuity, despite the degraded appearance of her riverine form, could quell some of the preoccupations for the Ganga's condition that environmental activists presented. She also showed how the focus on personal redemption in moments of reverence to the Ganga could limit concern for the river's toxicity and high fecal content. This means that, 'religious rituals cannot be confused with civic ethics' and we thus cannot assume that reverence for nature will inspire its protection in isolation of other concerns and influences (2000: 377).

This is not to say that religion, and particularly religiously inspired affect for entities like the Ganga, does not *at times* mobilize environmental efforts. Haberman's (2006) ethnography on the Yamuna documented the rise of religiously motivated environmental campaigns to save the river from pollution. My work with dam oppositions on the Ganga, detailed elsewhere (Drew 2011), showed that many of the movements were driven by a desire to ensure the continuous flow of a resource that people believe to be culturally and spiritually enriching and to which their identities as mountain residents and devout Hindus were linked. The exceptional significance that the Ganga held in everyday life inspired many to oppose its obstruction by hydroelectric projects. Although dams presented a short-term and highly visible threat to people's daily practices and climate change poses longer-term and perhaps harder to imagine impacts, a discourse of care for the river grew within these movements that began to spill over into some of the concerns of how the glaciers should be treated.

During the latter period of my research, for instance, some Uttarkashi residents became sensitized to glacial retreat while working in tandem with anti-dam activists from New Delhi and elsewhere. Incensed by the implications of the environmental reports they were briefed on, a few people from the dam opposition movements began campaigning for the glacier's conservation. One woman, who identified as semi-literate, adamantly demanded that foot traffic from the temple town at Gangotri up to the glacial snout at Gaumukh be completely stopped, even though a cap was already in place that restricted the per day number of visitors to 150. Her arguments against glacier tourism combined information learned from environmentalists and Hindu religious leaders with her own perceptions of the drivers of ecological change. She argued that as more people travel to Gaumukh for adventure or to beg for spiritual salvation, their wastes and 'impure' activities, such as meat and alcohol consumption, pollute the area around the fragile ice. The heat from the bodies approaching the glacier, she further asserted, warms the ice mass and increases the rate of its deterioration. The woman was especially angered by the disrespect that such activities showed the Goddess at her earthly source. For these reasons, she declared the tourism industry to be ecologically *and* religiously unsound, much to the ire of the residents and shop owners who survive on income from pilgrimage. Undeterred, she drew from notions of religious duty and right action, sometimes referred to as *dharma*, to argue that people should behave in ways that please the Gods and support the ecological contexts in which they reside.

Several other campaigns emerged during the same period (and have likely expanded), creating an assortment of occasionally overlapping

efforts to clean the river, advocate for responsible tourism, promote a lighter ecological footprint along the Ganga's banks, and raise awareness about the long-term implications of climate change for everyday life in the region. The result was an increased process of exchange, the negotiation of diverse perspectives, and the emergence of new discourses to explain the stakes at hand.

Conclusions

By examining circulating discourses, perceptions, and epistemologies about ecological change and glacial melt near the Gaumukh-Gangotri range from which the Ganga flows, and scrutinizing the related scientific debates, regional interpretations, and Hindu religious framings, I have sought to illuminate the contexts in which people produce meanings about environmental transformations. I did so while highlighting the faith in the Ganga's perpetuity that a selection of people on Manikarnika ghat expressed despite observations of ecological change elsewhere. I also showed that many of my informants conceived of pollution and environmental degradation to be a signifier of our moral corruption. We have lost respect for the world and the Gods that inhabit it, they argued, and these Gods have become angry with us. To correct this, some offered suggestions that exceeded the call merely to cut back on carbon emissions. Perhaps, as one woman asserted, if we overcome our moral shortcomings the glaciers would surge again.

With the exception of my informants at Manikarnika, residents living along the Ganga in Uttarkashi acknowledged the possibility that glaciers such as Gangotri-Gaumukh may be melting because of our global emissions and environmental hubris. At the same time, however, they added that these changes may not necessarily lead to the Ganga's total disappearance because she will continue to exist in the heavens and in the underworld of *patal* through which she also flows. The comments of informants and religious figures also indicated how Hindu texts and cosmologies can support complacency, inaction, or the developmental status quo because they asserted that the Ganga's destiny (regardless of human activity) is to one day disappear from sight. Despite this, some of the people who perceived that human activities near the river's glacier or along its banks were partly responsible for its deterioration began to draw from Hindu conceptions of right action to urge people to modify their behavior in the interest of protecting the ecological context in which the Goddess Ganga resides.

The points addressed reveal the different ways that people learn about and express concern for glaciers, their embedded ecosystems, and the

divine entities with which they are associated. Although this discussion emphasizes how certain perceptions and interpretations of ecological change inhibited proactive environmental efforts, it also indicates the growing awareness of human responsibilities vis-à-vis natural and sacred entities such as the Ganga. This is promising as it signals the evolution and the potential hybridization of epistemologies about climate change phenomena that are beginning to compel people to action.

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**Of Rice and Men: Climate Change, Religion,
and Personhood among the Diola of Guinea-Bissau**

Joanna Davidson

Department of Anthropology,
Boston University, 232 Bay State Road,
Boston, MA 02215, USA
jhdavid@bu.edu

Abstract

When Diola Christians participated in their male initiation rites despite missionary objections, the argument was framed in theological terms. But Diola actions regarding this and other religious practices can only be understood within the wider frame of ecological changes that have challenged not only their agrarian livelihoods but their very conceptions of personhood and processes of socialization. Given the decline in rain, Diola males can no longer 'become men' in the rice paddies. By drawing out connections among Diola agrarian culture, ideals of masculinity, current environmental conditions, and missionary pressures, I argue that this incident—and, by implication, religious change more broadly—must be appreciated not only for its theological significance within Diola agrarian culture, but as enmeshed in contemporary dynamics of climate change.

Keywords

agrarian culture, gender, masculinity, environmental change, political ecology, West Africa

In 1998 the Diola village of Esana in Guinea-Bissau held its once-in-every 30 years male initiation. Diola male initiation—*bukutabu*—is a massive undertaking during which novices and their male relatives remain in the initiation forest for three months, healing their circumcision wounds, dancing, and learning the bulk of what is deemed to be important male

cultural knowledge from their elders.¹ Because of its prolonged cycle an entire generation of Diola men—aged roughly 3 to 33—is initiated during the same proceedings.

Several years before the Esana *bukutabu*, the resident Italian Catholic priest—Padre Luigi—engaged the nascent Diola Catholic community in an effort to analyze *bukutabu* and determine whether attending would violate aspects of their Christian faith. The discussions took place during catechism and, at first, only adult males participated. Shortly after the process began, Padre Luigi insisted that their wives (the mothers of prospective initiates) participate as well, since ‘Christian families are a united front’. According to Padre Luigi, after many years of discussion the group reached an apparent consensus that attending male initiation would indeed violate basic Christian tenets, and certain ceremonies would require them to ‘put Christ aside’. Diola Christians agreed not to attend.

Despite this seemingly collective conclusion, when the initiation proceedings began the majority of Diola Catholic families participated. Only a small minority refrained.

The ensuing division—between those who *did* and those who did *not* attend the initiation proceedings—continues to be felt as a significant rupture in Esana’s social and religious life. The immediate post-initiation fallout was severe on both sides. Physical violence erupted on several occasions between members of each camp, and several deaths in the village have been linked to the dispute. Diola Catholics who participated in *bukutabu* were subsequently ‘expelled’ from the Church by Padre Luigi.² Those families who did *not* participate had their borrowed and pledged rice paddies reclaimed by their original owners. Every Diola family depends on a mixture of inherited, borrowed, and pledged land in order to meet their subsistence needs, and the reclamation of paddies had serious repercussions for these families. Finally, the disagreement

1. See Peter Mark (1992) for a detailed description and analysis of Diola male initiation in the northern Casamance region of Senegal.

2. This action—and Padre Luigi’s general orientation to Diola male initiation—is in stark contrast to other Catholic priests in Diola communities to the north (in Senegal’s Casamance region), as well as Catholic priests with active missionary presence among other ethnic groups in Guinea-Bissau. The general trend has been to accept—and in some cases encourage—a convert’s participation in male initiation and circumcision. Some priests in the Casamance have even begun to accompany Diola Christian boys and young men into the initiation forest. Esana’s Diola population is aware of this difference, and the Diola Christians who participated in the 1998 *bukutabu* regularly brought this up to indicate Padre Luigi’s outlier (and, by implication, unfair) approach to male initiation.

over *bukutabu* caused a rift in what was a tight-knit Diola Christian community and reorganized alliances strictly along the lines of those who *did* and those who did *not* attend. Work associations, youth clubs, soccer teams, and social events are all split along the pro- and anti-initiation divide. Each side claims its members to be the 'true Christians'. As one anti-initiation man explained to me, 'When one is baptized, one is asked: "Do you reject all the ceremonies and fetishes of traditional religion?" And one responds, "Yes". Those who attended simply broke their pact made at baptism.' But those who attended insist that there was nothing anti-Christian about the proceedings; as one of my neighbors reasoned, 'Even Jesus was circumcised'.

Even though the dispute was largely framed in theological terms,³ and might be seen simply as a clash between traditional Diola and Catholic missionary religious mandates, the question remains: Why did the conflict occur over male initiation? In its 60-year existence in Guinean Diola-land, the Catholic mission has challenged and reshaped much of what its Diola converts believe and practice regarding gender norms, family organization, and religious acts. But changes such as monogamy and rejection of sacrificial spirit-shrine ceremonies went largely uncontested in the Diola Catholic community. When it came time for male initiation, though, things turned out differently. Why was male initiation, and not another traditional Diola practice, the locus of debate and ultimately division in the Diola Catholic community?

Discussing religious change in Africa typically entails, at its core, attention to the encounter between African traditional religions and world religions in terms of the ways in which this encounter both reconfigures the indigenous social order and indigenizes the newly introduced world religion. What are the processes of conversion (Baum 1990; Engelke 2004; Horton 1975a, 1975b)? How are different metaphors and codes assimilated and transformed in these processes (Fernandez 1978, 1986; James 1988; Werbner 1989)? How are community organizational structures—or even the notion of community itself—altered (Beidelman

3. 'Theology', in the way I intend its use here, refers to the study and discussion of the nature of religious truths, especially in reference to God. Although the term had a specifically Christian connotation for some time, it has now spread beyond Christian contexts. Even though the more generic term 'religion' might seem to avoid some of the problematic associations that come with 'theology', it actually confuses matters in a context where religion is not a separate domain of belief and practice, but infuses all realms of Diola life (including agriculture and gendered personhood). Therefore, I use the term 'theology' to signal discussions specifically focused on doctrine and debates about 'religious truths'.

1982; Bravman 1998; Ranger 1987)?⁴ Among other themes, Africanist scholars have examined the collusion between missionaries and colonial authorities (Comaroff 1985; Comaroff and Comaroff 1991, 1997; Etherington 1983), as well as the instrumentalist motives of Africans who seek membership in religious communities or brotherhoods (Long 1968; Parkin 1972). Although the Diola initiation case can also be explored along many of these lines, and it does, in part, bring to the fore the ways in which missionary Catholic and traditional Diola approaches might diverge, in this specific case I argue that we gain deeper insights into these dynamics when we embed them within the context of dramatic environmental changes that have occurred in this region over the past 30 years. The dispute over *bukutabu* took place within a wider context not only of missionary pressure, but also of pressure on Diola livelihoods that challenged many customary Diola beliefs and practices.

In order to examine this question more fully, I first briefly provide some basic background on the ethnographic setting, focusing on the longstanding Diola rice complex.⁵ I then discuss the current conditions of environmental change underway in this area, and the impact they have on rural Diola rice-growers in Guinea-Bissau. After this background sketch, I fill in some details on Diola socialization practices, particularly in terms of male personhood and gendered domains of knowledge, as they pertain to the *bukutabu* debate. It is by drawing out these connections among Diola agrarian culture, conceptions of personhood, current environmental conditions, and missionary mandates that I hope to move the depiction of the *bukutabu* incident—and, by implication, religious change more broadly—from a purely theological domain to one enmeshed in contemporary dynamics of climate change.

Background: The Diola Rice Complex

They have undertaken great works to render [their land] fertile, and they have become one of the wealthiest peoples in Africa (Bertrand-Bocandé 1849: 90).

Rice is the symbol of ethnicity, of continuity, of all that is traditionally Diola... Rice keeps men tied to the land, village-bound, and wholeheartedly peasant (Linares 1970: 223).

4. I am not including here the equally vast literature on the longer history and influence of Islam in Africa.

5. I use the term 'complex' here to signal the role of rice in Diola-land beyond its use as a crop one produces and consumes. As I will elaborate below, rice is enmeshed in Diola economic, social, religious, and moral domains, and ideally rice serves to connect these spheres into an interconnected whole.

Our money is rice (Diola villager 2002).

Diola inhabit the coastal region of West Africa from the southern Gambia to the northwest corner of Guinea-Bissau, including the Casamance region of Senegal. They live in an area of low-lying, lush forest and mangrove swamps, where they have been expertly growing rice for at least a thousand years (Linares 1981).

Diola rice cultivation practices are meant to produce a crop that has multiple valences for Diola. As the above epigrams indicate, it is impossible to exaggerate the all-important presence of rice among Diola. As with most cultural groups in this region, one has not eaten if one has not eaten rice. More than mere food, rice textures Diola lives in many ways; it is connected to status, social relations, and ritual activities. Newborns are given overcooked and chewed rice to eat (despite various attempts by outside health workers to stop this practice) commencing the intimate and embodied link between Diola people and rice from the very beginning of their lives. At funerals every in-married woman from the dead person's lineage brings a cup of pounded rice and pours it on the corpse after he or she is positioned on the stretcher for the corpse inquisition. Then they throw a small bouquet of un-milled rice next to the corpse. Diola believe that when the dead person is reincarnated in another lineage or neighborhood, they should always carry some rice seeds from their previous lineage with them.

Rice permeates Diola economic, social, and symbolic life. Diola see rice as part of a covenant with their supreme deity, *Emitai*, in which they work hard to cultivate the crop and *Emitai* sends rain to nourish it (Baum 1999). But in contemporary Guinea-Bissau, Diola can no longer grow *enough* rice—not only to meet their ceremonial needs, but even to feed their families. Diola villagers are on the frontlines of global climate change. Within the past thirty years, declining rainfall, desertification, and widespread soil erosion in northern Guinea-Bissau have increasingly challenged Diola villagers' ability to provision themselves through the wet rice cultivation practices that have long defined them as a people. These environmental factors have combined with neglectful and disadvantageous government policies and programs with regard to rural development, difficult marketing conditions, and diminished labor capacity due to out-migration of youth. All of these factors have worsened agricultural conditions in rural rice-growing regions of the country.

The decrease in rice production has already had significant consequences for Diola ritual activities. Most shrine ceremonies require copious paddy rice expenditures. 'Sack rice', what Diola call imported

rice, even if it could be purchased in sufficient quantities, would not be acceptable for most ritual practices. Beyond its impact on ritual life, diminishing crop yields has led to changes in what might be called the Diola social security system, particularly with regard to vulnerable segments of Diola society, such as widows. And, at the most basic level, decreased rice in Diola-land has contributed to increased anxiety around sustenance. In what was already a taxing labor regime, many Diola villagers now work harder and with less certainty that their efforts will result in an adequate rice harvest.

Decline in Rain and Rice

In the past, you would eat rice from the paddy and still have plenty left over at the end of the year. Now, the rain does not come, and our rice does not last (Elder Diola man 2002).

If not for sack rice, we would have died already. Now is not like before, when the rain was good (Diola woman 2003).

Now farming doesn't have...it doesn't have anymore, well, farming lost its strength, it lost strength because of the lack of rain. You can cultivate every paddy in Esana but when you transplant seedlings and you finish, the rain has already left and you won't see any rice, because rice needs a lot of water, a LOT of water, you see. Now, if there's no water, now what? There's no other way, there's no irrigation, so the paddy dries out, you see (Diola man 2010).

To be sure, there have been times of dearth throughout Diola history. There is, of course, a long history of food insecurities in this region due to shifting and unpredictable environmental conditions—most infamously the droughts of the 1970s and 1980s—as well as social and political upheaval (Carney and Watts 1991; Chazan and Shaw 1988; Cohen 1988; Commins, Lofchie, and Payne 1986; Franke and Chasin 1980; Glantz 1987; Linares 1985). Much scholarship on agrarian transformation in this area (and elsewhere in Africa) has explored the ways in which shifts in the mode of production during the late colonial and early postcolonial era—through the introduction of new crops and/or technologies, the intensifying pressures on land, and the need to respond to increased commercialization—have significantly transformed social relations, especially gender roles, within cultural groups in this region (Berry 1984, 1989; Carney and Watts 1991; Guyer 1978, 1983; Linares 1981, 1985; Weil 1973). This literature helps contextualize contemporary problems in Diola-land within a longer history of shifting structures and demands on agrarian populations in the region, and across the continent.

There is, however, a growing consensus that the impact, intensity, and most importantly, *confluence* of the particular changes of the past thirty years present especially dramatic challenges to people residing in this region of West Africa. Increasing international concern over the effects of global climate change in Africa, particularly in the lead-up to and aftermath of the November 2006 UN conference on climate change in Nairobi, has focused on the unfortunate irony that even though Africa produces a disproportionately small percentage of the world's greenhouse gases, the continent will be one of regions likely to bear the brunt of the problems caused by these climate changing substances. Across the continent droughts are already increasing and crop yields are decreasing.

Guineans certainly recognize these changes; even the lush southern 'rice-bowl region' of the country suffered food shortages in 2006 because of lack of rain (IRIN 2006). Scholars in Guinea-Bissau have begun to explore the impact of these pressures on agrarian societies around the country. Temudo and Schiefer, for example, note that

While mangrove cultivation still allows the production of a marketable surplus, today rain-fed production is in crisis. The Cubucaré [southern] region still produces surplus rice. But while many producers sell their surplus outside the region, more and more families inside the region fail to meet their yearly requirements in rice from their own production... Contrary to the ritual invocations of success by development ideologists, the agrarian societies have been sliding downwards on a negative spiral since the beginning of the 1960s (Temudo and Schiefer 2003: 401).

Likewise, in the country's northwest, environmental changes are already being felt by villagers who depend upon abundant rain to desalinate and irrigate their rice paddies. The very Diola agricultural practices that have made them so successful in centuries past, and have struck visitors to the region such as Bertrand-Bocandé as so impressive, leave them vulnerable in changing climatic conditions. As Linares explains:

In coastal villages...impressive dikes with sluices and ducts control the water of the *marigots* in and out of the more exposed rice fields. If the rains are sufficient, the salty waters will be pushed downstream during the rainy season; but if the rains are insufficient, salts will accumulate in the ricefields, with disastrous consequences for the rice crop. This is essentially what is happening as a result of the Sahelian drought of 1968-73 onwards... Since the Diola...do not regulate to any appreciable extent the flow of water in and out of their fields, they are at the mercy of the rains, and of the drying sun, for appropriate moisture levels to perform the cultivating, transplanting, and harvesting in a group of fields (Linares 1981: 560, 567).

Villagers in Guinean Diola-land regularly complain about how much they are suffering because of the decline in rain and rice. Much of my

own time in rural Guinea-Bissau was spent working in (and talking endlessly about) the parched rice paddies, listening as my neighbors in the village discussed their meager harvests, seeing newly transplanted rice seedlings wither from sun exposure when they should have been submersed in knee-deep rainwater, surveying households across the village regarding their food production and consumption patterns, walking along stretches of salinated and hard-baked paddy layered with white salty icing, and hearing residents express their frustration with their seemingly futile labor in the forests and paddies. Most Diola residents were caught up in a set of changed circumstances that they were in the midst of figuring out, interpreting, and strategizing around. Unlike those religious and political leaders in the United States who deny the reality of climate change, even the most devout Diola do not deny that climate change is real and that it is already having a dramatic impact on their lives and livelihoods.

Since 2001 I have seen Diola respond to the decrease in rain and rice in various ways. The average household is able to produce only enough rice to last three months, and when this supply is exhausted most rural Guinean Diola spend the rest of the year scraping together what they can on a day-to-day basis in order to buy a kilo of imported rice. Another common strategy among adult Diola with families to care for is to work *harder* and to scold (and often punish) those shifting their primary allegiance away from rice cultivation and toward other livelihood strategies (see Davidson 2009). Increasingly, Diola families are investing in schooling for their children and pinning their hopes for the future on their children's academic success.

These strategies reflect the range of individual efforts among contemporary rural Diola to confront their central collective dilemma: Who are we without our rice? The larger project in which I am engaged explores how the tension between the central importance of rice in Diola society and its increasing scarcity is intensifying contestations over customs, power, and identity. Elsewhere, I have explored Diola responses to this dilemma in terms of their work ethic (Davidson 2009), approaches to knowledge and secrecy (Davidson 2010), and its implications for agricultural development (Davidson 2012). For the remainder of this paper, I focus on the relationship between the decline in rain and rice and particular aspects of Diola religious life, as this is linked to gendered domains of knowledge and personhood. The opening episode regarding the dispute over male initiation brings much of this to the fore, and rather than viewing this conflict only in light of clashing missionary and traditional perspectives, I argue that understanding it within the framework of changing environmental conditions and their impact on Diola

livelihoods and personhoods provides new insights into why it was Diola male initiation, and not another traditional practice, that led to such a large-scale defection of Diola Catholics from the Church.

*Boys, Interrupted: Diola Male Personhood on the Body
and in the Paddies*

In 1952 the Italian-based Pontifical Institute for Foreign Missions (or PIME) sent its first priest to Esana in what was then Portuguese Guinea. The predominantly Diola residents in this remote area in the northwest corner of the country had little prior contact with religious missionaries, and were not particularly interested in what the Italian priest had to offer. After several failed attempts to woo Diola villagers to mass, the priest enlisted Portuguese colonial officers physically to capture school-aged boys and forcibly register them in the mission school. When Diola families realized what was happening many of them took their children into the thick forest surrounding the village to hide from the authorities. But several children were captured and the priest began teaching them rudimentary reading and writing skills as well as instructing them through catechism. Several successive campaigns resulted in the first cohort of mission-educated boys. Now mostly middle-aged heads of households, this group comprises the majority of the Diola Catholic community in Esana. These boys grew up in the mission school, inculcated into a new system of thought. As Robert Baum describes a similar process among missionized Senegalese Diola, 'In the schools children received religious answers at an age when they had not yet begun to formulate religious questions' (Baum 1990: 390). This was a particularly effective strategy for Diola, who do not receive religious instruction as children; shrine priests and elders maintain access to religious and spiritual knowledge, and one can only earn the rights to such knowledge through the long process of becoming an adept at particular shrines. This process is, moreover, not open to everyone. Most Diola remain quite ignorant of specialist religious domains, and hence Diola children certainly cannot counter Catholic teachings from an informed and solid position in Diola religious understandings.

Once they were part of the mission, these Diola boys no longer participated in the age-grade system that previously moved boys through several stages of growth. Even though it is rarely practiced in contemporary Diola-land, I shall detail some aspects of this process as it was practiced most recently (prior to PIME presence in this region) and consider how it pertains to Diola male socialization and ideas of personhood (see Table 1 for a concise description of these phases).

Table 1: Youth Age Grades for Diola Males

Grade Name and Approximate Age	Activities	Adornment
<i>Apurau</i> (pl. <i>epurai</i>) 11 or 12, but can include younger boys	Cow herding	A hairpiece with shells on back of head
<i>Aruntchikau</i> (pl. <i>eruntchikai</i>); late teens to early 20s (<i>Aruntchikau arau</i> = mid-teens)	Wrestling, dancing, betrothal process	<i>Ebongai</i> stages begin (headpiece comprised of buttons in star shape on back of head): 1) <i>Badjolidjolabu</i> : mix of burnt jackfruit shell and palm oil spread as black ash around head; white buttons sewn into hair. 2) <i>Kugabaku</i> : After declaring a wife, another row of white buttons is added to the star shape.
<i>Adjadjau</i> (pl. <i>edjodjowai</i>)	Wrestling and dances	3) <i>Bapendabu</i> : 3 or 4 buttons in a row on each part of the star; 4) <i>Hungómahu</i> : buttons from previous phases are taken off; <i>embelegai</i> (pl. <i>bambelengabu</i>), a type of metal, is sewn onto hair over all of head; 5) <i>Ehendjekurai</i> : Take out <i>embelegai</i> . Tie whole head with shells. At this stage, white skirt is switched for black skirt at wrestling matches, and a <i>hurirahu</i> replaces the red tail.
<i>Asubangilai</i> * (pl. <i>esubangilai</i>)	Build autonomous house; retire from wrestling	

* The phases from *aruntchikau* to *asubangilai* generally take 7–10 years.

As a Diola boy grows, he passes through four stages that mark his maturation, signified by adornment and activity. Diola do not count their years, and even today it is rare to find someone who knows their numerical age unless they have had frequent contact with bureaucratic institutions that require this kind of information. But age—especially a boy's age—used to be marked physically on the body with various kinds of adornment, and through various kinds of work, educational, and recreational activities.

The first age-grade—*apurau*—typically includes boys around 11 or 12 years old, but can also include boys as young as 6 years old. This is the age of cow herders, when young boys take responsibility for their family herds. Previously, this would be their sole responsibility, but increasingly children are beginning to perform agricultural work in the rice paddies at younger and younger ages. The adornment used to mark this age grade, worn typically at large public gatherings like wrestling tournaments or dances, is a hairpiece with small shells sewn as a circle into the boy's hair at the back of his head. The next stage—*aruntchikau*—includes boys in their late teens to early 20s. An intermediate phase—*aruntchikau arau*—encompasses boys who are not quite big enough to be full *eruntchikai*, but have outgrown their *epurai* status. At this stage, the headpiece no longer has shells, but several buttons scattered on the back of head to make a star-like shape. This is first phase of various *ebongai*, the headpiece progressions that distinguish male age grades. This first headpiece arrangement, *badjolidjolabu*, comprises white buttons threaded onto the back of the boy's head. Ash from a burnt jackfruit shell is mixed with palm oil and spread on the back of the head until everything turns pitch black except for the white buttons. At wrestling matches *eruntchikai* are not distinguished by any particular clothing, as they are in later stages. During the late *aruntchikau* phase a boy starts to explore his options for marriage. When he is ready to choose a wife, he will add another ring to headpiece, turning it into a *kugabaku*, with two buttons tied together around the star on his head. It is at this point that the boy and his family begin to raise pigs necessary for the marriage ceremony.

During the next phase—*adjadjau*—more emphasis is placed on wrestling. *Edjodjowai* wear white cloth wraps when wrestling, and their *ebongai*, now called *bapendabu*, is threaded around their entire head with three or four buttons in a row on each part of the star. Later in this phase, the headpiece is transformed into a *hungómahu*, in which the buttons from the previous phases are removed and an *embelengai* (pl. *bambelengabu*), a type of copper-like metal, is sewn into the hair covering the whole head. At this point, the young man is waiting for the elders in his neighborhood to give him the go-ahead to build his own house. The

final *ebongai* phase is *ehendjekurai*, in which the *embelengai* is removed and the young man's entire head is tied with shells. This signifies that, during the following year, the man can begin to build his own house. At this stage, young men trade in their white skirt for a black one, which they wear at wrestling matches and village dances. They remove the red tail worn by all boys at wrestling matches from *apurau* to *hungómahu* phases. They replace the red tail with a *hurirahu*, a white cloth with beads sewn on it, twisted until it is hard and reaching to the back of the knees. The year that young men build their own houses they become *esubangilai* (*asubangilau*, sing.), the final youth phase. They no longer wrestle, although they usually take on supervisory roles at wrestling matches and dances. After this final youth phase, one becomes an *adjamurau* (pl. *edjamurai*), a married adult with an autonomous household.

The changes in *ebongai* and wrestling wear encode several key insights into Diola ideas about masculinity, personhood, development, and knowledge. First, a young, pre-pubescent boy wears a circle of shells on his head, and does not have any distinguishing clothing below his waist. The shells contrast with the later use of buttons in their naturalness, and the circle suggests self-containment, both of which mark this phase as one of undisturbed boyhood. It is only with entrance into the *aruntchikau* phase that change is signaled by opening up this circle into a multi-armed star, and by replacing 'natural' shells with 'artificial' white buttons. The progression of the star shape suggests incompleteness—there will be more buttons and the headpiece (like the boy himself) will grow outwards. The openness of the star image conveys this sense of growth; as buttons are added, the star radiates outward, mimicking, on the one hand, the body's transformation from the inside out, while suggesting, on the other hand, the multiple directions of possible growth. It is still unclear how the process will end, and Diola indicate the potential for following multiple paths simultaneously through the many arms of the star, each of which represents a possible area of growth and a possible path toward manhood.

The contrast between the black ash and white buttons symbolically sets up a meeting of opposites that marks most liminal moments, and that has to be worked out and ultimately resolved through a transitional process. These next several stages coincide with ages that mark growth and transition in the boy's physical and social life; it is a vulnerable period in which the previous state of an unmarked and largely ungendered child goes through the gradual process of becoming more visibly marked as a man. The use of artificial (e.g. 'man-made') buttons as opposed to naturally found shells suggests that Diola recognize the ambiguity of gender, and have a clear sense that gender difference must

be socially and symbolically (not just physically) worked out.⁶ The final stage of a full head of shells marks the completion of this process, and a return (although somewhat differently configured) to a natural state—that of a fully completed man.

All of this symbolic work happens on the head, emphasizing that this is an imaginative process. Diola see the head not only as the site of intelligence, but as a source of potentially creative or destructive power. A witch, for example, is said to ‘have head’, meaning his or her capacity to perform extraordinary feats (for good, but more often for evil purposes) resides in the head. That *ebongai* also reside on the head implies an attempt to imprint and guide the still vulnerable youth into each next stage by symbolically demarcating both growth and the working out of contrasts (in this case, male and female encoded by black and white) on the site where creative/destructive power lies. Moreover, locating this process of adornment on the head reveals how Diola think about knowledge as tied to maturation. Again, the transition to manhood is not just about growth and physical change, but importantly includes the acquisition of different kinds of knowledge (represented by the multi-armed star) necessary to become an autonomous head of household.

The seemingly incongruous *hungómahu* stage, in which the buttons are removed and a type of metal is tied around the head, can be better understood when we think about the properties of metal. As a material object, metal represents the ultimate in potential; it requires human intervention in order to transform it into something useful. Among Diola, metal is most often used at the tips of the long fulcrum shovel that men depend on for their arduous hoeing labor in the rice paddies. Blacksmiths must transform a block of metal by exposing it to fire, which, for Diola, simultaneously encodes male chiefly power and female creative power (see Davidson 2007). *Hungómahu*, as the penultimate stage, dramatically encapsulates this extreme transformative process by moving from the gradual accumulation of buttons to a headdress of metal, suggesting at once the joining of male and female power (through fire) in the making of new people,⁷ and the consolidation of this new person as a man, most importantly distinguished by his trademark instrument of labor in the rice paddies.

6. Although I do not have precise dates, Diola have likely had access to artificial buttons for a few hundred years through late fifteenth- and early sixteenth-century Portuguese trade along the Upper Guinea Coast (see Brooks 1980, 1993).

7. For a provocative analysis of Diola beliefs about consanguinity and conception, see Sapir 1977.

While all of this symbolic work is happening on the young man's head, it might also be instructive to examine what changes are happening on the lower half of the body. Once a boy enters into the liminal and transitional phases demarcated by *ebongai*, he also begins to wear a white cloth with a red tail at wrestling matches. Again, the contrast of these colors hints at some level of gender confusion—or at least ambiguity—marked, not coincidentally, around the sexual organs. *Eruntchikai* and *edjodjowai* are not yet fully sexualized beings; in other words, their sexuality is still indeterminate as indicated especially by the red tail. Red, like fire, is a polyvalent symbol among Diola, sometimes signaling male ritual leadership and other times encoding female fertility. Its use during these transformative stages suggests again the blending of gender archetypes that need to be worked out in the ultimate reconstitution of a fully sexualized man. We see this happening at the final stage of *ehendjekurai*, when the metal headpiece is removed and the young man's head is covered with shells. At the same time, the white cloth and red tail are replaced by a black cloth and *hurirahu*. The symbolic work that has been conducted on the head is no longer necessary, because the accumulation of knowledge necessary to become a man is now complete. Instead, as a final symbolic gesture, the young man removes the ambiguous red tail and wraps himself in black, publicly displaying himself as a fully sexualized man about to embark upon an autonomous life by building his own house. (The Diola word for house and family is the same—*elhuupai*—and the building of one always already encapsulates the building of the other.)

We can see, then, that the key elements in a Diola male's maturation involve an ever more refined distinction between male and female spheres, an emphasis on knowledge as constitutive of manhood, and a sense of the multiple directions that growth and development can entail. These elements are epitomized in male initiation (*bukutabu*), during which initiates are separated from their female kin and secluded in the forest for three months, women and girls are forbidden to go near the site or even know about the proceedings, initiates are instructed in the bulk of Diola cultural knowledge (as one man asserted, 'The initiation forest is our library'), and the dangers of circumcision leave open the question of the young man's (or boy's) very survival.

Gutmann tells us that 'masculinities...have little meaning except in relation to women and female identities and practices' (Gutmann 1997). In the Diola case, giving birth marks full entrance into adult status for women, and men are not supposed to know anything about birth or women's reproduction. Thus, both birthing and *bukutabu* are moments of complete gender-based seclusion, as well as realms of total secrecy

within each gender. Becoming a Diola adult is defined, in many ways, through what one knows—or, equally important, what one cannot know—about being a man or a woman. The significance of distinct gendered spheres of knowledge reaches its peak at male initiation and women's birthing, each of which are gender segregated affairs and are marked by the attainment of knowledge that must be guarded within the exclusive realm of the initiated.

The idea of a Christian family as 'a united front', as Padre Luigi insisted when he included women in the catechism discussion of initiation, was the first intrusion by the mission into the sanctity of gendered domains of knowledge and secrecy. A Diola family is, in fact, 'a united front' when it comes to household provisioning, but this is only the case because of gender specialization of knowledge and practice that makes the family deeply interdependent. In the complex system of wet-rice cultivation, men command knowledge over the irrigation techniques and women know the differences among a vast array of rice seeds and are in charge of choosing which varieties to broadcast. Men prepare the paddies by tilling the soil; women transplant and harvest the rice. This interdependence of the husband–wife pair is so strong that divorce—normally a straightforward and uncontested affair—is not permitted during the rainy season, when the husband–wife team depends on each other for the vital work of wet-rice cultivation.

Aside from the initiation forest and a young man's head, the other site of 'man making' is in the rice paddies. The arduous manual labor of hoeing the heavy mud to prepare the paddies for rice seedlings is a quintessentially Diola male act. Adolescent boys often brag to each other about how fast they can hoe a rice paddy, and members within the neighborhood-based work groups of unmarried men often compete with each other during the rainy season weeks of tilling to see who can reach the end of the row fastest. The intricate system of Diola nicknames—*kasaalaku*—is a testament to Diola ideals of manliness. The most popular nicknames are praise codes for being a successful rice cultivator. Similarly, eulogistic couplets composed at a man's funeral typically emphasize his cultivation prowess. Funeral grounds are meant to be decorated with bouquets of stored rice from the dead man's granary, although such displays have become more difficult. Finally, rice abundance is tied to increased ritual authority. I was often told the story of Utikal, the man who presided over more spirit shrines than anyone else in the village. He had single-handedly irrigated and cultivated a large tract of paddies and produced enough rice to offer sacrifices at several of the most important (and costly) shrines, eventually gaining rights to priesthood over them. The Diola twist, then, on Simone de Beauvoir's famous

formulation that 'One is not born, but rather becomes, a woman' (de Beauvoir 1973: 301) is: Diola women are made by giving birth, and Diola men are made in the paddies and the forest.

Conclusion

But now even the most able-bodied and perseverant man would not be able to produce as much rice as Utikal. As a result, domains in which 'being a man' is proven are on the wane and increasingly threatened. Diola are no longer able to eke out a living in the rice paddies, and previous accolades that attested to masculinity—whether through nicknames or eulogies—are becoming rare. Now that these sites of establishing, demonstrating, and performing masculinity are declining, others are becoming even more significant. *Bukutabu* gains in importance as one of the last purely male and man-making venues. Men's knowledge, what makes a man, and what maintains the gendered division of knowledge and secrecy, can only be preserved through participation in male initiation rites.

The making of a Diola Christian man—at least under Padre Luigi's missionary leadership—involves disrupting Diola ideas of gender, and particularly distinct gendered spheres of knowledge and secrecy, beyond the point where most Diola men are willing to go. Especially given recent ecological shifts that make it increasingly difficult for Diola men 'to be made' in the rice paddies, male initiation has become an increasingly important site to maintain male exclusivity to certain kinds of knowledge. For the majority of Diola Catholic families, these factors trumped mission mandates prohibiting initiation, even though their actions ultimately resulted in their expulsion from the Church and deep divisions among Christian community members.

Customary practices such as male initiation are accentuated because of the very precariousness brought about by the decline in rain and rice. Diola Christians who participated in the *bukutabu* proceedings despite mission mandates to abstain chose to do so within the contemporary framework of generalized problems concerning social change and continuity at the level of livelihood. In the Diola context, as we have seen, livelihood is intimately and intricately bound up with concepts of personhood and gendered domains of knowledge and practice. Given their removal from the age-grade system, Diola Christian boys no longer wear *ebongai*. Given the decline in rain, Diola men are now hard-pressed to earn praise nicknames and eulogies based on their cultivation prowess. The drums that called Diola Christian men and their sons to

the initiation forest proved louder and clearer than the church bells beckoning them to stay within the mission walls.

Finally, the decision of *bukutabu* participants can perhaps be taken one step further if we consider Fortes's (1966) notion of 'prehending the occult' (see also Gell 1974). Understanding ritual as a way to influence conditions—often environmental—that enable one to make a living, Diola men's insistence on participating in male initiation might encode their hope to affect their natural world, and regain the opportunity to become men in the rice paddies once again.

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Book Review

Dieter Gerten and Sigurd Bergmann (eds.), *Religion in Environmental and Climate Change: Suffering, Values, Lifestyles* (New York: Continuum International, 2012), 269 pp., \$120 (hbk), ISBN: 978-1-4411-6929-7.

In *Religion in Environmental and Climate Change: Suffering, Values, Lifestyles*, editors Dieter Gerten and Sigurd Bergmann draw primarily from papers presented in Potsdam, Germany, in January of 2010 to demonstrate the impact of religion in the realm of anthropogenic climate change.¹ A strength of the text is the intertwining of the sciences and humanities, representing a collaborative breadth in disciplinary diversity. Anthropologists, sociologists, theologians, physicists, philosophers, historians, ethicists, and ecologists each approach climate change from within their area of expertise, yet are united through a focus on how religion (primarily Christianity) impacts and is impacted by climate change.

Part 1 sets the stage for the rest of the text. In their introductory chapter Gerten and Bergmann argue that in light of the urgency of global climate change, religion may be a key part of the solution. Holding a formative influence over much of the world's 'worldviews, moral systems, practices, aesthetics, ethics, lifestyles, hopes and fears' (p. 4), faith carries substantial power when organized into religious bodies, to varying extents shaping culture and human understandings of the world. Next, Wolfgang Lucht discusses how objects such as Neolithic flint axes (and today's cars, buildings, airplanes, and furniture) become symbols of cultural cosmology—shaping cultural worldviews and informing personal identity in relationship to the world. Since many of these symbols are tied to fossil fuel technologies, he argues that in the modern world these cosmologies relate directly to global climate conversations. Then, critiquing classical Christian doctrines that affirm an object-relationship with nature, Lucht argues for reinterpreting any ancient stories that support extractive and exploitative economic human interaction with the rest of the natural world. Michael Reder next argues that religions could be formidable participants in climate discussions due to their 'social capital' as well as their traditional concern over ethics and morality.² Finally, Timothy Leduc observes that the demystification of research alone may not be enough to overcome unarticulated cultural beliefs born of anthropocentric, economic,

1. At the 'Religion in Environmental and Climate Change' symposium, Telegraphenberg, Potsdam, Germany, 11–13 January 2010, a workshop organized by the Potsdam Institute for Climate Impact Research (PIK), the Norwegian University of Science and Technology, Trondheim, and the University of Greifswald, in association with the European Forum for the Study of Religion and the Environment and funded by the Volkswagen Foundation.

2. 'This term describes norms, mentalities, social relations and networks that promote cooperative behaviour and solidarity in a society' (p. 41).

and industrial ideologies that teach us to ignore the signs of anthropogenic environmental degradation. He argues for a 'resacralization' (p. 62) of the natural world, integrating Christian and scientific cosmologies to reanimate patterns of living and researching.

While essays from Part 2 fit well into the framework promised in Gerten and Bergmann's introduction, the book's notable lack of religious diversity becomes evident in this section, which represents the main shortcoming of the text. Subtitled 'Recent Dynamics in World Religions', the section ought to be simply 'Recent Dynamics in Catholic and Evangelical Christianity', since it offers analyses of topics limited to these faiths. Within this context, the essays may offer a diversity of disciplinary approaches, but without contributions from other Christian traditions and other world religions, the offering is at best one sided.

Roman Catholic theologian and social ethicist Markus Vogt and Lutheran theologian and ethicist Friedrich Lohmann both discuss climate justice from Christian perspectives. Vogt questions the ethics of selling emissions rights in a world where industrialized nations' current levels of pollution cannot be sustainably extended to all nations. Through moral suasion, he argues, the principle of sustainability ought to be added to the Catholic human rights principles of personality, solidarity, and subsidiarity to help guide human action with regard to global ecology. Lohmann further contends, drawing on the Genesis account of creation, that anthropocentrism is a valid foundation for Christian environmental ethics. Anglican theologian and geologist Michael Roberts and sociologist Laurel Kearns both discuss evangelical Christianity's potent influence on the debate over climate change in the United States. Roberts highlights evangelical contributions to both sides of the climate change debate, while Kearns focuses on the fallout of 'climategate' at the Copenhagen talks in 2009, after which evangelical support for climate-related activism dropped significantly.³ She does cite one concrete contribution made by GreenFaith, which provided energy audits and compact-fluorescent light bulbs to over 700 congregations (including solar panels for 24 congregations), supplying a rare reference in the book to activism at the community level.⁴ Martin Schönfeld concludes this section, arguing that one effect of climate change will be a widening gap between fundamentalist and liberal approaches to faith. While he recognizes positive contributions from some liberal monotheistic traditions, he projects that the superior number of fundamentalist traditions—those which tend to react against and deny climate change research—will likely cause a decline in monotheistic traditions in response to climate change. Conversely, pagan traditions, which he defines as indigenous religions and other faiths that attach intrinsic spiritual value to the land itself and 'conceive...of the divine as being transcendent and immanent' (p. 171), will likely increase. While Schönfeld does not make the connection explicit, there is an interesting parallel between his description of pagan religions and individuals in monotheistic traditions who approach faith from mystical rather than doctrinal foci. This suggests to me that those types of monotheistic spiritualities better suited to encouraging proactive responses to climate change have something important in common with pagan spiritualities, which could be valuable to the ongoing discussion of religion and climate change.

3. Media leaks questioning the validity of scientific research regarding climate.
4. Founded 1992.

Part 3 contains five case studies that examine how non-Christian religions help people cope with the culturally deleterious impacts of climate change. Susan Crate's ethnographic study of the Siberian Viliui Sakha tribe offers insight into cultural and economic suffering that climate change has brought to the region. She highlights the benefit of integrating indigenous understandings of native landscapes into climate research. Lioba Rossbach de Olmos surveys anthropological methods of understanding indigenous perspectives on climate change, asserting that non-Western perspectives provide valuable insight into how humans respond to anthropogenic climate change. Urte Undine Frömming and Christian Reichel examine how specific Indonesian communities adapt to changing climate conditions. Gulnara Aitpaeva provides a fascinating study of *Jaichylyk* (an indigenous practice through which locals believe they can control the weather) in Kyrgyz culture and history. She praises *Jaichylyk* as a philosophy that, if recovered, could help locals respond to and even mitigate anthropogenic climate change. Finally, Holger Sonnabend closes the text with his study of historic European response to climate change, concluding that while science may explain what is happening, it does little to offer meaning or value systems to address the suffering, uncertainty, and fear relating to climate change. As one of the major functions of faith, people (past and present) will thus continue to seek meaning and purpose through religion.

What seems clear from reading this book is that religion adds a potentially valuable voice to the discussion of anthropogenic climate change. What is less clear is how the voices of religious leaders, theologians, and ecclesiastical spokespersons translate to action in the pews and out in the streets where daily decisions impact global climate change. While a diversity of major world religions might change the appearance of the discussion through their own distinctive contributions, the difficult question for readers of whether or not religion motivates action remains largely unanswered.⁵ Laying aside the critique of the book's lack of attention to religious diversity and evidence of direct grassroots activism stemming from religious belief (which would validate the claim that religion is an 'essential' companion in the discussion), where the book excels is in offering readers a range of perspectives on how religion informs some discussions of climate change. Individually, the essays are well researched and compelling. As a collection, perhaps the biggest contribution this study makes is inspiring further interdisciplinary research into questions not addressed at the Potsdam symposium.

Austin Leininger
Graduate Theological Union, Berkeley, CA
aleininger@ses.gtu.edu

5. The exceptions being Kearns's brief account of evangelical activism sparked by the debate over the credibility of climate change research, and Roberts's assessment of political leanings and activism based on evangelical belief.

Book Review

Timothy Leduc, *Climate, Culture Change: Inuit and Western Dialogues with a Warming North* (Ottawa: University of Ottawa Press, 2011), 288 pp., \$29.95 (pbk), ISBN: 978-0-7766-0750-4.

Anyone who has ever spent time in the arctic can attest to a kind of transformative experience; standing on a frozen lake or sea ice under the northern lights or dancing to the beat of Dene or Inuit drums, one tends to see both the world and oneself differently. The land and the people seem alive and connected to one another in ways that make sense at a very fundamental level.

This cultural and ecological landscape is reportedly under great threat. Three years after Inuit leader Sheila Watt-Cloutier was nominated for a Nobel Peace prize for her efforts to bring the local experience of climate change to a global stage, the impacts of climate change in the arctic appear to be growing: ‘...not since the 19th-century clearance of America’s forests has the world seen such a spectacular environmental change’ (*The Economist* 2012). Some critics disagree, but for most reasonable observers the climate change debate seems to be over. Even Canada’s Prime Minister, Stephen Harper, seems to have changed from a skeptic to one who argues ‘the menace of climate change [is] one of the most important public policy challenges of our time’ (Harper 2007). Yet for those who perceive a lack of transparency in Harper’s decision-making (Popiak 2012) there is wide gap between the rhetoric and reality of Canadian climate change policy.

There are alternative sources of guidance to be found. In *Climate, Culture Change: Inuit and Western Dialogues with a Warming North*, environmental studies scholar Timothy Leduc attempts to find a way through the climate change ‘crisis’ through a study of Inuit culture and beliefs. The book, which was shortlisted for the Canadian Federation for the Humanities and Social Sciences’ ‘2012 Canada Prize in the Social Sciences’, focuses on the disconnects between the views of IQ holders, scientists, and policy makers on issues of environmental change. He discusses the need for an intercultural response inclusive of both Inuit and Western worldviews. In addition to highlighting the value of Inuit knowledge (Inuit Qaujimagatuqangit—IQ) in managing the uncertainties posed by climate change, Leduc uses a postcolonial critique of mainstream debates on climate change to argue that the political and economic forces underlying the mainstream discourse may be endangering IQ and other alternative knowledge systems. Written with the goal of reconnecting readers with each other and the earth, the book is a refreshing alternative to the well-established discourse on vulnerability and adaptation that underlies the majority of climate change policy in Canada and elsewhere.

The work is grounded in Leduc’s experiences working with several Inuit communities, especially that of Igluliargu (Chesterfield Inlet) during his doctoral research. It

draws on interviews with Inuit elders as well as his own observations and interpretations of boardroom scuttles between governments, scientists, and Inuit leaders. The book offers insights into Inuit Qaujimagatuqangit, particularly that of Inuit philosopher Jaypeetee Arnkak. The spiritual teachings of Sila or the shaman's knowledge of Silatunig are featured in the book as one way of addressing the 'globalizing tendencies of Western climate research and politics into a diversity of regionally accessible cultural views, practices and passions' (p. 228). The recollections and reflections of elders about the power of Sila will be compelling for those interested in an alternative to scientific characterizations of northern ecosystems and the neo-liberal discourse of the northern frontier. While scientists and governments seek to control, manage, and exploit the arctic and its resources, the principles of Silatunig are yet another reminder that there are limits to nature and our control over it, particularly in the context of a changing climate. Leduc speaks to the legacy of colonialism in the north, continued threats to Inuit culture, and a hope for protecting and nurturing IQ against climate change and other homogenizing forces of globalization. The loss of IQ, according to Leduc, will not only matter to the Inuit but will inevitably lead to a diminished 'global conscience' and capacity to cope with our changing environment.

Although many are aware of research on arctic climate change this book is unique and valuable in its focus on the Inuit experience and their spiritual understandings related to it. Inuit observations are, for the most part, compatible with climate change science. There are conflicts, however, between the ways some draw on it for the management of polar bears. Some environmentalists and scientists as well, concerned about melting sea ice, have recommended limiting the Inuit harvest of polar bears. Consequently, many now associate efforts to 'save the polar bear' with taking action on climate change. As a result, it has become increasingly difficult to separate science from sentiment. Leduc draws on a critique of the work of the Intergovernmental Panel on Climate Change (IPCC) by pointing out that 'the activist, ideological way that research has been used by the IPCC, has put scientists in the position of being authors of policy—a position that distorts the role of science in society' (Saunders 2009: A22). For their part, some Inuit leaders have been frustrated by climate change 'rhetoric, hype and alarmist claims' (Smith 2009) and have argued for a longer term view of both the ecological issues and the socio-economic context of northern livelihoods.

The book attempts to raise awareness about a critical issue facing Inuit culture—climate change—but is this the most critical issue facing Inuit communities? Traditional stories from the Inuit are evocative and indigenous rights and interests have, in the past, been an all-too-convenient tool for environmentalists seeking to heighten the soap box, or legitimize what might otherwise be considered solely an environmentalist's position (Dove 2009). Those taking up Leduc's call to arms for more intercultural dialogue and interdisciplinary research should recognize the host of other socio-economic and cultural issues facing those living in the Canadian and circumpolar north. In addition to the effects of climate change, many Inuit communities are facing health problems, housing shortages, unemployment, and food insecurity in ways more commonly found in developing nations. Ideally, Leduc's call for intercultural dialogue may lead us toward a more holistic approach to issues of northern and global sustainability.

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Brenda Parlee
Associate Professor and Canada Research Chair
Faculty of Native Studies
Faculty of Agricultural Life and Environmental Sciences
University of Alberta
Brenda.parlee@ualberta.ca

Notes for Contributors

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