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Summary
The potential of traditional natural resources management for biodiversity conservation and the improvement of sustainable rural livelihoods is no longer in doubt. In sub-Saharan Africa, extensive habitat destruction, degradation, and severe depletion of wildlife, which have seriously reduced biodiversity and undermined the livelihoods of many people in rural communities, have been attributed mainly to the erosion of traditional strategies for natural resources management. In Ghana, recent studies point to an increasing disregard for traditional rules and regulations, beliefs and practices that are associated with natural resources management. Traditional natural resources management in many typically indigenous communities in Ghana derives from changes in the perceptions and attitudes of local people towards tumi, the traditional belief in super natural power suffused in nature by Onyame, the Supreme Creator Deity. However, this is closely entwined with ecological, demographic and economic factors. Whilst these factors have driven the need to over-exploit natural resources, a situation which threatens the sustainability of community forests including sacred groves, religion has been used to justify such actions. This paper explores changes in tumi and the sustainability of sacred groves in the forest-savanna transitional zone in Ghana. It would confirm that changes in traditional animist beliefs, such as tumi, which informs the worldview of local people and underlies traditional natural resources management, is mainly due to the advances made by Christianity and Islam.

Keywords: *Tumi,* Sacred Groves, Forest-Savanna Transition, Sustainability, Traditional, Christianity, Islam

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CHANGES IN BELIEFS AND PERCEPTIONS ABOUT THE NATURAL ENVIRONMENT IN THE FOREST-SAVANNA TRANSITIONAL ZONE OF GHANA: THE INFLUENCE OF RELIGION

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ABSTRACT

The potential of traditional natural resources management for biodiversity conservation and the improvement of sustainable rural livelihoods is no longer in doubt. In sub-Saharan Africa, extensive habitat destruction, degradation, and severe depletion of wildlife, which have seriously reduced biodiversity and undermined the livelihoods of many people in rural communities, have been attributed mainly to the erosion of traditional strategies for natural resources management. In Ghana, recent studies point to an increasing disregard for traditional rules and regulations, beliefs and practices that are associated with natural resources management.

Traditional natural resources management in many typically indigenous communities in Ghana derives from changes in the perceptions and attitudes of local people towards tumi, the traditional belief in super natural power suffused in nature by Onyame, the Supreme Creator Deity. However, this is closely entwined with ecological, demographic and economic factors. Whilst these factors have driven the need to over-exploit natural resources, a situation which threatens the sustainability of community forests including sacred groves, religion has been used to justify such actions. This paper explores changes in tumi and the sustainability of scared groves in the forest-savanna transitional zone in Ghana. It would confirm that changes in traditional animist beliefs, such as tumi, which informs the worldview of local people and underlies traditional natural resources management, is mainly due to the advances made by Christianity and Islam.

Key words: *Tumi,* Sacred groves, Forest-savanna transition, Sustainability, Traditional, Christianity, Islam.

INTRODUCTION

There is evidence that natural resources (forests, land, water and wildlife) and the systems indigenously developed for their sustainable use in the tropics, particularly in sub-Saharan Africa, are being threatened. These threats come not only from exogenous pressures and policy decisions but also from internal stresses, including increased integration into the market economy, increased contact with western cultures, and population pressures (Vivian 1991; Gyasi *et al.* 1995). These forces have in some instances resulted in the degradation and even disappearance of certain natural resources and the traditional management practices that ensured their sustainable utilisation. It has been argued that, as a result of the environmental impact of these forces, forests and the sustainable farming practices associated with them have disappeared to a great extent in tropical Africa, except in isolated localities (Gyasi *et al.* 1995). Extensive habitat destruction, degradation and significant depletion of wildlife, with severe consequences on biodiversity conservation, have also occurred on the continent (Ntiamoa-Baidu 1995).

Whilst admitting that these factors do inevitably bring changes and sometimes have detrimental consequences on traditional natural resources management practices, changes in these practices have been inevitable. In fact, it has been argued that no tradition has ever been static, but change can also occur without tradition being lost (Vivian 1991). However, in recent times, concerns have been expressed about the sustainability of traditional African religions and animist beliefs, which underpin most traditional natural resources management, due to the rapid spread and entrenchment of Christianity and Islam in many communities on the continent (Appiah-Opoku and Hayman, 1999; Ejizu 2000).

The above concerns have been re-emphasised in the current debate on change and the sustainability of traditional natural resources management practices. Increasingly, it is being stressed that changes in these practices may lead to loss of their value and the impact they have on conservation. The alarming rate of the loss of indigenous knowledge systems, associated with traditional natural resources management practices, is expressed in suggestions that these practices be documented before most of them are lost to future generations (McNeeley 1996, quoted in Furze *et al.* 1996). A major rationale given for this documentation is that the value of traditional management practices *in situ* has yet to be measured against various proposals, and that its contribution to biodiversity conservation, with western science as an adjunct, may prove to be immeasurable (Brookfield 1996). There exist many instances where traditional management practices have been used to manage successfully local resources to ensure biodiversity and environmental conservation under changing socio-economic conditions (Fairhead and Leach 1998). Typical are the forest patches and islands or sacred groves that are maintained on the fringes of several communities, mainly for religious and other cultural purposes (Ntiamoa-Baidu 1995; Lebbie and Freudenberger 1996).

This case-study on traditional natural resources management in the forest-savanna transitional agro-ecological zone of Ghana aims to contribute to this emerging interest. The transitional agro-ecological zone in Ghana, and in West Africa generally, has been undergoing tremendous environmental changes (Gyasi 1997). These changes have been interpreted variously (for example: Gornitz 1985; Longman and Jenik 1992; Fairhead and Leach 1998). However, several of the discourses have emphasised the role of traditional natural resources management in the changes and how these affect the practices themselves (Catterson 1988;

Fairhead and Leach 1994). The question of the sustainability of these practices in the transitional zone of Ghana has been raised (Fargey 1991; Ntiamoa-Baidu 1995; Nsiah-Gyabaah and Oduro 1997).

The debate on traditional natural resources management practices

For several decades, there has been an on-going debate on traditional natural resources management practices and conservation. Views have been expressed strongly about the efficacy of indigenous practices and their sustainable appropriation of natural resources. It has been argued that traditional natural resources management practices, although often based on religious customary rules, may prove useful to conservation today as they allow for non-destructive or sustainable ways of exploiting the natural environment (Vayda and Rappaport 1968). It has been emphasised that some cultural practices have demonstrable systems with mechanisms for maintaining balance or stable relations between people and other species (Chayanov 1966). There is also the argument that, through traditional practices and its ethnically-specific ways of utilizing natural resources, indigenous peoples have developed certain basic conditions for the regeneration of their ecosystems. Thus, the application of traditional productive techniques induces a social process of conservation and transformation of the environment that guarantees a sustained use of its resources (Leff 1985).

In recent times, there have been suggestions that approaches recommended for improving resource management should focus more than in the past on the search for possible improvement within the existing traditional production systems (Falloux and Mukendi 1988; Hardley and Schreckenberg 1995; Brookfield 1996; Warren and Pinkston 1997). This is because rural communities often have profound and detailed knowledge of the ecosystems and species with which they are in contact, and have effective ways of ensuring that they are used sustainably (de Klemm 1985; Berkes 1999 and Hens 2006). Recent research on traditional resource management systems has disputed some of the earlier views about their economic inefficiency and adverse impact on the environment. Now, it is accepted widely that most of these systems represent an ecologically-and socially-beneficial adaptation to specific resource characteristics (Ghai 1994; McNeely 1996).

Since the "Biodiversity Convention" that was opened for signature at the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro, Brazil, June 1992, there has been an increasing emphasis on integrating traditional natural resources management practices into sustainable development programmes, especially those aimed at the conservation of nature in poor countries (Redclift 1994). In fact, current discourses and many international fora on sustainable livelihoods and environmental development in the Third World have emphasised the incorporation of indigenous traditional knowledge into development projects and interventions (Ghai 1994; IUCN 1997; UNESCO 1998).

Although the suitability of traditional management practices has been raised in several fora and international arenas, critics have tended to indicate two areas of concern. Firstly, it has been pointed out that not all traditional approaches (techniques and productive practices) have a conservative impact on the environment of the societies that use them (Leff 1985; Catterson 1988). Secondly, it has been argued that the efficacy of these practices does not arise simply from their technical properties. Amongst other things, in most cases they are the product of social conditions, of the way that the productive practices are inter-linked with the rest of the cultural behaviour of a people, their patterns of consumption, their socially-sanctioned access

to their resources and their religious beliefs (Leff 1985). The emphasis in these arguments is that conservation cannot be achieved simply by returning to traditional practices, but by incorporating some relevant traditional elements. This also pre-supposes that cross-cultural extrapolation of traditional management practices may not be easily practicable unless there are compatible and comparable cultural traits.

Some authors, whilst acknowledging the inadequacies of traditional management practices, have lamented the fact that the present situation in environmental management is characterised by planning policies and social structures which both neglect local cultures and exploit the environment (Leff 1985). It has, therefore, been recommended that a cautious appraisal of traditional management practices be undertaken to ensure that, inadvertently, the useful ones are not disposed of or ignored to the detriment of conservation and sustainable livelihoods (Catterson 1988; Falloux and Mukendi 1988). The need for cautious assessment of traditional management practices and an in-depth analysis of some of their related conceptual issues, particularly their underpinning animist beliefs, has been raised in recent times (Grim 2000; Campbell 2004; Hens 2006). Also, of particular importance are changes in traditional natural resources management practices and their effects on the local environment and livelihood systems (Gadgil 1998).

In this paper, it will be argued that changes in local perceptions of *tumi* in relation to the natural environment may underlie the differences in conservation achieved with sacred sites. The inroads made by new religions - Christianity and Islam - in the study area on the concept of *tumi* will also be analysed in relation to this.

MATERIALS AND METHODS

The material produced in this paper is based mainly on an anthropological studies conducted in four communities in the transitional agro-ecological zone of Ghana to investigate the spirituality of forests and conservation between April 1999 and March 2000. The communities studied were Bofie and Nchiraa in the Wenchi District; and Buabeng-Fiema and Dotabaa in the Nkoranza District, of the Brong Ahafo region of Ghana. The study communities are in the forest transitional zone of Ghana

Key issues investigated were the dynamics of change in natural resources and their associated traditional management practices. Some of the qualitative data gathered from the field have been used as anecdotes. Information gathered from follow-ups between 2005 and 2006 to the communities to examine local participation in sustainable natural resources management through holding community forums have also informed discussions in the paper.

The data presented here are based on participant observation, key informant interviews, group interviews and an opinion survey conducted in the study communities from a sample chosen to reflect the views of various groups. The opinion survey questions reflect some of the main local ideas about *tumi*, obtained through qualitative data-gathering by key informant interviews, group discussion and observations. The analyses combine both qualitative information and quantitative data to explain the changes in the local perception on *tumi.*

RESULTS AND DISCUSSIONS

Changes in Local Constructs of the Landscape as a Cosmology suffused with *tumi*

In this section, data on the four study communities are analysed to look at changes in local perceptions on *tumi*. Changes in local cosmologies and worldview, as underlined by the changes in local perceptions and attitudes towards *tumi,* are also conjectured.

Table 1 presents results of the summated scales on *tumi,* as the underlying construct of the perception of local people of their natural environment. Summated scales are an assembly of interrelated items designed to measure underlying constructs (Santos 1999). The questions used, as in similar studies (Wapole 1997; Mehta and Kellert 1998; Santos 1999), were based on Likert type-scales (de Vaus 1996). On a Likert three point-scale, the maximum score is three whilst the minimum is zero (de Vaus 1996; Mehta and Kellert 1998). It is assumed that the score for an independent individual i.e. one whose thoughts or ideas are neutral on the summated questions, would be the median value (Wapole 1997). Therefore, for the score values of '0', '1', '2' and '3' it is considered that the median value lies between '1' and '2' or it is equivalent to 1.5. Thus, mean values above 1.5 are assumed to be favourable to a statement.

The results show that the mean score of the summated items that associate *tumi* with natural resources is 1.97 and, therefore, higher than the 1.5 threshold. This suggests, as observed by Falconer (1992) amongst some communities in the southern forest zone of Ghana, that the study communities still believe that natural resources have *tumi*. This may also derive from the fact that in spite of the major inroads made by Christianity and Islam in Ghana, most customs, traditions, and normal interactions amongst individuals are underlined by these constructs (McLeod 1981; Chamlee-Wright 1997). Also, personal observations from the field showed a high degree of syncretism amongst most respondents in the communities, as is common in Ghana with converts to new religions such as Christianity and Islam (Chamlee-Wright 1997). For example, many Christians and Moslems believe in the existence of ancestral spirits, an important tenet of traditional religion, and that these and other powerful spirits roam the land on *dabɔne* (when farming is prohibited). Christians and Moslems, like traditionalists, observe this taboo and believe that anyone who works on his or her fields on *dabɔne* is likely to be confronted by gods and spirits. This traditional practice has been noted to minimise pressure on natural resources (Abayie Boateng 1998).

However, the significant differences in the rated scores ('no', 'somewhat', 'agree' and 'strong agreement') of most of the items (Table 1) may suggest differences in opinion about traditional beliefs (Trefon 1994). Indeed, local worldviews and traditions, as is common amongst most tribes in Ghana (Hagan 1998; Adomako *et.al.*) and elsewhere in Africa (Abinbola 1990; Osemeobo 1994) are themselves dynamic and have been changing. For instance, statement (1), which relates to *obosom*, a superhuman being ranked high in the hierarchy of traditional religion and believed to ensure compliance with social ethics, punishing those who break local taboos (McLeod 1981), was unfavourably scored at 1.43.

Table 1: Local views and opinions on traditional representations of the natural environment

Statement	*Percentage responding (n=181)*				*Mean(1)*	*P-values*
	' No'	*'Somewhat'*	*'Agree'*	*'Strong Agreement'*		
1. *Obosom* is ethical in its relationships with humans and management of natural resources including forests	29.28	10.50	48.07	12.15	1.43	<0.001*
2. All natural resources (land, trees, rivers, animals, rocks) have *tumi*	13.81	7.73	45.86	32.60	1.97	<0.001*
3. The *tumi* of natural resources can be *papa* or *b⊃ne*	12.71	7.73	55.80	23.76	1.91	<0.001*
4. The potency of the *tumi* of a particular natural resource determines its management	16.02	17.68	48.62	17.68	1.73	<0.001*
5. The *tumi* in wild animals, crops and trees are more potent than domesticated ones	25.41	18.23	32.60	23.76	1.55	0.239 (NS)
6. Traditional religions are more ethical in their management of natural resources	16.57	9.39	46.41	27.63	1.85	<0.001*
7. Forests are a major source of *tumi* whether they are *papa* or *b⊃ne*	8.29	18.23	51.38	22.10	1.87	<0.001*
8. Natural resources degradation are the result of disregard for the gods	22.65	7.73	41.44	28.18	1.34	<0.001*

P-values were computed from non-parametric one-sample chi-squared test of association between the categories *'No', 'Somewhat', 'Agree', Strong Agreement'*.
NS: Non-significant at 5% level of probability.
*Significant at 5% level of probability.
(1) For calculating the mean scores for statements, *'Strong Agreement'* was assigned the score value of 3, *'Agree'* 2, *'Somewhat'* 1, and *'No'* 0.
The value of a mean represents the sum of the scores of individual respondents to a statement divided by the total number of respondents [Mehta and Kellert (1998) p. 325]

"papa" and "*b⊃ne"* .are local words; the former means good whilst the latter means bad
These are local words meaning 'good'

This may explain the concerns of chiefs and elders in the study communities about the growing disregard for the *tumi* of *obosom*; a change believed to be detrimental to the spirituality of society and natural resources management. It may also suggest that local people may still construct their environment with *tumi*, but *suro,* the awesome reverence and fear that was usually attached to these representations of the landscape, has eroded (Ntiamoa-Baidu 1995; Abayie Boateng 1998; Appiah-Opoku and Hyma 1999). This may be attributed partly to the local perception that gods and spirits, including *mmoatia* and *sasabonsam,* do not live in the forest any more or have receded. These changes may also support the differences in management of natural resources in the study communities as reflected in the conservation of sacred groves.

Variations in opinions on *tumi* as a major element of the natural environment amongst the individual study communities are summarised in Table 2. The results are the summated scale-items used earlier in Table 1. The responses were dichotomised into two categories of 'yes' and 'no' (Mehta and Kellert 1998). The high total percentages in 'agreement' for each item confirms the view already noted above that communities generally perceive the natural environment as suffused with *tumi* (McLeod 1981). This would suggest that most local people still perceive *tumi* as a major element of their natural environment or represent their environment in spiritual and mythical terms. But, as noted above, the results also confirm that there are differences in opinion amongst the study communities. For example, out of the eight summated items, the communities show significant differences in opinion on five of the items. It is also important to note that for the summated-scale statement (1), on which the opinion amongst communities is most divergent, those with decimated or degraded sacred groves (Nchiraa and Dotobaa) show lower percentages of 'agreement'.

It must be emphasised that statement (1) projects *abosom* (plural of *obosom*) as superhumans who are ethical in their interactions with human beings and exercise a powerful moral sanction against wanton destruction of natural resources. This is an important tenet of the traditional religious belief and local worldview (McLeod 1981). In fact, a*bosom* and their priests or priestesses (*akomfo*), together with traditional leaders are the ones who mediate between society and the spirit world (Millar *et al.* 1999), especially ancestral spirits who are believed to be the real owners of land (Rattray 1923; Frazer 1926). Thus, in the study communities, as elsewhere in Ghana (Millar *et al.* 1999), working with natural resources and agriculture implies working with traditional leaders and institutions (including their *abosom*) because they are the ones who can mediate with the spiritual world.

Nchiraa, which in the past had the largest number of sacred sites but has decimated or severely degraded most of them, has the least number of people agreeing (29%) with statement (1). Also, Nchiraa has the lowest number of people agreeing with most of the statements. This suggests that *tumi* may be regarded as a less significant element in the communities which have decimated or degraded their sacred groves or sites. The range values for Nchiraa (29-89 %) and Dotobaa (61-94 %) are larger than those of Buabeng Fiema (77-92 %) and Bofie (81- 96 %).

Table 2. Opinion of *Tumi* amongst the study communities.

Statement	% in agreement with statement				*P-Values*
	Bofie (n=57)	Buabeng Fiema (n=55)	Nchiraa (n=35)	Dotobaa (n=36)	
1. A*bosom* are ethical in their relationships with humans and management of natural resources including forests	80.70	86.79	28.57	72.20	*<0.001**
2. All natural resources (lands, trees, rivers, animals, rocks) have *tumi* and *sunsum*	94.73	86.79	68.57	88.88	*0.006**
3. The *tumi* and *sunsum* of natural resources can be *papa* or *bone*	87.72	86.79	80.00	94.44	*0.304 (NS)*
4. The potency of the *tumi* and *sunsum* of a particular natural resource determines its management	89.47	84.91	74.29	83.33	*0.303 (NS)*
5. The *tumi* and *sunsum* in wild animals, crops and trees are more potent than domesticated ones	85.96	77.36	65.71	61.11	*0.036**
6. Traditional religions are more ethical in their management of natural resources	70.18	75.47	88.57	88.89	*0.032**
7. Forests are a major source of *tumi* whether they are *papa* or *bɔne*	96.49	92.45	85.71	88.89	*0.307(NS)*
8. Natural resources degradation is the result of disregard for the *tumi* and *sunsum* in them	82.46	79.25	57.14	86.11	*0.016**

P-values computed from dichotomised 'yes' or 'no' values based on 2 X 4 contingency tables (Appendix 6).
NS: Not significant at 5% level of probability.
*: Significant at 5% level of probability.

In summated-scale analysis, larger range values suggest a greater unity of opinion less favourable to the summated-scale items or statements (de Vaus 1996; Wapole 1997). However, it is important to note that the generally high percentages in 'agreement' with the statements in all the four communities may suggest that decimation and degradation of sacred groves may also be driven by forces other than traditional beliefs and representations of spirits in the natural environment (Wessing 1999; Subash Chandran and Donald Hughes 2000).

Differences in perceptions of *tumi* amongst the major demographic categories at the community level are shown in Table 3. The data were subjected to a non-parametric one-sample chi-square test (Mehta and Kellert 1998) to verify differences in opinion amongst the demographic categories within each community.

Table 3: Responses to the statement that *obosom* has *tumi* and that it is ethical in its relationships with humans and the management of natural resources

Demographic categories	Percentage in agreement			
	Bofie	Buabeng Fiema	Nchiraa	Dotobaa
Religion				
Christians	81.82	87.18	35.00	59.00
Moslems	74.07	50.00	33.33	38.50
Traditionalists	100.00	100.00	100.00	100.00
None (on religion)	100.00	100.00	63.33	87.50
P values	0.122 (NS)	<0.001*	<0.001*	<0.001*
Education				
Literate	50.00	86.36	28.60	67.86
Illiterates	81.81	87.09	28.60	87.50
P values	0.006*	0.956 (NS)	1.00 (NS)	0.115 (NS)
Age (years)				
<40	80.00	73.33	30.00	66.67
40-54	71.43	87.50	20.00	85.00
55-64	75.00	100.00	28.57	50.00
65+	100.00	100.00	66.67	100.00
P values	0.113 (NS)	0.147 (NS)	<0.001*	0.001*
Gender				
Males	81.00	87.50	31.25	66.67
Females	80.00	86.21	26.32	77.78
P values	0.937 (NS)	0.922 (NS)	0.516 (NS)	0.355 (NS)
Ethnicity				
Indigenous	71.05	85.10	33.33	73.33
Migrants	100.00	100.00	26.92	71.14
P values	0.027*	0.273 (NS)	0.409 (NS)	0.855 (NS)

P-values computed from non-parametric one-sample chi-square test.; NS: Not significant at 5% level of probability; *: Significant at 5% level of probability.

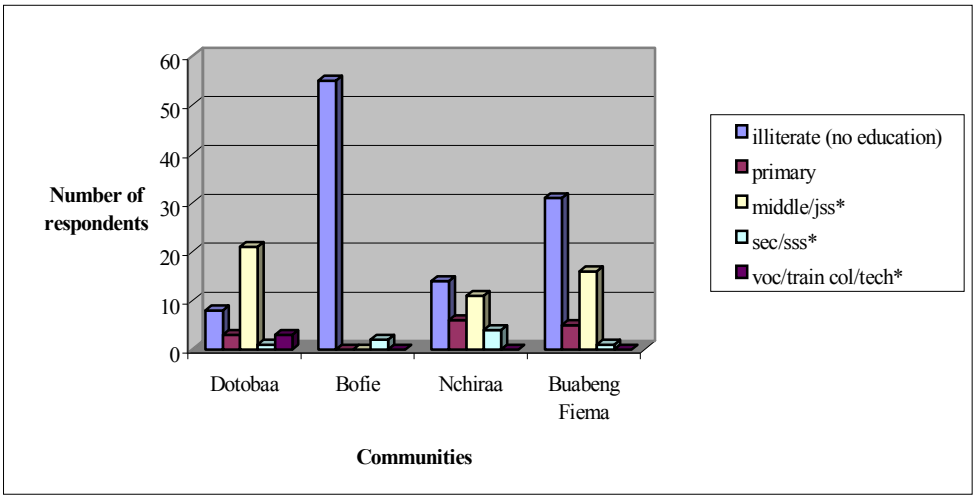
The results suggest that within the communities ethnicity, education and gender (except Bofie) may have less influence on the thought of an individual on *tumi* as an element of the natural environment and the belief in the *tumi* of *obosom*. In Bofie, the large Moslem community (about 47 % of the population) say that their ancestry does not come from the village, and this may account for the influence of origin on belief in *tumi* (although the *p-value* 0.027 is weak). In fact, new religions including Islam are important to the changes in

local perceptions about *tumi*. Therefore, their religious background may have accounted for their views more than their origin. However, it should be noted that although the Moslem community in Bofie has been integrated into the community after centuries of sojourn in the settlement, the majority of them still regard themselves and are regarded by others as not being 'indigenous' people. Also, Bofie has the highest number of illiterate people (see Figure 1), which may have influenced their responses to the statement posed in Table 3.

Migrants have similar views on *tumi* to indigenous people. The latter is contrary to the allegations made by the indigenous people (particularly in Nchiraa and Dotobaa) against migrants, especially those from northern Ghana. Indigenous people emphasised that a negative attitude and over-exploitation of local natural resources on the part of immigrants is due to disbelief in the local traditional religious beliefs related to nature, especially in *tumi* of natural resources. However, it must be pointed out that similar traditional religious beliefs are found amongst the people of northern Ghana (Frazer 1926; Dorm Adzorbu *et al.*1991; Tengan 1991), where the majority of the migrants in the study settlements originate. Some of these traditions also relate to conservation of sacred groves (Dorm Adzorbu *et al.* 1991).

Most of the *Akomfo* (priests of *abosom*), in the south (especially amongst the Akan-speaking groups) who are considered to be very powerful, are known to have obtained their *tumi* or rejuvenated it from the north (Kwaku Akowuah *pers. comm.*). The attitude of the migrants may be explained by the general decline in *suro* (the awesome reverence and fear) of the *tumi* associated with *abosom* in the study area, as opposed to that in their area of origin and consequent disregard for the taboos which regulated natural resources management.

Figure 1: Educational background of respondents in the four communities



* middle/jss (middle school and junior secondary school);
sec/sss (secondary/ senior secondary school)
voc/train col/tech (vocational, training college and technical school)

Entsua-Mensah *et al.* (1998) found a similar attitude with migrant *bator* fishers from the Volta Region of Ghana who operate in the Central Region. Although they believed in the spiritual potency of the local gods, they considered them to be of little importance because they could not affect them as migrants. This reinforced their position that they owed no

allegiance to the gods and, therefore, the breaking of the traditional taboos in the local area would have little effect on them (Enstua-Mensah *et al.* 1998). Thus, local people fearing retribution from the gods would use migrants to crop sacred groves in Nchiraa.

The analysis of responses by different groups also demonstrates that changes in religious beliefs may have the most important influence on community attitudes towards traditional representations of the natural environment. Apart from Bofie, there are significant differences in opinion amongst the religious groups in the three other study communities. In Bofie this may be attributed to the pronounced syncretic attitudes of the local people, due to its comparatively rural structure and remoteness (Klee 1980; Osemeobo 1994; Trefon 1994). Also, in all the study communities comparatively lower numbers of Christians and Moslems believed in *tumi*. It is not surprising that Traditionalists were the most favourable in their attitude to *tumi* as a construct of the natural environment. This supports the argument often put forward by Traditionalists in the study communities that changes in natural resources use and degradation are the result of the introduction of Christianity and Islam, which have undermined traditional religious beliefs (Kwaku Akowuah *pers. comm*.). The decline in *suro* (awesome reverence and fear) of *tumi* of natural resources, which ensured the judicious use of natural resources, was generally attributed to Christianity and Islam. This explanation is supported by similar findings elsewhere in Ghana (Dorm Adzorbu *et al.* 1991; Ntiamoa-Baidu 1995; Abayie Boateng 1998). But, as observed by Falconer (1992) in some communities in the forest zone of southern Ghana, the situation might be more complex than just the influence of Christianity and Islam.

New Religions and Changes in the local perception of *tumi*

It is clear from the above discussions that changes in religious beliefs may be an important factor that underlies the changes in local perceptions of traditional representation of the natural environment (Dorm Adzorbu *et al.*1991; Ntiamoa-Baidu 1995; Lebbie and Freudenberger 1996; Amoako *et al.* 1998). Christianity and Islam are blamed by Traditionalists in the study area for changes in resource use. It is argued that Christianity and Islam have facilitated the decline in regard of *tumi* associated with traditional representations. Traditionalists emphasised the efficacy of traditional religious practices not only for sustainable management of natural resources, but also for social stability (Abayie Boateng 1998). As observed elsewhere in Ghana (Appiah-Opoku and Hyma 1999), it was mentioned that traditional religion and related institutions, especially chieftaincy and gerontocracy, enhanced ethical values in the appropriation of natural resources. This ensured the reciprocity of nature in the form of adequate and timely rainfall and abundant yield. In Bofie, an elderly informant expressed his nostalgia for the past religious order and the implications of the present disregard for the region in this way:

> "When the majority of us belonged to the traditional religions, there was plenty of rainfall, there were no crop failures and little was heard of devastating bush and wildland fires. Now that most of us have become Moslems and Christians, and do not believe in the traditional religious practices, we are faced with drought and bush fires. God suddenly seems to have abandoned us" (Kyeame Donkor *pers. comm*).

He explained that prosperity (rainfall and good yield) all come from *Onyame* and *abosom.* He also emphasised that gods and deities are instrumental in the prosperity of man because they intercede on our behalf before *Onyame*. However, because they do not talk to ordinary people, humans tend not to appreciate their roles. He pointed out that those who pass through

abosom to *Onyame* fear (*suro*) and respect Him. It is those (Christians and Moslems) who think they have direct access to *Onyame* who do not fear *(suro*) Him. He explained that it is like those who serve in traditional court. They can wear their sandals. But any outsider, though more prominent than the butler or courtier would, as a sign of respect for the King or Queen, take off his sandals before he enters the courtyard. In the other study settlements, Traditionalists expressed similar sentiments and nostalgic feelings.

It was emphasised that traditional religion in the past employed social compliance, based on ethical and moral values, to protect and conserve natural resources. For instance, the belief that *nanannom nnsamafo* (ancestors) were the real owners of land, and that the living were just caretakers on their behalf, served as a strong deterrent which ensured compliance with traditional rules and regulations on appropriation of land (Frazer 1926). Thus, changes in religious beliefs are perceived by Traditionalists as an important factor that affects the interaction of local people with the environment. This argument is supported by the view expressed by a Christian at Nchiraa:

> "The forest around the Ntwokom area has been cleared for farming. We have overcome the spiritual powers in the forest by clearing the area for farming. It is *Onyame* who has helped us" (Margaret Agyeiwaa *pers. comm*.).

This suggests both that Christians believe that they can deal directly with God and that they may be pleased with the changes that have taken place, because of the association, for them, of Ntwokom with *tumi bɔne* (bad *tumi*). Ntwokom sacred grove had an *asubosom* (river god), which also served as the local rain god. Therefore, Christians perceived the forest as an appendage of paganism. The decimation of the sacred grove, apparently facilitated by farming, may have pleased most Christians as indicated in the statement of the Christian woman quoted above. There is a parallel between this and the onslaught against the monkeys in the Buabeng Fiema Monkey Sanctuary in the late sixties and early seventies by the *Gyedi* group (a Christian sect) with the aim of breaking the spiritual myth around the monkeys (Fargey 1991; Ntiamoa-Baidu 1995). In the latter, it was the intervention of some concerned citizens of Buabeng Fiema and the Wildlife Department that saved the monkeys and the forest. Similar changes in local perceptions have been noted as causes and possible threats to the survival of sacred groves and other conservation practices based on traditional constructs of the natural environment in parts of West Africa (Lebbie and Freudenberger 1996; Decher 1997), and elsewhere (Gadgil 1998; Subash Chandran and Donald Hughes 2000).

Support for the claim by Traditionalists that Christianity and Islam are undermining *suro* for *tumi* in natural resources is found in the composition of religious groups in the study communities. In the past, traditional religion was entrenched in all the study communities. However, Christianity and Islam have made tremendous inroads into the communities. Apart from Nchiraa, where local people estimated that traditional religious followers would comprise about 45 per cent of the population (although the survey results showed a lower percentage), more than Christians (35 per cent) Moslems (15 per cent) and others (5 per cent), the other communities are predominantly Christians and Moslems. For example, in Dotobaa, Christians and Moslems were estimated by local people at about 80 and 15 per cent respectively. The people of Bofie are predominantly Moslems. Similarly, in Buabeng Fiema, Christians are estimated at 80 per cent of the population while traditionalists represent six per cent. Thus, it can be seen that Christianity and Islam have made considerable inroads in the

study communities as depicted by the sample of the respondents surveyed for the study (Table 4).

Table 4: Religious denominations amongst respondents in the study communities

Community	Christians	Moslems	Traditionalists	None	Total
Dotobaa	24	5	2	5	36
Bofie	18	27	7	5	57
Nchiraa	21	6	5	3	35
Buabeng Fiema	36	2	7	8	53
Total	99	40	21	21	181

It must be emphasised, however, that categorisations (denominations) and numerical strengths of the new religious groups may not reflect the actual pattern of changes in religious concepts and beliefs in the study settlements. This is because syncretism is prevalent in the study area. For example, in Dotobaa some indigenous people attributed the good yield the migrant Dagarti farmers obtain from their yams to religious phenomena, indicating that they believe in the efficacy of traditional forces. A pot, which was observed in a farm alleged to belong to a Dagarti migrant and containing some concoction, was said to be the source of his success in farming. It must be emphasised that the informant, who is a Christian, strongly believed that the pot contained some supernatural powers that helped the farmer to obtain a good yield. He explained that:

> "At the beginning of every farming season, several migrants would usually make a quick visit to the north. I am sure they go there for some spiritual fortification or support to farm large acreages and also to boost their yields" (Yaw Gjan *pers. comm.*).

The Christian informant quoted above may not be alone in his views. Several Christians and Moslems, to a large extent, expressed belief in some concepts of traditional religion. Falconer (1992) found that Christianity and education have little influence on the belief of local people in the traditional representations associated with the natural environment. Also, as observed by Fargey (1991), in Buabeng Fiema several Christians believe that the monkeys in the sanctuary are 'sacred' animals of the patron goddess, Daworo. In the study communities many Christians and Moslems also believe in the potency of *obosom*. For example, in Dotobaa, most people in the community revere the sacred pond of Asuonyima. In Nchiraa, a Moslem clergyman confirmed his conviction that it is the relaxation of restrictions on menstruating women from entering forests that accounts for the degradation of such places by wild fires.

Therefore, it may be extremely difficult to disaggregate local religious beliefs and concepts, and to decipher what people say they are and what they actually believe into religious denominations. However, there are changes in beliefs linked to Christianity and Islam, and these are affecting perceptions and attitudes to the belief in *tumi* as an element suffused in nature by *Onyame*, the Supreme Creator Deity. It may also be conjectured that Christianity and Islam may have only changed the cosmological landscape by providing alternative access to the *tumi* of *Onyame.* Also, it could be conjectured that assigning reasons for change in the belief of *tumi* only to the influence of Christianity and Islam may be an oversimplification,

because of the high degree of syncretism observed amongst respondents in the study communities. Local attitudes towards traditional management practices are, therefore, more ambivalent than their religious denominations suggest. There are reasons to suspect that other social and economic motives on the part of local people may underline their supposedly purely religious denominations. As will has been argued in several circles, modern enterprises and changes in population which have led to enormous demand for land may undermine traditional practices for natural resources management based on a belief in *tumi* (Gadgil 1998; Wessings 1999; Subash Chandran and Donald Hughes 2000). It may also be conjectured that the changes in sacred groves in the study communities may be a transformation which indicates specific social needs, cultural values and changing economic and technological processes (Schmithusen 1997). It is also important to note that it may be misleading to attribute the changes to only Christianity and Islam. This is because the interaction of the local people with the environment, as commonly observed in traditional societies, is a complex amalgamation of material, social and spiritual considerations (Seeland 1997). Also, economic motives may be very strong (Ghai 1994; Gadgil 1998; Wessing 1999).

CONCLUSION

In this paper it has been shown that *tumi,* the traditional belief in an inherent spiritual potency and power, which is suffused in natural resources by *Onyame* (God) (McLeod 1981), still underlies the local construction of the forest landscape. It has also been shown that Christianity and Islam have made inroads in the study communities. However, it may be extremely difficult to disaggregate local religious beliefs and concepts, and to decipher what people say they are and what they actually believe into pockets of religious denominations, because most people are syncretic. However, there are certainly some changes in belief linked to Christianity and Islam, and these are affecting the attitudes of local people to *tumi*. It is conjectured that Christianity and Islam may have changed the cosmological landscape by providing an alternative access to source the *tumi* of *Onyame.*

Differences in local perceptions of *tumi* partly account for the variations in attitudes and interactions of the local people with the environment (Trefon 1994), and may account for the different levels of sacred grove maintenance in the study communities. However, it is conjectured that since local people are syncretic, the changes in the sacred groves and the interaction of the local people with their natural environment may be underlined by other factors significant of which might be economic which drive their subsistence instincts and survival.

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