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highlights

- Online Gendered Interactions
- Are Cultural Traditions Real
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From the Chief Author's Desk

We see a drastic momentum everywhere in all fields now a day. Which in turns, say a lot to everyone to excel with all possible way. The need of the hour is to pick the right key at the right time with all extras. Citing the computer versions, any automobile models, infrastructures, etc. It is not the result of any preplanning but the implementations of planning.

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This Global Journal is like a banyan tree whose branches are many and each branch acts like a strong root itself.

Intentions are very clear to do best in all possible way with all care.

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Online Gendered Interactions: Exploring Divergent Perspectives

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Abstract - The effects of the Internet on social life are well documented. Empirical evidence highlights fundamental changes in various aspects of social life connected to the growth of information and communication technologies. The ability to communicate with others across time and space has expanded opportunities to meet others and maintain personal relationships. Over the last twenty years, researchers have explored a variety of topics in relation to this new information and communication technology. A common question posed in the literature on the Internet relates to how social structures such as gender matter when people interact without physical presence in a technologically mediated environment. Despite the multidisciplinary, methodological, and theoretical diversity of the various studies on the topic of gender online, patterns are identified in the literature and include gender fluidity, gender reproduction, and a blending of gender fluidity and reproduction. This paper examines the significance of gender in online settings and concludes by discussing how recent developments in information and communication technologies present new arenas in which to examine the role of gender on the Internet.

Keywords : *internet, gender, pseudonyms, computer-mediated communication, online forums, chat rooms, gender swapping.*

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Janet Armentor-Cota

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I. Introduction

The effects of the Internet on social life are well documented. Empirical evidence highlights fundamental changes in various aspects of social life connected to the growth of information and communication technologies. The Internet, as a vast set of interconnections or a "network of networks," is responsible for the growth of virtual social spaces (Craven and Wellman: 1973).These social spaces serve a range of purposes and bring together groups of people around topics, interests, and curiosities. The ability to communicate with others across time and space has expanded opportunities to meet others and maintain personal relationships. Over the last twenty years, researchers have explored a variety of topics in relation to this new information and communication technology. Considering that twenty five percent of the world's population and the majority of people in North America, Europe, and Australia use the Internet, the need for further examination of online social dynamics is clear. (Miniwatts Marketing Group 2009).

Gender is a social category that significantly shapes people's identities and social interactions. A common question posed in the literature on the Internet relates to how social structures such as gender matter when people interact without physical presence in a technologically mediated environment. What role this social structure plays online has intrigued researchers from a variety of disciplines. Various studies have addressed a range of topics in relation to gender in online environments. While this general interest has contributed to a wide spectrum of speculative and empirical work, it has also created a body of literature that lacks a clear structure. This lack of structure presents challenges to providing an organized and coherent review of the literature on the topic.

The literature on gender in online environments has several unique characteristics. First, since the literature covers studies from a wide range of disciplines, there is no clear approach to studying gender in these settings. Because of this diversity, there is a lack of agreement on methodological approaches and theoretical frameworks when studying gender online. Researchers use a variety of methodologies including surveys, content, discourse, and textual analysis, observations and participant observations, experiments, and interviews to examine gender relations online. Since research in this area is fairly new, there are still debates regarding which methodological approaches will produce valid and reliable data. Furthermore, ethical guidelines used to conduct online research are currently under debate. This has contributed to further discussions that focus on methodological concerns with less attention given to the findings of these studies. Second, the variety of theoretical frameworks used in studies has led to conflicting interpretations of data. Theoretical frameworks are diverse and often reflect the specific perspectives offered within multiple disciplines. For example, two different studies may offer similar findings but provide different interpretations of the data. Third, studies address many different types of online environments and therefore make it difficult to categorize and summarize findings due to the varying contexts of these settings. Forth, many of the sources on this topic are not found in peer-reviewed journals, but are located in conference proceedings, obscure and outdated Internet sources, and/or published as theses and dissertations. These various locations not only make it difficult to track down sources, but it also calls into question the scientific rigor of findings. Many of the sources are speculative rather than empirical.

Despite the difficulty of reviewing the literature on this topic, there are several patterns in relation to gender online that can be identified. First, researchers have documented various ways that participants in online environments practice forms of gender fluidity. Within this category, there are several findings discussed including gender swapping,

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pseudonyms, gender transgression, and gender resistance. Another pattern documented includes the ways that participants reproduce gender stereotypes. Within this category, findings include the reproduction of gendered identities and interactions, gender harassment, and gendered expression in computer-mediated communication. The third category includes studies that document evidence of both gender fluidity and gender reproduction. This work examines the significance of gender in online settings and concludes by discussing how recent developments in information and communication technologies present new arenas in which to examine the role of gender on the Internet.

II. Gender fluidity

The concept of gender fluidity describes the process by which online users practice gendered behaviors that challenge dominant, traditional gender roles. These mechanisms for challenging traditional gender norms are represented by gender swapping, pseudonyms, gender transgressions, and gender resistance.

A. Gender Swapping

Early writing and research on gender in online environments focused on the practice of gender swapping. Gender swapping (also known as gender-switching) is described as an instance when "one presents a gender that is different from his or her biological sex" (Roberts and Parks 1999: 522). In other words, an individual who is biologically a male may identify online as a female or as a neutral gender. However, the practice of gender swapping may or may not be representative of a person's gender identification offline.

There are a range of methodological approaches used to study gender swapping. Turkle (1995, 1997) gained most of her data from interviews with participants of role-playing MUDs. A MUD or MOO is a "text-based multi-user virtual reality environment" (Bruckman 1993: 2). Communication in a MUD occurs in real time. MUDs can be role playing or social in practice. Other researchers have also studied the phenomenon of gender-swapping using techniques such as content analysis of gender choice in MUDs (Danet 1998), participant observation of MUD interactions (Bruckman 1993), online ethnography (Reid 1994), observations in MUDs (Menon 1998), and surveys on users' frequency and reasons for gender switching (Roberts and Park 1999; Samp, et al). A significant issue with many studies on gender-swapping is a lack of discussion on the methodology used to collect data. Since these studies were the first of their kind, researchers seem to provide a more exploratory approach in these early studies. For example, Danet (1998) establishes a research agenda for studies on gender switching by posing a series of research questions for further investigation. Many studies cited by these authors seem to provide more antidotal evidence rather than data from a systematic collection and analysis process. Often the works cited are from conferences and/or Internet webpages. These limited approaches and discussions of methodology make it difficult to access the validity and reliability of findings. However, many interesting studies have been conducted that provide valuable insight into the practice of gender swapping. In a landmark study, Turkle (1995; 1997) used a theory of postmodern identity to frame her argument on gender swapping in MUDs. In role playing MUDs, players interact with each other by creating a persona that they project into virtual space (Turkle 1997).Turkle explains this creation of persona as a construction of postmodern identity where individuals create a virtual self that is multiple, fragmented, and constructed through language. As postmodern personas, individuals are provided opportunities to practice parts of their self that they may not feel comfortable expressing in the offline world (Curtis, 1992; Bruckman 1993; McRae 1996; Turkle 1997; Kelly 2006). MUDs allow participants to self select their gender. Specifically, it has been observed that individuals in MUDS often practice being seen as the opposite gender (Curtis 1992). Since at the time of these early studies most of the participants of MUDs were men, it was also assumed that male-to-female cross gendering was more common than vice versa (Reid 1994). From interviews with participants, Turkle (1995) found that some participants played multiple characters and that this practice helped them to see multiple aspects of their selves, but still feel a sense of unity.

While most studies have focused on participants who gender switch within a binary gender system, Curtis (1992) and Danet (1998) also document that players on MUDS often choose unconventional genders. These unconventional genders include choices such as "neuter," "either," and "plural." Danet also notes that players can create their own gender, but very few players do. In contrast to Danet's findings, Roberts and Parks (1999) found that of those participants who switched gender, the majority did so within a traditional binary system.

Roberts and Parks (1999) suggest that gender switching is more common in role playing MUDs than in social MUDs. From their study, it was found that approximately 56% of the sampled users from role-playing MUDs were using gender switching as part of their online practices, while approximately 60% of users from social MUDs had never engaged in gender switching. The findings from this study also indicated that heterosexuals were significantly less likely to gender switch, while respondents with disabilities were significantly more like to gender switch. Reasons cited for gender switching included role-playing, curiosities about gender, to engage in sexual talk and fantasies, or to avoid gendered responses, such as sexual harassment. Findings indicate that all participants who gender switched to avoid sexual harassment were women. These findings support previous research that found women more likely to choose a different gender to avoid sexual harassment or special treatment (Curtis 1992; Reid 1994).

Kendall (1998b) also suggests that some women may gender switch to avoid demeaning treatment associated with gender relations in the offline world. Overall, Roberts and Park (1999) suggest that those who engaged in gender switching viewed it as an experiential behavior rather than a long term expression of their identity. Echoing previous research findings (Curtis 1992), many of the participants

from this study perceived gender switching as dishonest and deceitful.

Moreover, Samp et al (2003), using an online survey of self-selected users from a random sample of chat rooms, found that the practice of gender-swapping among respondents from their study was not pervasive with only 28% stating that they had presented themselves as a different gender. The authors also found that the majority of respondents who gender switched did so through their user name rather than by manipulating gendered language. The findings indicated that approximately half of the respondents had questioned another user about their gender primarily out of curiosity. The authors speculate that users question others because they perceive gender-swapping as a normative part of online interactions.

Obviously, the research indicates that gender swapping occurs in online environments. However, due to a lack of established methods to examine this phenomenon, the information collected from these studies does not provide clear and accurate data on the prevalence and significance of gender swapping. These methodological difficulties do not minimize the findings, but indicate the necessity for developing a more rigorous scientific method when examining cases of gender swapping.

B. Pseudonyms

The practice of using pseudonyms is another example of gender fluidity in online environments. (Reid 1991, Jaffe et al 1995, Curtis 1992, Danet 1998, Menon 1998). A pseudonym is a fictitious name used by people in online interactions. There are a variety of reasons why individuals choose to use pseudonyms including masking identities such as age, race, ethnicity, and gender. Research indicates that participants use gendered pseudonyms to either gain or minimize attention from others. For the purpose of this work, I will focus on the relationship between gender and pseudonyms.

Menon (1998) found that names were an important part of the identity process for users. As previously discussed, early studies on the Internet left researchers with little reliable and valid methodological approaches to draw upon to understand this particular phenomenon. Since research on the Internet was relatively new when he conducted his study, Menon notes that he did not have access to established methodological approaches for a study on online gender identity. His approach was to conduct preliminary observations and then progress to a participant observation in a MUD called "MW." MW is primarily devoted to women and their ability to explore sexuality in a safe environment. Menon acknowledged the ethical dilemmas presented from his study. He chose to practice deception in his research and often avoided questions about his gender status. Again, the ethical guidelines for studying behavior and interactions in online environments are still not clear and researchers from various disciplines address these settings with different methodological approaches.

In his study, Menon (1998) found that names play a significant role in identity acceptance in this online community. When the author presented himself as a male with a masculine name, he received very little contact and attention from other users in the MUD. Once the author changed his name to a feminine name, everyone in the community acknowledged his presence. During his interactions with users, Menon was frequently asked to confirm his identity as a woman. Furthermore, those who identified as women often asked personal "womanly" questions to confirm another's gender (Menon 1998). "Womanly" questions were asked about bra size, monthly cycles, types of undergarments, and types of perfumes (Menon, 1998:64). Conversely, the men in the community were less likely to question his identity unless his communication style indicated dominance; a pattern that has also been observed in other MUDs (Curtis 1992).

Other researchers have addressed pseudonyms in their work. Reid (1991), argues that changing one's gender in online settings, specifically Internet Relay Chat (IRC), is "as simple as changing one's nickname to something that suggests the opposite of one's actual gender" (10). IRC is a form of real time Internet chat or synchronous communication. It is organized as discussion forums or channels. Danet (1998) found that participants of IRC often used a "nick" or "nickname" to hide their gender identity. From a study of a virtual party on IRC, Danet, et al (1997) found that most of the nicks were not gender identifiable. By choosing a gender neutral nick, the authors argue that these participants are playing with gender identity in a synchronous chat forum. Additionally, in a content analysis of questionnaires from students enrolled in a large upper-level lecture class at a university, Jaffe et al (1995) found that females were more likely than males to choose pseudonyms that mask their identity. The authors suggest that this pattern might reflect an effort to maintain a level of equality in online conversations occurring in mixed-gender situations. This finding may also relate to previous research (Curtis 1992; Reid 1994; Kendall 1999b; Roberts and Park 1999) that indicates women may choose to gender switch to avoid sexual harassment.

Utilizing pseudonyms in online environments contributes to a pattern of gender fluidity. Pseudonym use allows individuals to manipulate gender identity by either drawing attention to a gendered presentation or to avoid/mask a gender identity. The reasons individuals participate in this practice is unclear. Researchers have recognized this phenomenon but have not delved deeply enough to fully understand the reasons why this practice exists. To this point the, literature merely assumes causation but lacks sufficient evidence for generalizations.

C. Gender Transgression

Another factor related to gender fluidity in online environments is gender transgression. Gender transgression means to breakdown the expectations associated with being a certain gender and/or to call into question certain expectations about masculinity and femininity. An example of gender transgression would be an instance of gender parody in which an individual presents himself or herself as

a caricature such as the stereotype of a hyper-emotional woman or an over-sexualized man. The gender transgression in these types of performances stems from the repetition of acts and the extreme exaggeration of stereotypes that are 'nevertheless denaturalized and mobilized through their parodic recontextualization' (Butler 1990: 176).

Utilizing a poststructuralist theoretical framework and a discourse analysis approach to interactions in a romance web chat room, Armentor (2005) found that some women chatters in the room participated in gender parody through their satirical performances. The study highlights examples of female chatters imitating masculine discursive actions that she calls "discursive drag" (Armentor 2005: 143). Some female chatters in the room perform scripts of hegemonic masculinity, but enact these scripts with other female chatters and in effect expose and dramatize notions of gender subordination. While the author acknowledges that the chatters do no openly challenge gender ideals or practices, their performances may still be seen in multiple ways because they are set before an audience and are performed in a context that challenges the traditional signification of these practices. Armentor (2005) argues that the relationship between sex and gender may be denaturalized in the female chatters' performances of hegemonic masculinity.

Rellstab (2007) also found evidence of gender transgression in a Swiss IRC. Using an ethnomethodological approach to "doing gender," and conversation analysis as a method, Rellstab frames interactions from three chat channels as gender accomplishments through interaction. The phrase "doing gender" was coined by West and Zimmerman (1987) and is defined as upholding and maintaining gender specific behavior such as girls dressing in feminine attire or boys actively engaging in sporting activities. Due to the anonymity of IRC, Rellstab suggests that chatters feel more comfortable to explore gender limits and transgress the boundaries of gender norms. Findings demonstrate that some participants stage gender "plays" in the chat channels (Rellstab 2007: 780). While these plays often mimic the normative conceptions of masculinity and femininity, the author argues that they also disrupt these norms. In one example from the study, a female chatter performs in front of a chat audience using highly charged, stereotypical masculine discourse patterns. She is doing gender but also transgressing gender boundaries by making a room intruder believe she is a male. In this role, she is able to transcend the expectations associated with femininity and gain a powerful advantage over a chatter who crashes the room to provoke others. Overall, findings from this study suggest that there are instances when chatters temporary transgress gender boundaries by disrupting attitudes towards normative conceptions of gender through theatrical gender performances (Rellstab 2007).

Online environments offer individuals the opportunities to transgress gender boundaries through gendered performances. These performances often allow individuals to safely create alternative gendered personas and challenge gender norms. Gender transgressors are purposely disrupting the dominant ways of understanding gender by challenging the meanings associated with the traditional ways in which we do gender. Research is this area is relatively new and needs further definition and exploration.

D. Gender Resistance

Researchers have also documented a pattern of gender resistance in online forums (Herring 1995, Cook and Stambaugh 1997**,** Armentor 2005). Gender resistance goes beyond playing with gender to actively opposing socially accepted gendered patterns in interactions. For example, in conversations between women and men, research has found patterns of male dominance and control in which men dominate the conversation by talking over and silencing women. Cook and Stambaugh (1997) found that men performed hegemonic masculinity through flaming and demeaning jokes about women. Flaming is defined as "the expression of strong negative emotion, use of derogatory, obscene, or inappropriate language, and personal insults" (Herring 1994: 6). Women's efforts to call attention to these behaviors were met with resistance from some men on the list. Some women on the list resisted male domination in the forum by identifying inappropriate behavior. Often, the women would confront the dominators and try to negotiate a change or attempt to convince them to leave the list (Cook and Stambaugh 1997).

Similarly, Herring et al (1995) found that in a mixed sex public discussion list frequented by academics, women resisted methods of silence enacted by men on the lists. Despite being in the numerical minority, women on the list resisted by rephrasing their arguments, elaborating, keeping the discussion focused on the topic, and maintaining solidarity with other women in the room. However, the authors argue that despite the strategies for empowerment exhibited by women on the list and their ability to gain power temporarily, some men on the discussion list ultimately silenced them. At the time of this study, men dominated most online environments. However, the online population has changed over the last ten years as men and women are now equally represented as Internet users. (Pew Internet and American Life Project 2009). This population change may challenge patterns of male domination such as those found by Herring, et al.

Using critical and poststructuralist feminist perspectives to analyze qualitative interviews from sixteen girls in Vancouver, Canada, Kelly et al (2006) explored how girls learn about issues of femininity in the presence of others online. The authors found that girls in this study performed a variety of femininities in various chat forums. Some girls challenged conventional forms of femininity and performed rebellious femininity by provoking girls with hyper-feminine screen names and challenging hyper-masculine boys by questioning their heterosexuality (Kelly et al 2006). Many respondents also acknowledged that online activities allowed them to practice certain identities and behaviors such as playing the "bad girl," taking initiative in romantic relationships, and confronting boys on gender harassment. Some girls also played with gender by gender switching. Overall, the findings from this study shed light on the ways that girls engage in gender rebellion against ideologies of

gender subordination and practice alternative forms of femininity that help prepare them for engagement in offline social life.

Research in the area of gender fluidity in online environments covers a range of topics including gender swapping, pseudonyms, gender transgression and gender resistance. While this study and many others discussed in this article highlight the potential of online environments for offering users opportunities to practice and act out alternative gender behavior, researchers have also documented a consistent pattern of users reproducing traditional gender norms in these settings.

III. GENDER REPRODUCTION

Conversely, while researchers have found that patterns of gender fluidity are present in various online environments, there is strong evidence that online participants use and perpetuate traditional gender roles in their online interactions. The reproduction of gender roles and norms is not unexpected since gendered behaviors are pervasive throughout societies. Over the past 15 years, there has been a significant amount of research addressing the reproduction of gender roles and norms in online settings including MUDS, discussion lists, IRC and other chat forums.

A. Reproducing Gender Identities

Despite the potential for identity play noticed by researchers (Curtis, 1992; Bruckman 1993; Turkle 1997; McRae 1996; Kelly 2006), others have noted the practice of gender switching often reproduces patterns of traditional gender identity. Through online interviews with participants of MUDs, Kendall (1998) found those who gender switched often presented caricatured and exaggerated gender characters in these online settings. She found that these participants separated their online, caricatured images from their offline gendered identities and therefore there sense of self was not challenged or conflicted. Kendall (1998a) argues that the effect of these presentations more often reproduce existing beliefs and assumptions about gender and may actually go beyond reproduction and create more rigid beliefs about gender among MUD participants. In other words, the caricatured character may be more real in this setting than less stereotypical portrayals of gender (Kendall 1998a). In support, O'Brien (1999) suggests that online gender-crossing has the potential to reinforce conventional gender forms because participants often practice "hypergendering" by enacting caricatured gender stereotypes and reproducing gender stereotypes through their interactions. Her argument is that playful online gender performances do not necessarily translate into new and creative interactions. In fact, a study conducted by Roberts and Park (1999) found that of the respondents in their study who decided to gender switch, the majority did so within traditional binary categories of gender. In a participant observation that examined interactions and identity performances in a MUD, Kendall (2000) found participants' performances of gender both diverged and converged from ideologies of hegemonic masculinity. Participants in her study employed a form of masculinity that centered on computer culture and a nerd identity, while distancing themselves from femininity and women in general through "formulaic joking patterns" that depict women as sexual objects (Kendall 2000: 263). However, the participants' identities as nerds also positioned them in a non-hegemonic gender status leading them to express ambivalence towards dominant standards of masculinity. Overall, the findings suggest that participants distanced themselves from both men who they perceived as enacting forms of hegemonic masculinity and women in general because of they identified as men thus isolating themselves from the larger society and creating their own nerd subculture. In a more recent study, Valkenburg et al (2005) administered surveys to adolescents from The Netherlands about their identity experiments in online settings such as chat rooms and instant messaging. The authors found that while boys and girls did not differ in how much they experimented with their identities, they did differ in their self-presentation strategies. For example, girls more frequently pretended to be beautiful and older than boys, while boys pretended to be macho more frequently than girls (Valkenburg, et al 2005). Citing past research, the authors suggest that since anonymous online settings such as chat rooms often have strong gender stereotypical norms, this may contribute to the higher incidences of gender stereotypical presentations from adolescents in these settings.

Likewise, Del-Teso-Craviotto (2008) found in her participant observation of dating chat rooms that participants were more likely to present gender identities that were rooted in traditional hegemonic ideas about gender. She found that participants authenticated gender identities through methods such as the posting of one's ASL (age, sex, and location), screen names, and gendered behavior such as the use of emoticons and other graphical symbols. Del-Teso-Craviotto (2008) suggests that the ephemeral nature of the exchanges, the scarcity of cues and rapidity of conversations limiting the presentation of a developed identity, and the likelihood that online identities reflect shared cultural values about gender all contribute to the prevalence of online stereotypical gender identities.

Research on the reproduction of gender identities in online settings has found that identities developed online do not necessarily translate to life offline. However, the online reproduction of exaggerated gendered stereotypes often promotes and perpetuates traditional gender identities among participants. Through practices of gender swapping, the development of male subcultures (nerds), self-presentation strategies, and chat behavior, dominant gender identities are often reproduced in online environments.

B. Gender Harassment

Researchers have documented incidences of gender harassment in online forums (Dibbell 1993; Herring et al 1995; Herring 1999). One of the first discussions of gender harassment in cyberspace involved the virtual rape of several female and non-specified gender characters in a popular MOO called LambdaMOO. In this incident, a user

under the name of "Mr. Bungle" used a software program called "voodoo doll" that "attributes actions to characters that their users did not actually write" (Dibbell 1993). Mr. Bungle used the program to force other players to engage in virtual sexual acts towards him and other characters in the room. The discussion of this incident led many researchers to further investigate the issue of gender harassment in online environments and to examine the effects of this type of practice.

Other studies (Herring et al 1995, Herring 1999, Armentor 2005) have also examined incidences of sexual harassment online. For example, Herring (1999) examined two episodes of gender harassment from two different online forums, one from a synchronous recreational chat channel (IRC) and the other from a semi-academic asynchronous discussion list. Herring found that while there were differences between the two forums, such as the sexualization of female participants in IRC and the silencing of women in the discussion list, there were similarities between them in terms of rhetorical gender dynamics. In both forums, the author found gender harassment occurred in a progression of stages. These stages included initiation situation, initiation of harassment, resistance to harassment, escalation of harassment, accommodation of the targeted group to harassers, and/or targeted participants falling silent (Herring 1999). In her study, Herring (1999) found that male participants used activities such as "actions" and "kicking" to harass female participants in IRC and quoting in the discussion lists and IRC. The author maintains that "actions" are a way for users to type about themselves in the third person rather than directly, "kicking" refers to kicking someone else off a chat channel, and "quoting" refers to including a portion of a previous message in one's response. The men in these forums utilize these various strategies to maintain dominance over the women in the settings. Overall, Herring (1999) found that while female participants attempted to resist male harassers in both forums, they ultimately fell silent in the light of the escalation of gender harassment.

In a study of a romance web chat room, Armentor (2005) found that while both male and female chatters participated in flaming, male chatters accounted for the majority of the harassing or flaming. In the romance chat room, Armentor found a culture of sexism existed that varied in form and range from name calling to discursive acts of sexual violence including "actions" of virtual rape perpetrated by male chatters. When conflicts arose between female and male chatters, males often resorted to sexualizing comments. However, Armentor (2005) also noticed that female chatters often resisted this culture of sexism by regularly fighting back through the use of discursive strategies such as reframing discussions and the co-optation of their harassers' words that were then used against them.

Gender harassment exists online and offline in male dominated societies. Men maintain their control over women in online environments much the same way they do in offline interactions. Research highlights that the use of silencing, flaming, sexualization, and sexual violence are used as mechanisms of dominance in online settings. How women respond to these forms of gender harassment varies in degree and type. Research comparing women's responses to gender harassment in both online and offline environments would provide insight into how information technology effects the way in which women respond to gender harassment online.

C. Reproducing Gendered Interactions

Stereotypical gender interactions and communication styles have been observed in a variety of online settings. In a participant observation of a male-based chat room and a female-based chat room, Soukup (1999) found that masculine-based interaction in the form of "locker room talk" and sexual humor were dominant in both rooms. In the male-based chat room, which was sport-related, a pattern of argumentative interaction occurred where "masculine participants" fought each other for attention through interruption and "holding the floor" for extended periods of time (Soukup 1999: 173). In the female-based room, the author found patterns of interaction associated with feminine styles of communication and relationship building. However, despite the fact that masculine participants were in the minority in the female-based room, Soukup observed that they often still managed to dominate the space. For example, masculine participants would often transform the space from one focused on female interactions to an arena for heterosexual romantic encounters (Soukup 1999). Similarly, Waseleski (2006) found that while most subscribers to the discussion lists in her study were female, participation came primarily from males.

Furthermore, in Soukup's study, the feminine participants often contributed to these interactions by playing traditional female roles that reproduced ideologies about masculinity and femininity. Soukup (1999) also found that masculine participants frequently interrupted females while they were having conversations. While feminine participants regularly sanctioned group members who acted inappropriately, these patterns of interaction continued to occur in the female-based room. Moreover, Armentor (2005) found patterns consistent with Soukup's findings in her study of a romance chat room, but she also found patterns of interaction that challenged these findings. For example, many female chatters in the room also participated in a style that can be defined as masculine including insults and flaming. While these studies shed light on the gender interactions in chat rooms, more studies need to be conducted to assess the extend of these patterns in other types of chat rooms and online settings.

D. Reproducing Gendered Communication Styles

Beyond gendered patterns of interaction in online environments, several researchers have addressed the topic of gender and language/communication styles (Savicki et al 1996; Witmer and Katzman 1997; Herring 1993, 1994, Panyametheekul and Herring 2003; Baron 2004; Wasekeski 2006; Fox 2007). Herring has written extensively on gender communication styles in computer-mediated communication. From a participant observation and discourse analysis of two academic discussion lists, Herring

(1993) found that in mixed-sex academic lists, men were far more likely to participate, women's messages were shorter, men and women preferred different conversation topics, and men and women used different rhetorical and linguistic strategies when communicating on the lists.

Herring examined women's and men's language styles and found distinct differences in the way that men and women communicate online. The features for women's language identified by Herring (1993) included "attenuated assertions, apologies, explicit justifications, questions, personal orientation" and support for others, while the features for men's language included "strong assertions, self-promotion, presuppositions, rhetorical questions, authoritative orientation," challenging others, and humor/sarcasm (7). In her analysis, Herring (1993) found that 68% of women's messages contained one or more of the identified features for women's language, the majority of women's messages contained a mixture of both styles, and almost half of men's messages contained only features for men's language. She suggests that this finding supports a view that women must practice men's style to be taken seriously in academics, but also practice women's style to avoid being viewed as too aggressive. Herring also found evidence that suggests women were discouraged from participating on the lists since other participants, both men and other women, rarely acknowledged their comments.In contrast to mixed-gender discussion lists, Herring (1994) found that on women's lists flaming did not occur and women participated more in these settings. This finding is supported by Wasekeski's (2006) study that found little evidence of flaming in a discussion list devoted to the "feminine" profession of librarianship. Savicki et al (1996) found that in groups with higher proportions of men, language was more impersonal, fact oriented, and contained more calls for action, while groups with a higher proportion of females showed a pattern of self disclosure and tension reduction. However, the authors found little evidence of extreme flaming among the groups. Furthermore, Herring (1994) found that while both men and women disliked flaming, they held different views on politeness with women more concerned with the wants and needs of others and men placing more emphasis on freedom from censorship, open expression, an agnostic debate (Herring 1994). While the findings from these studies are important for understanding the role that language plays in online gender interactions, more research needs to explore how language shapes gender interactions in other types of online forums. Herring's work focuses on academic discussion lists, and therefore, one should use caution when generalizing to other types of discussion lists focused on different topics and to other online forums such as chat rooms. The ephemeral and playful nature of a chat room may contribute to different types of communication styles and interaction patterns among men and women. Herring (1999) and Armentor (2005) have documented patterns of gender harassment in chat, but chat rooms vary greatly in type and focus and should be examined in relation to their social and technological contexts.

For example, using conversation analysis, Panyametheekul and Herring (2003) examined a Thai chat room and found that females participated more and received more responses from men in the chat room. Patterns of communication that reflect traditional gender norms were present in the chat room and included females being more interactive and other-oriented, males speaking out in the forum regardless of responses from others, and males being more flirtatious in their communication (Panyametheekul and Herring 2003). While participants engaged in communication that reflects traditional gender norms, females in the room enjoyed greater participation and engagement with other participants than males. The authors suggest that this pattern may be the result of the fact that females make up the majority of participants and/or that the room reflects the values of politeness and civility found in the larger Thai culture (Panyametheekul and Herring 2003). These suggestions are reasonable, but it should be noted that researchers have found conflicting evidence in terms of patterns of male dominance in online forums where females are the numerical majority (Savicki et al 1996; Soukup 1999).

E. Gendered Expression in Computer-Mediated Communication

The level of expression for women and men varies in computer-mediated communication. Studies of both asynchronous and synchronous contexts support this finding. (Herring, 2003; Wasekeski 2006; Baron 2004; Witmer & Katzman 1997) This finding is consistent with research that indicates women are more expressive in face-to-face communication (Hall, 1984). Witmer and Katzman (1997) found that in messages from newsgroups, women were more likely to use graphic accents (emoticons) than men. Contrary to what previous research suggests, the authors also found that women were more likely to flame in this sample population. This finding is interesting and contradicts claims that suggest men are more likely to challenge others in online environments.

In a study of discussion lists, Waskeski (2006) found that females used exclamations to express friendliness significantly more than males on the lists. Furthermore, recent studies of instant messaging (IM) have contributed to the literature on gender, expression, and online communication. IM is a "synchronous form of one-to-one computer mediated communication" (Baron 2004: 399). Examining gender differences in instant messaging (IM) from college students, Baron (2004) found that females were more talkative than males because they "took longer turns, had longer overall conversations, and took longer to say goodbye" (418). He also found that females were far more likely to use emoticons than males. Fox (2006) also found that women's communication was more expressive than men's communication in IM among college students. Fox (2006) describes expressiveness as including characteristics such as emphasis, laughing, emoticons, adjectives, and number of topics. Research on gender expression in computer-mediated communication documents the perpetuation of traditional gender norms.

IV. Blending Gender Fluidity and Reproduction

While most of the literature on gender in online environments focuses on either issues related to gender fluidity or gender reproduction, there are several studies that document patterns associated with both categories of thought. In these studies, researchers acknowledge that participants reproduce traditional gender binaries through their presentations and interactions, but they also call attention to the multiple methods that participants use in these presentations and interactions and the potential for challenging notions of gender.

In an early study of IRC, Rodino (1997) textually analyzed a conversation from a chat channel. She found that some participants' performances conformed to gender stereotypes and other participants' performances broke away from these forms and expressed gender in multiple and contradictory ways. For example, one character in her study identified herself as female but did not exhibit characteristics associated with "women's language." However, the character did attempt to gain attention through sexual objectification. Another character in the room displayed a gender ambiguous name and conveyed conflictual information about their gender status. Another character created a masculine image through his gendered nickname and further attempted to maintain this image through interactions with others in the setting. These examples help to illustrate the multiplicity and performance of gender in online forums. Rodino (1997) argues that reconceptualizing gender as performatively constructed helps to deconstruct the idea that women's oppression is a result of biological differences between women and men.

Parallel to Rodino, Krolokke (2003) also conceptualizes gender as a series of performances rather than a form of identity. In her study, Krolokke (2003) found that most participants' language styles in IRC were so stereotypical that they bordered on parody. However, she acknowledges that an online environment such as IRC also provides opportunities to engage in language play as evidenced by transexual gender performances that switch from feminine to masculine. Both Rodino and Krolokke argue that IRC both contributes to gender fluidity and reproduces binary gender categories.

In a study of Danish and Flemish weblogs, Doorn et al (2007) observed that while participants presented their gender identity in relation to their offline lives and a binary gender system, they also were constantly presenting themselves as gendered in multiple ways through discursive and visual methods. Furthermore, both men and women in his study accepted the practice of diary writing, which is most often viewed as a feminine practice. Doorn et al (2007) argue that this practice could contribute to the acceptance of a type of "feminine" discourse online. Overall, while the authors did not find examples of gender fluidity directly, they did document diverse performances of gender in these weblogs.

V. Conclusion

The effects of the Internet are pervasive and widespread due to global accessibility of this technology. This paper specifically examined the literature on online interactions and found that regardless of the discipline gender did, in fact, matter. However, coherency and agreement in the literature on how gender actually matters is conflicting. Much of this conflict is grounded in a lack of agreement on the methodological and theoretical approaches to studying gender online. This paper addressed issues of gender fluidity, gender reproduction, and the blending of gender fluidity and gender reproduction.

The phenomenon of gender fluidity is found in the ways that online users represent themselves and interact with one another in online settings. Gender swapping, or the presentation of oneself as opposite their biological identity, is a common form of gender fluidity and varies across online forums. The reasons for gender swapping are complex and cover a range of meanings for Internet users. The use of fictitious names, or pseudonyms, in some Internet settings also contributes to patterns of gender fluidity. Evidence is unclear as to why participants use pseudonyms in their online interactions. Some research indicates that pseudonyms are used as a way to deflect attention away from oneself or to draw attention towards oneself. Gender transgressions break down the expectation of gender by questioning ideas about masculinity and femininity. Some female participants will exaggerate masculinity in the form of drag. Research indicates that gender transgressions in online interactions often expose and challenge gender stereotypes. Another example of gender fluidity is gender resistance in which patterns of male dominance and hegemonic masculinity are challenged through approaches such as identifying and confronting disruptive masculine behavior. Women often build solidarity with one another to reject male dominance and regain a gender balance in online interactions. Yet, men are often successful in maintaining dominance in online forums. However, as more women become active Internet users, this pattern of male dominance may decrease.The argument for the reproduction of traditional gender norms in online interaction rejects the concept of gender fluidity. Evidence supports the perpetuation of gender stereotypes through performances of hyper-gendering. Researchers have documented that when participants gender swap, they often do so within a traditional binary gender system and may actually create online characters that are more caricatured than their offline gender identities. Furthermore, adolescents often reproduce traditional gender identities online by representing themselves in ways that embody expectations for women and men. Another area focusing on the reproduction of gender norms in online forums is gender harassment. Gender harassment occurs in online interactions in the form of virtual rape, silencing, actions, kicking, sexualization, and flaming. Online gendered interactions also show characteristics of traditional gender norms regardless of the gender population of setting. Even on women's sites, men continued to dominate interactions and

women accepted and contributed to the dominance. In some cases, women would sanction men for negative behavior, but dominance would continue. Despite the potential for challenging traditional gender norms, both women and men users continued to perpetuate and support these norms.

In addition to the arguments based on gender fluidity and gender reproduction in online forums, there is also research that documents both patterns in participants' behavior. In other words, participants' behaviors and interactions are not always one-dimensional and can often both reproduce and challenge offline gender norms. More studies need to address the complexity of behaviors and interactions occurring in multiple online settings. With the growth of new online forums such as social networking sites, it is necessary to continue investigating the role that gender plays in online interactions. For example, in a study that examined issues of online identity and language among female and male teenagers who created and maintained weblogs, Huffaker and Calvert (2005) found that the blogs of these males and females were more alike than different. They also found a pattern of male teenagers using more emoticons than female teenagers. While the authors obse

rved that males did use language that was more active, inflexible, and resolute, they did not observe females engaging in more passive, cooperative, or accommodating language (Huffaker and Calvert 2005). As new generations enter the online world and new forums are created with multi-mediated capabilities, there may be differences in the types of gendered interactions unfolding in online social life. Females and males may start to share similar language and communication styles due to the influence of different gender roles (Huffaker and Calvert 2005). Social networking sites such as Facebook offer participants more variety in terms of communication and presentation of identities. Research should examine the ways that men and women use these new forums and document any similarities and/or differences in their behaviors and interactions. Since sites such as Facebook focus on the development of networks, it will be interesting to observe participants' networks for gender related patterns. Furthermore, investigating profiles and real time news feeds would shed light on the gender identities and interactions of social networking participants. Overall, the changes in both online participants and forums warrants continued research in the area of gender and online interactions.

VI. References

1. Armentor, J. 2005. Simulated social spaces: Exploring interactions in a web chat room. *Dissertation Abstract International*. 62(5), 1963A. (UMI No: AAT 3176981) Retrieved January 26, 2010 from Dissertations and Theses Abstracts.
2. Baron, N. 2004. See you online: Gender issues in college student use of instant messaging. *Journal of Language and Social Psychology*. 23: 4, 397-423.
3. Bruckman, A.1993. Gender swapping on the Internet. *Proceedings of INET –93*. Reston, VA: The Internet Society. Butler, J. 1990. *Gender trouble*. New York: Routledge.
4. Cook, K. and P. Stambaugh. 1997. Tuna memos and pissing contests: Doing gender and male dominance on the Internet. In C. Ronai, B. Zsembik, and, J. Feagin (Eds.), *Everyday sexism in the third millennium.* (pp. 62-83). New York, NY: Routledge.Craven, P. and B. Wellman. 1973. The Network City. *Sociological Inquiry.* 43: 1: 57-88.
5. Curtis, P. 1992. MUDding: Social phenomena in text-based virtual realities. Retrieved January 26, 2010 from http://www.aluluei.com/cult-form.htm
6. Danet, B.1998. Text as mask: Gender, play, and performance. In S.G. Jones (Ed.), *Cybersociety 2.0: Revisiting computer mediated communication revisited.* (pp.129-158). Thousand Oaks, CA: Sage.
7. Danet, B., L. Ruedenberg, and Y. Rosenbaum-Tamari. 1997. Hummm…where's that smoke coming from? Writing, play, and performance on Internet relay chat. *Journal of Computer-Mediated Communication.* 2:4, Retrieved January 26, 2010from http://jcmc.indiana.edu/vol2/issue4/index.html
8. Del-Teso-Craviotta, M. 2008. Gender and sexual identity authentication in language use: The case of chat rooms. *Discourse Studies.* 10:2, 251-270.
9. Dibbell, J. 1993. A Rape in cyberspace. *The Village Voice*.December 23.
10. Doorn, N. and L. Zoonen. 2007. Writing from experience: Presentations of gender identity on weblogs. *European Journal of Women's Studies*. 14:2, 143-159.
11. Fox, A., D. Bukatko, M. Hallahan, and M. Crawford. 2007. The medium makes a difference: Gender similarities and differences in instant messaging. *Journal of Language and Social Psychology*. 26:4, 389-397.
12. Hall, J. (1984). *Nonverbal sex differences: Communication accuracy and expressive style*. Baltimore: Johns Hopkins University Press.
13. Herring, S. 1993. Gender and democracy in computer- mediated communication. *Electronic Journal of Communication.* 3:2. Retrieved January 26, 2010 from http://ella.slis.indiana.edu/~herring/ejc.txt
14. Herring, S. 1994. Gender differences in computer-mediated communication: Bringing familiar baggage to the new frontier. Keynote talk presented at *American Library Association Annual Convention*, Miami, FL, USA. Retrieved January 26, 2010.
15. http://www.mith2.umd.edu/WomensStudies/Computing/Articles%2BResearchPapers/gender-differences-communication

16. Herring, S., D. Johnson, and T. DiBenedetto. 1995. This discussion is going too far! Male resistance to female participation on the Internet. In M. Bucholtz and K. Hall (Eds.), Gender *articulated: Language and the socially constructed self* (pp. 67-96). New York: Routledge.
17. Herring, S. 1999. The rhetorical dynamics of gender harassment on-line. *The Information Society.* 15, 151-167.
18. Huffaker, D. and S. Calvert. 2005. Gender, identity, and language use in teenage blogs. *Journal of Computer- Mediated Communication.* 10:2, Retrieved on January26th from http://jcmc.indiana.edu/vol10/issue2/huffaker.html
19. Jaffe, J., Y.-E. Lee, L. Huang, and H. Oshagan. 1995. Gender, pseudonyms, and CMC: Masking identities and barring souls. Paper presented at the *45th Annual Conference of the International Communication Association*, New Mexico, USA. Retrieved January 26, 2010 from http://research.haifa.ac.il/~jmjaffe/genderpseudocmc/
20. Kelly, D., S. Pomerantz and D. Currie. 2006. No boundaries? Girls' interactive, online learning about femininities. *Youth and Society*. 38:3, 3-27.
21. Kendall, L. 1998a. Meaning and identity in cyberspace: The performance of gender, class, and race online. *Symbolic Interaction.* 21:2, 129-153.
22. Kendall, L. 1998b. Are you male or female? Gender performances on Muds. In J. O'Brien and J. Howard (Eds.). *Everyday inequalities: Critical inquiries.* (pp.157-187). Oxford: Blackwell Publishers.
23. Kendall, L. 2000. Oh no! I'm a nerd! Hegemonic masculinity on an online forum. *Gender and Society*. 14:2, 256-274.
24. Krolokke, C. 2003. Impossible speech? Playful chat and feminist linguistic theory. *Women and Language. 26:2, 15-21.*
25. McRae, S. 1996. Coming apart at the seams: Sex, text, and the virtual body, In L. Cherny (Ed.), *Wired women:Gender and new realities in cyberspace.* Seattle, WA: Seal Press, pp. 242-262.
26. Menon, G. 1998. Gender encounters in a virtual community: Identity formation and acceptance. *Computers in Human Services.* 15:1, 55-69.
27. Miniwatts Marketing Group. 2009. Internet world statistics. URL Retrieved January 26, 2010 from http://www.internetworldstats.com/stats.htm
28. O'Brien, J. 1999. Writing in the body: Gender, (re)production in online interaction. In M. Smith and P. Kollock (Eds.), *Communities in cyberspace*. (pp. 76-104). New York: Routledge.
29. Panyametheekul, S. 2003. Gender and turn allocation in a Thai chat room. *Journal of Computer-Mediated Communication.* 9:1, Retrieved on January 26, 2010 from http://jcmc.indiana.edu/vol9/issue1/panya_herring.html
30. Pew Internet and Life Project. 2009. *Demographics of Internet users.* Retrieved January 26, 2010 from http://www.pewinternet.org/Trend-Data/Whos-Online.aspx
31. Reid, E. 1991. *Electropolis: Communication and community on Internet Relay Chat*. Honours Thesis, University of Melbourne. Retrieved January 26, 2010 from http://irchelp.org/irchelp/misc/electropolis.html
32. Reid, E. 1994. *Cultural formations in text-based virtual realities.* Master's Thesis, University of Melbourne, Australia, URL Retrieved January 26, 2010 from http://www.aluluei.com/cult-form.htm
33. Rellstab, D. 2007. Staging gender online: Gender plays in Swiss Internet Relay Chats *Discourse Society*. 18:6, 765-787.
34. Roberts, L. and M. Parks. 1999. The social geography of gender switching in virtual environments on the Internet. *Information, Communication, and Society*. 2: 4, 521-540.
35. Rodino, M. 1997. Breaking out of binaries: Reconceptualizing gender and its relationship to language in computer-mediated communication. *Journal of Computer-Mediated Communication.* Retrieved on January 26 from http://jcmc.indiana.edu/vol3/issue3/rodino.html
36. Savicki, V. 1996. Gender, language style and group composition in Internet discussion groups. *Journal of Computer-Mediated Communication*. 2:3, Retrieved on January 26 fro http://jcmc.indiana.edu/vol2/issue3/savicki.html
37. Soukup, C. 1999. The gendered interactional patterns of computer-mediated chatrooms: A critical ethnographic study. *The Information Society.* 15, 169-176.
38. Turkle, S. 1995. *Life on the screen: Identity in the age of the Internet*. New York: Simon and Schuster.
39. Turkle, S. 1997. Multiple subjectivity and virtua community at the end of the Freudian century. *Sociological Inquiry*. Vol. 67:1, 72-84.
40. Samp, J., E. Wittenburg and D.Gillett. 2003. Presenting and monitoring a gender-defined self on the Internet. *Communication Research Reports.* 20:1, 1-12.
41. Valkenburg, P., Alexander Schouten and J. Peter. 2005.Adolescents' identity experiments on the Internet. *NewMedia and Society*.7:3, 382-402.
42. Waseleski, C. 2006. Gender and the use of exclamation points in computer-mediated communication: An analysis
43. of explanations posted to two electronic discussion lists. *Journal of Computer-Mediated Communication.*11:4, article 6. Retrieved on January 26, 2010 from http://jcmc.indiana.edu/vol11/issue4/waseleski.html

44. West, C. and D. Zimmerman. 1987. Doing gender. *Gender and Society*.1:2, 125-151.
45. Witmer, D. and S. Katzman. 1997. On-line smiles: Does gender make a difference in the use of graphic accents. *Journal of Computer-Mediated Communication*. 2:4. Retrieved on January 26 fr
46. http://jcmc.indiana.edu/vol2/issue4/witmer1.html

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Are Cultural Traditions Real "Assets" for Rural People? An Analysis from a Livelihood Perspective

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Abstract - It is argued that rural development planning best precede when there is an effective dialogue with local people about their values, traditions, identities and knowledge. Among the rural communities, cultural traditions that have been preserved for generations are important in attaining various aspects of their desirable objectives. This paper is an attempt to explore the potential wealth and capabilities of culture, and to examine the extent to which such cultural traditions can be regarded as an „asset" in the context of achieving sustainability of rural livelihoods. The paper draws its evidences from few rural villages in central Sri Lanka, where culture and livelihoods are significantly interconnected. While admitting some weak and negative aspects of culture that actually impede human progress, the paper argues that cultural traditions carry enormous potentials for sustaining people"s lives. Grassroots cultural traditions should also be explored, respected, appreciated and integrated with the development planning.

Keywords : *culture, tradition, cultural capital, livelihood, Kandy, Sri Lanka.*

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***Abstract*-It is argued that rural development planning best precede when there is an effective dialogue with local people about their values, traditions, identities and knowledge. Among the rural communities, cultural traditions that have been preserved for generations are important in attaining various aspects of their desirable objectives. This paper is an attempt to explore the potential wealth and capabilities of culture, and to examine the extent to which such cultural traditions can be regarded as an 'asset' in the context of achieving sustainability of rural livelihoods. The paper draws its evidences from few rural villages in central Sri Lanka, where culture and livelihoods are significantly interconnected. While admitting some weak and negative aspects of culture that actually impede human progress, the paper argues that cultural traditions carry enormous potentials for sustaining people's lives. Grassroots cultural traditions should also be explored, respected, appreciated and integrated with the development planning.**

Keywords-culture, tradition, cultural capital, livelihood, Kandy, Sri Lanka

I. Introduction

"People have impressive dignity and great respect towards their own cultural traditions and value systems. It is surprising to see the outstanding talent and dedications of these people to protect their traditions, in which they strongly believe. Sadly some of the precious traditions and their capabilities are unnoticed. Cultural traditions represent peoples' 'identity' and show how they translate their long-standing customs and traditional knowledge into their surviving strategy (a village key informant)

How people translate their cultural traditions into their hopes, self-esteem and simply into their 'way of life'? Individuals and communities have their own values, meanings, customs and knowledge that affirm their *identity* and *diversity* and, play a significant role in their everyday lives. Considerable attention has been recently directed towards the cultural perspective and, a number of authors have suggested the significance of 'prioritizing' cultural values in development processes (e.g. Rao and Walton 2004; Harrison and Huntington 2000; Rahnema and Bawtree 1997; Schech and Haggis 2000). Radcliffe (2006) for example, examines *how*, *why*, *where* and *when* culture becomes relevant and effective in a development context. Development ideologies are departing from *quantitative* to *qualitative* paradigms by acknowledging that development is a process that engages with local people and their knowledge and cultural values. Thus, despite the material growth, the satisfaction of people's cultural aspirations while respecting their customs, knowledge, and cultural freedom is vital in fulfilling desirable progress in every society.

Current development approaches, which are based on the 'western models' have difficulties in imagining 'other' cultures, 'other' ways of thinking, and forms of rationality and, 'other' ways of life (Tucker 1999). This paper argues that there is a need for an advanced understanding of the wealth of 'other' cultural values, which reinforce communities' independence, sovereignty and identity. By adopting a livelihood aspect the paper demonstrates where and why cultural traditions are significant and how they are connected with people's lives, and draws upon a field-based research in rural villages in the Kandyan region in Sri Lanka. This paper argues that there are greater potentials in considering cultural traditions as a 'productive asset' rather than a hindrance or an impediment for communities' well-being. In line with these thoughts, the paper first provides an overview of culture, and how it has been discussed within development literature. Then, the paper explains the significance of culture in relation to rural livelihood context, following an introduction to Sri Lanka, the study villages, its communities, and their socio-cultural background. Villagers' perceptions of cultural traditions and its significance in relating to everyday livelihoods will be analyzed next, in order to bring cultural traditions into an operational level. Then, the paper shows the essential of a cohesive and integrated concept of cultural capital, in order to accommodate cultural traditions as a valuable 'asset', by presenting a framework based on the fieldwork findings. Distinctiveness of cultural capital in the Kandyan context will be discussed next, followed by an assessment of the extent to which cultural traditions can be regarded as a 'real' asset in the context of rural livelihoods.

II. Culture and Development

First, it is worthy to examine how culture has been defined, and used within development and livelihood literature. Based on a comprehensive review on culture, Kroeber and Kluckhohn (1952) defines that: "culture consists of patterns, explicit and implicit, of and for behaviour acquired and transmitted by symbols, constituting the distinctive

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achievements of human groups, including their embodiments in artefacts; *the essential core of culture consists of traditional ideas and especially their attached values*; culture systems may, on the one hand, be considered as products of action, on the other as conditioning elements of further action" ((in Baldwin *et al*, 2006:8). Anthropology, defines culture as: " the complex whole, which includes knowledge, belief, art, law, morals, customs and any other capabilities and habits acquired by man as a member of the society" (Nanda and Warms 2007:86). UNESCO, as the pioneering agency that works towards safeguarding cultural values and diversity, articulates culture in different perspectives. UNESCO (2003:2) for example, defines *intangible* culture as: "….practices, representations, expressions, knowledge, skills, oral traditions, performing arts, social practices, rituals and festive events and traditional craftsmanship". Tangible culture constitutes something which is perceptible by touching or 'having a physical existence' (Throsby 2001), and may be a monument, group of buildings, or a site with historical, aesthetic, archaeological, scientific, ethnological or anthropological values (Kirshenblatt-Gimblett, 2004; UNESCO, 2003).

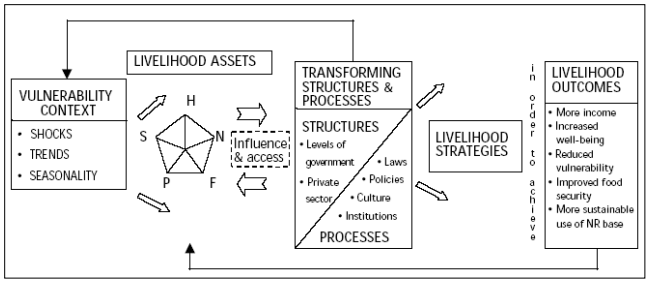
But, development has been regarded as a process which has no 'cultural' context, and can take place 'anywhere' irrespective of its relevancy, validity and effectiveness (e.g. Tucker 1999; Escobar 1995; Radcliffe 2006; Rao and Walton 2004; Harrison and Huntington 2001). Development process is often interpreted through a modernized perspective that implies copying 'western' experience and importing it through often inappropriate development interventions in poor countries. Explaining 'what went wrong' in the development approaches of post-1945, Hennayake (2006:37) clarifies that the problem is "not one of neglecting culture, but one of privileging a 'particular' culture". According to Schech and Haggis (2000:2) culture is "something development acts upon" and, Hennayake (2006:26) notices that modernization theories have constructed a necessary relationship between "traditions and underdevelopment" and "modern and development". Specifically, traditional cultures, as Jenkins (2000:302) interprets are at best, "a way of preserving the past as a scarce and non-renewable resource and, at worst, as impediments to desirable progress". Nevertheless, Wijesekera (1956:18) argues that every culture does possess in its own way; strengths and weaknesses; the manner andmethod of fusing the positive factor of one culture with the negative of another determines the result in articulation or rejection. Thus, as Ganguly (1977) explains every culture has preserved many noble elements to humanity. The old and new must both be attuned to the good of humanity. It would therefore be dangerous to allow the traditional cultures to die out since their inherent potentialities for the good of society cannot yet be evaluated. Therefore,

Development processes should place a greater emphasis on the distinctiveness of local cultural traditions and, be sensitive to geographical and cultural specificity, which involves fullparticipation of local communities and prioritizes cultural values, traditions and identities.

III. WHY CULTURE IN RURAL LIVELIHOOD CONTEXT?

Livelihoods to Chambers and Conway (1991:6), comprise the "capabilities, assets and activities required for a means of living", and for de Haan and Zoomers (2003:32) it "is equally a matter of ownership and circulation of information, the management of skills and relationships and affirmation of personal significance …and group identity". Rural communities establish livelihoods in a variety of ways with varying degrees of success, according to their levels of accessibility to diverse resources/assets, and how they deal with the pressures arising from external changes. They instinctively make the most of their beliefs, customs, traditional knowledge, religious and spiritual elements and other creative sources to meet build livelihood portfolios. As Chambers and Conway describe, "many livelihoods are less singular and largely predetermined by accident of birth and therefore livelihoods are ascriptive" (1991:6); and, 'inherited livelihoods' are fundamentally determined by the capabilities of people and existing resources - tangible and intangible – with the latter essentially representing the values and customs that are traditionally embedded in their societies. The image of rural farming communities, for example, represents the stability of a rural society and the immobility of its inhabitants, with their inherent values, whilst conveying a notion of rural people being 'tied to the land' (Bernstein *et al.*, 1992). In Sri Lanka, paddy farming is considered as a 'cultural practice' (Tennakoon 1988), that portrays the prosperity and sustainability of traditional village communities. Pastoral societies in many African countries (e.g. Patterson 2000; Njoh 2006), and Andean communities in Latin American context (Stephen 1991; Radcliffe 2006; Radcliffe and Laurie 2006), portray their livelihood systems as 'cultural artifacts'. Writing about the Fulani people of Senegal, Adriansen and Nielsen (2002) and Adriansen (2006), for example, describe their 'cattle culture' by defining cattle as 'cultural capital' of the Senegalese, and cattle are treated as a wealth object, and a source of prestige and cultural identity. Artisans' livelihoods which reflect self-expression and inner desires through various crafts, are one of the dominant economic activities among many rural communities in South Asian countries (Pye 1988) .Thus there are tangible reasons to argue that rural economies can derive significant benefits if cultural traditions are adequately supported, and traditional knowledge, social capital, historical relations and customs are incorporated in to livelihoods initiatives. Sustainable Livelihood Approach (SLA) is an influential framework in centralizing people, their capabilities and values in development. It emerged as a branch of alternative paradigm (Ellis and Biggs 2001), and established through several major international forums and extensive works by, DFID, IDS and ODI (Carney 1998) (Figure 1).

Figure 1: Sustainable Livelihood Approach (SLA)



Source: DFID (1999)

One of the criticisms of the existing SL approach is that, its simplistic representation of the reality and complexity of livelihood systems has ignored the relative importance of a crucial aspect like, culture and, its relationship with other sectors like vulnerability context, assets and livelihood outcomes etc.,(Figure 1), (Bebbington 1999; Cahn 2002; Glavovic *et al.,* 2002; Toner 2003). The livelihood approach focuses mainly on tangible resources (livelihood assets) and barely discusses culture, referring to various institutions and structures that shape and govern communities' accessibility to available assets and livelihood choices. In this sense, culture is considered a 'humanly devised constraint' or the 'rules of game' (North 1990) that controls human interactions and resource entitlement. Culture is only a topic related to social capital. This inadequate consideration of the cultural aspect over-simplifies not only people, but also their genuine capacities, and thus, the complexity and diversity of resource entitlement and livelihood opportunities. In fact, according to Pinder (2009), the absence of culture in livelihood analysis is serious if the SLA approach is to be considered holistic and, if it is to continue to be valid for sound development .

Considering the above issues, this paper argues that the livelihood perspective is a pragmatic and effective approach under which cultural traditions can be explicitly treated as a 'resource' – cultural capital'. Nevertheless, it should be emphasized that this paper does not attempt to proclaim the 'supremacy' of cultural traditions, but more to make a convincing case for their richness and what response we might make to incorporate them effectively with rural livelihood interventions. The paper situates its whole understanding of cultural traditions under the concept of cultural capital, and stresses the significance of such a new concept to embrace all productive roles that culture plays in any grassroots community. The paper suggests sensible ways to incorporate cultural capital with other livelihood assets such as; social, human, physical, natural and financial capital (see DFID 1999; Carney1998), and provides a useful framework for rural development analysis and livelihood intervention

IV. Introduction to Sri Lanka, Rural Kandyan Villages, its Culture, Society and People

Sri Lanka is an island of 65,610 sq km, located in the Indian Ocean. Sri Lanka has a rich historical and cultural heritage covering more than 2,500 years, which is recorded in ancient legends and chronicles . Buddhism was introduced to Sri Lanka in 307BC from India, and evolved with royal patronage. The Buddhist-Sinhalese civilization came under attack during three centuries of colonial rule by the Portuguese, Dutch and British. The country gained independence in February 1948.

The country's population has a diverse ethnic composition, with 73.8 percent Sinhalese, 12.6 percent Sri Lankan Tamils, 7.2 percent Sri Lankan Moors, 5.5 percent Indian Tamils, and 0.9 percent Burghers, Malay and others (DCS 2001) . The Sinhalese community is divided between Up-country Sinhalese (the Kandyans) and Low-country Sinhalese. The Low Country Sinhalese primarily occupy the southern and western coastal regions in the country, accounting for 62 percent of the total Sinhalese, and 42.8 percent of the national population. Meanwhile, Kandyan Sinhalese constitute 38 percent of the total Sinhalese population and 25.8 percent of the national population.

The study villages are located in Kandy, which is an important administrative, commercial, cultural and historical centre located in the central region some 116 km from the Sri Lankan capital, Colombo. The total district population is 1,279,028 and 80 percent of the population is rural. Kandy city was formerly the capital of the last Sinhalese kingdom, known as Senkadagalapura and, has had an illustrious history with an impressively rich cultural heritage. According to Dewaraja (1988), by the end of the 8th century, Kandy had become an influential cultural centre with its distinctive arts, architecture, crafts, dancing and music. Due to its considerable cultural and historical significance, the city was declared a world cultural heritage site by UNESCO in 1988.

Field research was undertaken in three villages, namely Kiriwaula, Talagune and Kalasirigama located respectively in Udunuwara, Uda-Dumbear, and Kundasala District Secretariats (Figure 2).These villages are typical of communities, in terms of the inextricable links between livelihoods systems and the cultural traditions that have been followed by many generations. The villages are Sinhalese-speaking, Buddhist and mainly composed on *Govigama* and *Navadanno* groups[5]. Their livelihoods are primarily based on traditional craft industries and paddy

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According to the information provided by the Craft Revival Trust (CRT- an Indian NGO), traditional craft industries including weaving, mat-making, pottery, wood, ivory and stone carving, silver, metal, gold and brass work and painting, etc., provide significant livelihood opportunities for rural communities in South Asian countries. See http://www.craftrevival.org for some case studies related to craft-based livelihoods in South Asian countries.

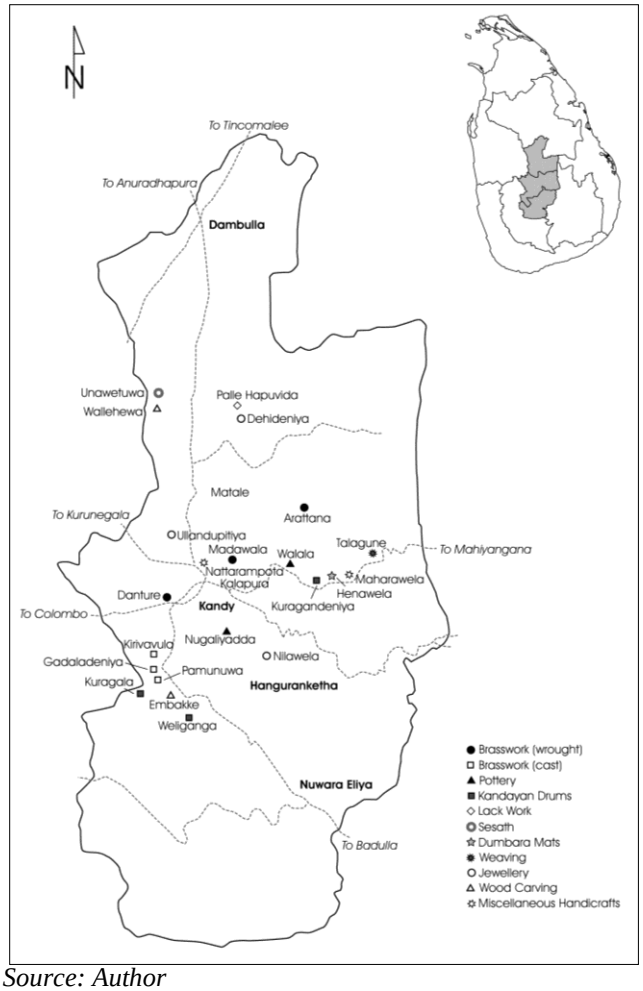
[2] The Brundtland Commission in 1987; In 1992, Agenda 21 of the United Nations Conference on Environment and Development [UNCED]; the Copenhagen Declaration in 1995; The Fourth World Conference on Women [FWCW].

[3]Department for International Development (DFID); Institute of Development Studies (IDS); Overseas Development Institute (ODI) in UK

[5]For example, as the *Mahavamsa* (The great chronicle of genealogy, legends and historical heritage of Sri Lanka) describes, the country's Buddhist-Sinhalese kingdom started with '*Vijaya'* (Generally considered as the legendary colonizer and primogenitor of the Sinhalese group), who arrived from Northern India in 500 BC (Coomaraswamy 1956).

cultivation. Village people are described as conservative with regard to these practices and traditions, and can often trace their ancestry back to their ancestors who served the Kandyan royalty (Brow 1999; Thilakasiri 1994; Coomaraswamy 1956).

Figure 2: Locations of the study villages



Source: Author

[5]There are strong links between ethnicity and religion, with the Sinhalese being predominantly Buddhist, the Tamils predominantly Hindu, and the Moors Muslim.

[6]In historical Sri Lankan society, caste was an important factor. But Sri Lankan caste system differs significantly from the Indian caste system (see Coomaraswamy 1956) *Govigama* and *Navadannon* are two prominent caste groups, and *Govigama*, represents the 'farmer aristocracy', which is the highest rank of Sri Lanka's caste system. *Navandanno* represents the 'artists' caste that includes various groups of artists representing traditional craft guilds. (For a detail description of Sri Lankan caste system see – Ryan, B. (1953) *Caste in modern Ceylon*, New Brunswick, N.J.: Rutgers University Press).

[7]*Dalandá Máligawa*, the Temple of Tooth in Kandy, where the most sacred Tooth Relic of Buddha is housed

[8]The system of *rajakariya* or 'royal-duties' existed during 15th – 17th centuries and it was based on the caste system, with each caste being obliged to perform a specific service as a condition of tenure.

[9]In the context of present day Kandyan communities, caste and class are not regarded as important issues. In this study, therefore, these issues are not given the prominence that might be afforded to

The majority of the research participants had maintained a strong connection with the ancient royal families and the legendary ancestors who were rewarded for the master in traditional craftsmanship. Many respondents were commissioned to undertake different tasks, specifically for Dalanda Máligawa and other sacred temples around Kandy (see Seneviratne 1978). Within these villages, a wide range of different crafts are practiced as silversmiths, brass-workers, wood-turners, jewellers, painters, weavers, tom-tom beaters and dancers. These craft works are aligned with the ancient *rajakariya*' system (Coomaraswamy 1956) , and there is a strong relationship between caste and profession (Seneviratne 1978; Gunasekera 1994) . Many of the craft families in these villages can trace their ancestry from the early artisans, worked under the *rajakariya* system. Some families engage in performing arts such as *Kandyan* dancing, drumming and ritual performances at temples, while some are engaging with traditional *Dumbera* weaving in Talagune. Villagers in Kalasirigama engage in household level manufacture of drums such as *raban, geta-bera, dik-bera, davula* and *udakki*. Kirivaula has acquired renown as an area specialising in the manufacture of traditional brassware and silver and gold jewellery. Their craft skills and traditional knowledge have been transferred from generation to generation and they have established a monopoly which has been unchallenged for many years.

V. OPERATIONALISING CULTURAL TRADITIONS THROUGH RURAL LIVELIHOODS

n order to bring cultural traditions into an operational level, recognition and understanding of culture in different aspects is important. In this regard the respondents' perspectives on 'what they mean by culture', and, uses of cultural traditions in relation to their everyday livelihood activities will be analyzed. As explained the majority of villagers are descendants of reputable and prestigious craft families and the majority belong to *navandanno* caste group, and involve with family industries for generations. One older informant explained the origin of his family industry, by asserting that; "We belong to *navadanno kulaya* (caste), and are descendants of the well-known *Devendra Mulachari* family. Our ancestry tells us 'who we are', 'where we are from' and 'what our values, customs and knowledge are'. We are proud of 'what we have'". According to a drum-maker, "nowadays, people think that *berakarayo* (drummers) are *adu-kula minissu* (low-caste people); *kulaya* (caste) is not a matter to me, because we keep our precious traditions alive. This industry represents all our traditional values, customs, beliefs and knowledge and – 'everything' in our lives". *Kulaya* (caste) is one of the underlying factors in villagers' interpretations, and believe that they are entitled to 'protect' what they regard as valuable traditions for the future. Even though caste and class are regarded as unimportant in present day Kandyan society, many respondents explained their livelihoods by referring to ancient caste system. In these village context, caste is referred to as an ideology – identity - and also as a system of social stratification, to

describe a person's status, power and economic position 'positively', or simply as a group possessing differential caste and class in other situations. In this livelihood context the idea of caste/class is regarded positively as a 'social honour and prestige' of these communities, rather than as an ideology that stratifies the society based on the notions of *purity – impurity*. There is no such notion of *purity* in the Sinhalese caste system. (Silva *et al*, 2009:35).

degrees of 'social honour' and 'prestige' (see Brow 1999). A skillful traditional jewellery maker understands his livelihood as a 'source of learning and teaching of traditional knowledge and customs, by declaring: "I found this industry to be a good source of 'learning' about páramperika danuma (traditional knowledge). It 'guides' our lives and helps transmit our precious sirith-virith (customs) to future generations". In this context, his livelihood choice was not merely because it was a family tradition, or its money making capacity, but also because of his respect for traditional resources. He also believes that traditions maintained from the past are vital in guiding their lives and providing them with the skills and strategies to adjust their lives in present day society. Thus, there is a consensus among respondents that their present livelihoods help them to experience the wealth of cultural traditions. These villagers often referred to traditional industries to represent their social status and cultural 'heritage', which has been received from the 'past'. They interpret culture by referring to 'what they see and experience' in their lives and, Kroeber and Kluckhohn (1952 in Faulkner *et. al,* 2006:30) summarize this as a 'structure', which encapsulates all "socially constructed and historically transmitted patterns" or the "way of life" (2006:35) people. It is evident that culture is not merely a structure or a 'set' of values and norms, but is rather a 'source' that meets some purpose or end. The respondents' views reveal 'what cultural traditions do, or accomplish ', or as Baldwin, *et. al.,* (2006) claim, 'how culture helps people to solve their problems'. Villagers located their interpretations of culture in the services and needs- the 'functions'- provided by their traditional knowledge and customs. They identified cultural traditions as a great source that reinforces secure asset entitlement and accessibility to physical, social, human and financial capital. Social capital, which consists of "rules, norms, obligations, mutual reciprocity and trust" (Narayan and Pritchett, 1997:50) for example, considerably determines by the 'inherent values and family customs' of these communities. As declared by one female respondent: "our *néadayo* (relatives) and *ahala-pahala aya* (neighbours) are a great spirit for me. We all are helping each other during difficult times. We have practised that quality for a long time". As a long-established custom, the village people and family members extend their wholehearted co-operation in the performance of various tasks. This occurs simply because the values, norms, customs and attitudes attach to their society. This co-operative spirit is an exemplary feature that cements not only family ties, but also village solidarity (see Jeannotte 2003). When considered as a whole, in every village context there is a consensus among respondents that most of their knowledge and skills originated from their ancestors. In terms of quality and quantity, traditional knowledge is more effective and useful, particularly with their current livelihood activities. For example, as clarified by a respondent: "our *damuma* (knowledge) is *práyogikai* (practical), and not recorded anywhere. We have been practising these skills from the beginning". They believe that the knowledge they use today are not that different from those used by their predecessors, and neither formal education nor training is required in maintaining their current livelihoods. In contrary, as clarified by a young village respondent: "...no doubt that traditional knowledge is a great asset. But we can't rely on this alone. We should also have extra knowledge to adjust our lives". Briggs (2008:109) for example, reminds that (indigenous) traditional knowledge is differentiated within communities and place-specific and it can become productive for only a small group of powerful individuals. In this particular context, traditional knowledge is capable of giving 'meaning' to what people do, power to act and govern peoples' own needs and aspirations as well. Village respondents were also convinced that their traditional knowledge, family customs and long-standing experiences are vital in adopting different livelihood strategies during vulnerable situations. Their views showed the ability of translating 'cultural diversity' into 'livelihood opportunities'. As explained by a village key informant: "unlike others, these people can survive with their 'inborn' talents. They have proven that their knowledge and skills are practical and appropriate for anytime. Whatever happens, their inherited skills are not affected". Thus, their livelihoods are 'culturally resilience' that demonstrates an "active resistance to external changes through the protection of traditional practices" (Fortier 2009:163). These adaptations are distinctive as they have not changed the 'traditional ways of life' of these communities. This is in line with the argument that cultural significance in livelihood resilience means moving beyond a 'negative' mentality of culture to embrace the values cultural traditions. The existence of culture-based adaptive strategies is a strong indication of how local people are connected with their embedded values and traditions. Thus cultural traditions are vibrant resources which enable the community to pursue robust livelihood strategies which are characterized as Glavovic *et. al.,* (2002) assert, by 'different layers of resilience'

Thus, in a livelihood context, analysis of culture must go further in enquiring *how* cultural traditions influence people's livelihood choices, decision-making over resource ownership and accessibility, representation, identity making, social relations, and overall livelihood sustainability; *how* culture 'facilitates' resource accessibility rather than 'controls' resource ownership. According to the Kandyan examples, cultural traditions guarantee a secure framework for social trust, moral economies and sense of place, reciprocity and co-operation in exchange works and a complementary relation between the individual and the group. Local people are aware of their 'own' values and, as clarified by one villager; "our culture and traditional values are 'living' and vital for the continuation of our society".

Hence, the reasons for claiming culture in a capital sense are not hard to justify through the Kandyan communities, and as further suggested by one villager; "we must understand our culture and traditions as a *vatiná sampathak* (precious resource) that supplies the nerve and the urge for our survival". Kandyan communities have retained management of local traditions and value systems, and they have been able to make social and economic gains considerably, while maintaining dynamics and resilient cultural identities.

However, analyzing cultural traditions as 'capital' – in the sense of a general purpose resource, is rather challenging. As revealed from the examples, every element of culture may not always be effective and positive in a livelihood context, and thus an attempt to integrate them all would be senseless and indeed difficult. It should also be emphasized that cultural values are relative to the individuals within their own socio-cultural context and (UNFPA 2008) and, whether it is 'good' or 'bad' depends on the utility of culture. As identified by some authors (Eames 2006; Ellis 2001) the weak version of culture (e.g. age, gender, ethnicity, and class) could be counted as an obstruction in advancing people's livelihood choices (also see Sen and Grown 1987; Momsen 2004). Culture, in such a weak and rigid sense, represents communities that are highly "hierarchical and intolerant of external threat and internal diversity" (Eames 2006:19). However, it is certainly possible to pay adequate attention to particular cultural attributes that are 'stronger' and positive, along with taking into account all the characteristics and qualifications revealed from the village examples. If cultural traditions and value systems are recognized to be diverse, varied and interactive, and "if the importance of culture is integrated with rival sources of influence, then culture can be positive and constructive" (Sen 2004:44) both, in the context of livelihood sustainability and social and economic development processes.

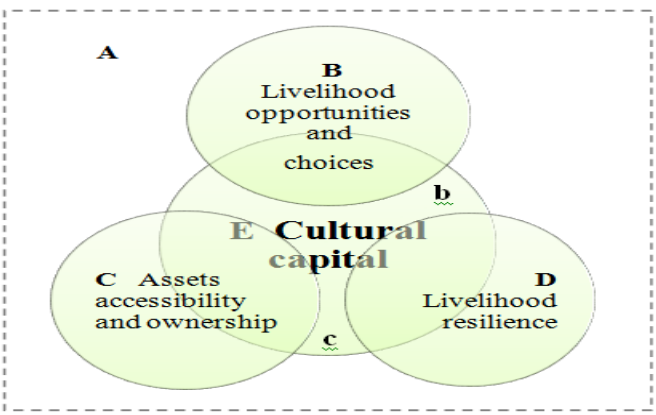
VI. WHAT IS CULTURAL CAPITAL IN THE LIVELIHOOD CONTEXT?

The term 'capital' refers to accumulated wealth that may be used to produce more wealth or better outcomes (Narayan and Pritchett 1997). By adopting the concept of cultural capital, the study asserts that culture is an asset that helps in gaining better outcomes and sustaining livelihoods of any community through its accumulated cultural wealth and capacities; it is also necessary to include the ideas of creativity, innovation, ideologies, history, traditions, values and rituals. There are some important approaches towards cultural capital (see Bourdieu 1986; Throsby 2001; 2003); but they are lacking in grassroots focus and are weakly linked to livelihoods analyses [10]

In this paper *cultural capital* means the 'wealth created through celebrating and investing in cultural histories, heritage, values, knowledge, traditions, rituals and ideologies' of communities. In order to define culture as a livelihood asset, the study enquires into the fundamental elements/attributes that are core to *cultural capital*, based on the field research findings. These criteria may vary according to their significance in different societies, in terms of people's engagement with cultural activities and benefits received from their cultural values. However, at issue is whether the criteria are relevant to the purported aims of a particular community or society – in this case, in achieving 'livelihood sustainability'.

It was clear from the Kandyan examples that people have different perceptions about cultural traditions and value systems accordingly, the way they 'engage' and 'benefit' from culture. For example, as clarified by a skillful silversmith: "people call me the son of *Rajaguru Muhandirum*, which makes me proud. I continue this *páramparika karmanthe* (traditional industry) to keep my identity and to show my decendancy". On contrary to that according to one traditional drum-maker: "modern society undervalues our *páramparika rakiyá* (traditional livelihoods). People think that money gives everything, and have nothing to do with your *sampradáyan* (traditions)". Therefore, it is meaningful to consider the 'relative' usefulness of particular cultural entities in different societies/communities that are 'genuinely' useful in the context of achieving livelihood sustainability. As we have seen through the examples, *cultural capital* can be established in the Kandyan context by considering the roles of cultural traditions in relation to people's livelihood choices/determinants, asset entitlement and accessibility and livelihood resilience and livelihood sustainability (Figure 3).

Figure 3: Roles of cultural traditions in the Kandyan livelihood context



According to figure 3, the outer rectangle (A) represents the rural livelihood system in the villages being studied. Circles B, C and D represent the three main aspects of rural

[10] In Bourdieu's (1986) theory, cultural capital exist in three forms namely, *objectified* (e.g. cultural goods), *embodied* (intangibles/values, norms etc) and *institutionalised* (e.g. educational qualifications). Also see (i) Zweigenhaft, R. L. (1993) 'Prep Schools and Public school Graduates of Harvard: A Longitudinal study of the acumination of Social and Cultural Capital', *Journal of higher education (Columbus)*, 64(2): 211-225. (ii) Broady, D. (2001) 'What is Cultural Capital: comments on Lannart Rosenlund's Social Structure and Change', *Sosiologisk årbok 2001.2*.(iii) Sallivan, A. (2001) 'Cultural Capital and Educational Attainment', *Sociology*, 35(4): 893-912.

livelihoods. The space occupied by the three circles at the centre and falls within circle E, represents cultural capital, which includes all inherited values, knowledge, traditions and ingenuities that have been maintained and transmitted across generations in the village communities. Circles B, C and D occupy 'most', but not all of circle E, meaning village livelihoods are significantly influenced by cultural traditions and value system, particularly in determining livelihood opportunities, asset accessibility, ownership and livelihood resilience. There are some spaces closer to circle E [a, b, c], which do not fall within circles B, C and B. This means that livelihoods may not 'always' be facilitated or influenced by cultural traditions, or perhaps there may be some 'negative' influences of culture on livelihood sustainability. As revealed from some examples, some elements of cultural traditions such as, caste and rigid family customs are not always supportive and reinforcing for livelihood security. In some instances there is no significant encouragement from family traditions and traditional knowledge for creative endeavour or experimentation and, thus livelihood security. As one respondent asserted: "We thought that this páramparika karmánthe (traditional industry) will be secure forever. But, it isn't, today we can't rely on this industry alone. We would be happy to find another way, which is really hard".

However, according to the majority of village respondents, the cultural capital stock (circle E), is fundamental for determining their livelihood opportunities. Both tangible and intangible cultures are vital for fulfilling both material and non-material objectives in their lives. Thus, the fundamental elements of cultural capital in the livelihood context should include inherited ingenuities, customs, values, ideologies, rituals and knowledge systems. In this sense, cultural traditions are distinctive, as an asset mostly associated with 'traditional values', which clearly represents both tangible and intangible aspects of culture. It includes 'cultural heritage' that represents aesthetic, spiritual, historical, symbolic and authentic expressions of people (see Throsby 2001); 'cultural identities', which are a 'treasure of self-fulfilment' (UNESCO 1982); and more importantly the 'living practices', traditions and knowledge, which are vigilantly preserved and transmitted across generations. Thus, the findings in the Kandyan villages confirm that culture and traditions are 'living assets', which are "necessary to maintain essential life-support systems" of communities (see Cheiesura and de Groot 2003:222).

VII. Distinctiveness of Cultural Capital in the Livelihood Context

The research in the Kandyan villages demonstrates that *cultural capital* is distinctive in many aspects. *Cultural capital* influences other livelihood assets such as, physical, human, social and monetary assets, which enables the inclusion of all dimensions in the capital asset base of a community. This is further clarified through a statement given by a village key informant: "These people have special obligations to their traditions. Social relationships, mutual support and uses of resources are mostly conditioned by their family customs".

This notion of *cultural capital* expands beyond Bourdieu's (1986) suggestions. As Kingston (2001:89) denotes, Bourdieu's concept of cultural capital is not a "general resource available and valuable to 'everyone' in a society, and it largely represents only the property of the 'elite' groups". As further describes, "Bourdieuian argument insists that the evaluative criteria are socially biased, despite their 'natural', taken-for granted status" (2001:89). The concept has been used to emphasize the importance of distinctive aesthetic taste and knowledge in reinforcing social 'boundaries' (Ostrower 1998), and social 'exclusion' (Kingston 2001). In contrast, as evident from the Kandyan examples, *cultural capital* is a valuable asset that gives them relative autonomy by generating grater productive stock and flows for sustaining village livelihoods. It provides a cohesive framework for elevating grassroots communities through social inclusion, equality and social security. It enables different forms of action and resistance, which are empowering people and, as explained by one respondent: "We can take all the decisions we want; because we are the 'masters' of our industry. We all have competitive strengths and knowledge". The *cultural capital* that is identified within Kandyan villages can be used as a 'representative' asset of everyone in these communities. As was revealed through respondents' views, such as, "we are born to work for the Temple"; "these skills are in 'our blood'"; "We are not apprentices", cultural traditions and craftsmanship are 'natural' phenomena inherited from their forebears. Thus, cultural capital as seen in the rural livelihood context can be clearly distinguished from Bourdieu's reference to 'high culture' [culture of an 'elite', such as aristocracy or intelligentsia – 'dominant class'] . As revealed from the field-based research in the Kandyan villages, every member in the communities has specific connections and obligations to their cultural traditions which have been transmitted through generations. In this sense, cultural capital also responds to Sen (1985) , by prioritizing the 'genuine capabilities' of people, and to Chambers (1998) , by putting the 'last first', instead, of the 'first last'. In the Kandyan context, cultural capital takes significant consideration of traditional values, dignity and moral well-being of all, not just 'elites', and thus is a "strategic site for the production of consensus", which is critical in empowering rural people (Appadurai 2004:65).

Cultural capital in livelihood analysis, and the concept defined by Throsby (1999, 2001), may have some things in common. Throsby (2001) gives some initial thoughts to capitalizing culture within livelihood context. Yet, there are some difficulties in bringing his suggestions directly into livelihood analyses as its general applicability is problematic and uncertain particularly in the livelihood context. Throsby's concept of cultural capital is purely an economic interpretation, which is based on the economic valuation of 'cultural industries', or the 'cultural sector' of the economy (see Throsby 2006, for example). His idea is limited to the observations of material culture - the goods and services produced by the 'cultural sector' or the 'cultural industries' in an economy, in the belief that they have all the characteristics of capital assets (Throsby 1999:3 and see

Hutter and Throsby 2009). Although Throsby (2001) argues for the significance of intangible values that are exclusive to the embedded values of the 'material culture', (e.g. cultural heritage) . His interpretation does not recognize opportunities, diversity, adaptive capacities, traditional knowledge and enduring customs of 'grassroots communities', and how such values 'shape' their way of life. The proposed cultural capital is more centralized on 'people' and their 'genuine' capacities, values, traditions and knowledge systems; it focuses more on the grassroots, rather than the macro level, and is more 'developmentally' oriented than 'growth' oriented. Clarifying a misunderstanding of culture that often occurs during development planning, one key informant asserted that: "These people do not demand lokú déval (things that are difficult to supply). They only expect a little caring and respect to their traditions and values preserved for generations, because they depend on them for their survival".

Thus, in a livelihood aspect, cultural capital is more flexible and understandable and, enhances the effective freedom of the people involved to pursue whatever they have reason to value and alternative ways of living, in contrast to narrowly focused economic development (UNESCO1995). As we saw, cultural capital encompasses 'intangible values', more than what we can see and touch materially in museums and galleries, and also makes people 'who' and 'what they are today'. The examples discussed in here affirmed that cultural capital undeniably creates and protects alternative ways of living and encourages creativity, experimentation and diversity, the very essentials of human development.

Since cultural traditions are a 'naturally' given asset, and it is more concerned about intangible aspects of culture, which are less directly ascribable, but are critical for the well-being and sustainability of livelihoods (UNESCO 2003). Due to this character, cultural capital is distinct in its diversity and ability to increase the production and efficiency of other livelihood assets as well. And also, unique in averting risk and increasing livelihood security and self-reliance, which are unattainable directly from other livelihood assets. Thus, as Jenkins (2000:306) asserts, the diversity of cultural traditions increases the "probability that human societies develop without undermining their economic, social or environmental capital bases". According to villagers' experiences, there is no natural decline of the values of cultural traditions, as with some other assets like natural and physical assets (see Robison et. al,. 2002), which makes cultural capital unique. Most of the physical assets (e.g. fossil fuel, minerals) are declining though some are renewable through natural process (e.g. forests, fresh water) (Throsby 2001). On the contrary, cultural capital that refers to a particular community is 'place-based', non-replaceable, and there is 'no' natural decline. Culture is alive and abundant, and its productivity can be augmented 'only' through regular consumption (or use) of and engagement with culture. This was clearly articulated by one elderly villager in Kirivaula: "…if we really want to preserve our precious culture we have to use and engage with our traditions; we should experience and live with them".

Unlike many other forms of capital, cultural assets can be maintained efficiently through 'intra-generational transformation'. Throsby (2001:56) describes this as "the right of the present generation to fairness in access to cultural resources". This was clarified by a respondent in Embekke by saying: "We take these knowledge and skills from generation to generation, because that is the 'only' way we know to preserve them". Cultural capital can be regenerated and preserved 'only' by maintaining its 'original' characteristics - the 'uniqueness' - and by passing these on to future generations (UNESCO 2003). In the Kandyan villages, cultural values are eternal and their consumptions as a 'capital asset' depends on the support and the conditions of these societies and their willingness to accept.

VIII. Are cultural traditions real 'assets'?

Cultural capital should be used with "some degree of precision and in a comparable manner to other capital assets; if not, it will have little value, when applied as an analytical construct" (Castle 1998:623) in other livelihood contexts. To assess the validity of cultural traditions as a form of capital, and to give wider applicability, this section discusses some of the widely shared 'capital-like properties' (Robison *et al*., 2002) of cultural traditions, together with some examples from the villages

As articulated through the previous examples, both tangible and intangible culture generate different flows of services and products for final consumption, by combining with other inputs, which is similar in character to other capital assets (see Robison et, al., 2002). Traditional craft products (e.g. brassware, silverware, drums and Kandyan jewellery) for example are 'cultural products' generate through intangible cultural values. Cultural values allow the taking of different resources and showing how they can be combined with other resources to produce different outcomes . Thus, like physical capital formation for example, investment in 'intangible' culture may augment the existing cultural capital stock in a particular society (Throsby 2001). Examples also showed how cultural capital is created through various 'functions' or the services provided by enduring traditions of village communities and, as further clarified by a key informant: " Cultural spirit of these societies reinforces through the various processes that

[11] Ostrower (1998) argues that in Bourdieu's theory, the 'dominant class' as a whole is richer in economic and cultural capital than are members of other classes. The dominant class itself, however, is divided into two segments relating to economic capital (e.g. business managers) and cultural capital (e.g. intellectuals).

[12]Sen, A. (1985) *Commodities and Capabilities*, New York: Elsevier Science Publishing Co,

[3] Chambers, R. (1998) *Challenging the Professions: Frontiers for rural development*, London: International Technology Publications.

[14] See for example, Shockley (2004), Rana (2000) and Strange (1999) in Throsby (2006). They have used the concept of cultural capital within economic analysis of developed economies.

these communities maintain for generations. Their craft works are one such activity that forms a strong cultural identity among them". Therefore, as "physical capital is created by changes in different materials to form tools that facilitate production" (Coleman 1988:100), cultural capital is also created mainly by changes in 'intangible' resources enabling people to respond in new ways.

Like many other forms of asset, cultural capital is both convertible (Bourdieu 1986; Robison et al., 2002) and can be used for 'other purposes' (Coleman 1988). Traditional norms, customs and kinship patterns of these communities are used for 'other purposes' such as collective movements/achievements, i.e. attam (labour networks), and *shramadána* (village development campaigns), which are effective in securing asset accessibility and ownership during difficult situations. In addition to that, and according to another village key informant: "These people are highly regarded and honoured due to their high standard of workmanship. It is a privilege they deserve, due to their talent and reputation". As was seen in the examples, informal social capital, which is based on traditional obligations and family customs, are useful in sustaining local markets, raw-material supply - physical capital, and regulating household income sources. Hence, like money, cultural inheritance can be converted into social resources and, the cultural values these people accumulated from their birth, are 'spent' to meet different needs at different time. Therefore in a livelihood context, cultural assets are complementary to other forms of capital and enhance productivity and efficiency by reducing transaction costs.

Cultural traditions as an asset has some properties identical to 'common property resources' (CPR), which are mostly associated with natural capital, i.e. forests, irrigation, pastures and physical capitals, i.e. community buildings (Throsby 2001). Some aspects of *cultural capital* represent 'collective goods', in the sense that they are not the 'private property' of those who benefit from them (see Coleman 1988). When they are owned by no one, and are used as open access resources. This is more obvious with tangible cultural assets, the Temple of the Tooth for example, which is a 'cultural heritage' site and a public religious place available for 'open access'. As revealed during an informal conversation; "a huge crowd gathers here to participate and celebrate the Esala festival. People attend with great honour and believing the 'spiritual power' of *Dalandá hámuduruwó*. Kandy is a heritage city; people visit from all over the place and enjoy its culture and beauty". One person's use of these artefacts may not diminish their availability for others and thus, in some aspects, *cultural capital* is non-rivalrous (see Throsby 2001) - for example, the use of heritage sites by one tour guide does not diminish opportunities for others. However the idea of *cultural capital* may vary in its strengths and significance in different societies, depending on the degree of dependability and engagement of people with cultural traditions. Thus in a livelihood perspective, *cultural capital* is useful in providing useful information about the 'cultural resources' that available for particular communities; cultural values that underpin a community's ways of life.

[15] See for example, De Graaf, Nan Dirk and Hendrik Derk Flap (1988), *With a little help from my friends: Social resources as an explanation of occupational status and income in West Germany, the Netherlands, and the United States*, Social forces, 67: 452-472

IX. Conclusion

This paper demonstrates that cultural traditions are a dynamic phenomenon that encompasses peoples' lifestyles and ways of living. Villagers perceptions indicate the way that cultural values influence them to choose their livelihood options similarly, and more positively, in ways which help them to understand and respect each other. In this particular setting cultural traditions are distinctive and unique, and provide infinite possibilities and choices for local communities. The paper convinces that a livelihood perspective is a pragmatic and effective approach under which cultural traditions can be recognized and treated as an 'asset'.

However, there may be some significant challenges when bringing cultural traditions into livelihood planning and the development process, since culture is a contested and diverse phenomenon that varies considerably both within and between places and societies. The significance of culture as a fundamental resource, or as this study proposes 'culture as a type of capital', may not be equally evident and valid for every community. A comprehensive understanding of the relationships between cultural traditions and livelihood systems both in and beyond Sri Lanka is vital for both successful and sustainable livelihoods and for future rural development planning. The challenge of this task is that culture, development, and indeed livelihoods, are highly value-laden concepts and pose great difficulties for policy makers and development planners in bringing them together. Thus, a closer assessment of the dynamic nature of cultural traditions, through community involvement and effective grassroots movements, which celebrate and engage with local cultural practices and well-represented cultural policies, is vital for future implementation.

X. NOTES

[1] The Brundtland Commission in 1987; In 1992, Agenda 21 of the United Nations Conference on Environment and Development [UNCED]; the Copenhagen Declaration in 1995; The Fourth World Conference on Women [FWCW].

[1] Department for International Development (DFID); Institute of Development Studies (IDS); Overseas Development Institute (ODI) in UK

[1] For example, as the *Mahavamsa* (The great chronicle of genealogy, legends and historical heritage of Sri Lanka) describes, the country's Buddhist-Sinhalese kingdom started with '*Vijaya'* (Generally considered as the legendary colonizer and primogenitor of the Sinhalese group), who arrived from Northern India in 500 BC (Coomaraswamy 1956).

[1] There are strong links between ethnicity and religion, with the Sinhalese being predominantly Buddhist, the Tamils predominantly Hindu, and the Moors Muslim.

[1] In historical Sri Lankan society, caste was an important factor. But Sri Lankan caste system differs significantly from the Indian caste system (see Coomaraswamy 1956) *Govigama* and *Navadannon* are two prominent caste groups, and *Govigama*, represents the 'farmer aristocracy', which is the highest rank of Sri Lanka's caste system. *Navandanno* represents the

'artists' caste that includes various groups of artists representing traditional craft guilds. (For a detail description of Sri Lankan caste system see – Ryan, B. (1953) *Caste in modern Ceylon*, New Brunswick, N.J.: Rutgers University Press).

[1] *Dalandá Máligawa*, the Temple of Tooth in Kandy, where the most sacred Tooth Relic of Buddha is housed

[1] The system of *rajakariya* or 'royal-duties' existed during 15th – 17th centuries and it was based on the caste system, with each caste being obliged to perform a specific service as a condition of tenure.

[1] In the context of present day Kandyan communities, caste and class are not regarded as important issues. In this study, therefore, these issues are not given the prominence that might be afforded to caste and class in other situations. In this livelihood context the idea of caste/class is regarded positively as a 'social honour and prestige' of these communities, rather than as an ideology that stratifies the society based on the notions of *purity – impurity*. There is no such notion of *purity* in the Sinhalese caste system. (Silva *et al*, 2009:35).

[1] In Bourdieu's (1986) theory, cultural capital exist in three forms namely, *objectified* (e.g. cultural goods), *embodied* (intangibles/values, norms etc) and *institutionalised* (e.g. educational qualifications). Also see (i) Zweigenhaft, R. L. (1993) 'Prep Schools and Public school Graduates of Harvard: A Longitudinal study of the acumination of Social and Cultural Capital', *Journal of higher education (Columbus)*, 64(2): 211-225. (ii) Broady, D. (2001) 'What is Cultural Capital: comments on Lannart Rosenlund's Social Structure and Change', *Sosiologisk årbok 2001.2*.(iii) Sallivan, A. (2001) 'Cultural Capital and Educational Attainment', *Sociology*, 35(4): 893-912.

[1]: Ostrower (1998) argues that in Bourdieu's theory, the 'dominant class' as a whole is richer in economic and cultural capital than are members of other classes. The dominant class itself, however, is divided into two segments relating to economic capital (e.g. business managers) and cultural capital (e.g. intellectuals).

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[1] Chambers, R. (1998) *Challenging the Professions: Frontiers for rural development*, London: International Technology Publications.

[1] See for example, Shockley (2004), Rana (2000) and Strange (1999) in Throsby (2006). They have used the concept of cultural capital within economic analysis of developed economies.

[1] See for example, De Graaf, Nan Dirk and Hendrik Derk Flap (1988), With a little help from my friends: Social resources as an explanation of occupational status and income in West Germany, the Netherlands, and the United States, Social forces, 67: 452-47

XI. Reference

1. Adriansen, H.K and Nielsen, T.T. (2002) 'Going where the grass is greener: on the study of pastoral mobility in Ferlo Senegal', *Human Ecology* 30 (2): 215-226.
2. Adriansen, H. K. (2006) 'Continuity and change in pastoral livelihoods of Senegalese Fulani', *Agriculture and Human Values* 23: 215–229.
3. Appadurai, A. (2004) 'The Capacity to Aspire: Culture and the Terms of Recognition' in V.Rao and M. Walton. (eds), *Culture and Public Action*, California:Stanford University Press, pp. 59-84.
4. Bebbington, A. (1999) 'Capitals and Capabilities: A framework for analysing peasant viability, rural livelihoods and poverty', *World Development*, 27(12): 2021 – 2044.
5. Baldwin, J. R., Faulkner, S. L., and Hecht, M.L. (2006) 'A Moving Target: The Illusive Definition of Culture' in J. R. Baldwin, S. L. Faulkner, M. L. Hecht and S. L. Lindsley (eds) *Redefining Culture: Perspective Across the Disciplines*, New Jersey: Lawrence Erlbaum Associates Inc, pp.3 - 26.
6. Bernstein, H. Crow, B. and Johnson, H. (eds) (1992) *Rural Livelihoods: Crisis and Responses*, Oxford: Oxford University Press.
7. Bourdieu, P. (1986) 'The forms of capital' in J. G. Richardson (ed.) *Handbook of theory and research for Sociology of education*, New York, Greenwood Press, pp. 241-258.
8. Briggs, J. (2008) 'Indigenous knowledge and development' in V. Dasai and R. B. Potter (eds), *The companion to development studies*, London, Hodder Education, pp. 107-111.
9. Brow, J. (1999) Utopia's new-found space: Images of the village community in the early writings of Ananda Coomaraswamy, *Modern Asian Studies* 33(1): 67-86.
10. Castle, E.N. (1998) ' A conceptual framework for the study of rural places'*American Journal of Agricualtural Economics* 80 (3): 621-631.
11. Carney, D. (1998). Implementing the Sustainable Rural Livelihoods Approach in D. Carney (ed), *Sustainable Rural Livelihoods; what contribution can we make?*. London: Department for International Development (DFID), pp. 3-23.
12. Cahn, M. (2002). *Sustainable Livelihood Approach*, 3rd Biennial Conference of the International Development, Institute of Development Studies, Massey University, New Zealand, http/www.devnet.org.nz.
13. Chiesura, A. and de Groot, R. (2003), Critical natural capital: a socio-cultural perspective, *Ecological Economics* 44(2-3):219-231
14. Chambers, R. and Conway G. (1991) 'Sustainable Rural Livelihoods: practical concept for the 21st century', Discussion paper 296, Brighton, Institute of Development Studies (IDS).
15. Coleman, J. (1990) *Foundations of social theory*, Cambridge: Harvard University press.Coomaraswamy, A. (1956) *Mediaeval Sinhalese Art*, USA: Pantheon Books.
16. Department of Census and Statistics (2001) *Census of Population and Housing - 2001 Sri Lanka - KANDY Distric Report*, Colombo: Department of Census and Statistics.
17. Dewaraja, L. S. (1988) *The Kandyan Kingdom of Sri Lanka 1707-1782*, Colombo: Lake House Investments Ltd.
18. Department For International Development (DFID) (1999) Sustainable Livelihood Guidance Sheet, Department for International Development.
19. deHaan, L. J and Zoomers, A. (2003) 'Development Geography at the crossrods of livelihood and globalization' *Tijdschrift voor Economische en Sociale Geografie* 94(3): 350-362.
20. Ellis, F. and Biggs, S. (2001) 'Evolving Themes in Rural Development 1950s-200s', *Development Policy Review*, 19(4): 437 – 448.

21. Eames, P. (2006) *Cultural well-being and cultural capital- Arts participaton New Zealand*, Waikanae, PSE Consultancy.
22. Escobar, A. (1995) *Encountering Development . The making and unmaking the Third World*, Princeton, New Jersey, Princeton University Press.
23. Faulkner, S., Baldwin, J., Lindsley, S., , Hecht., M. (2006) 'Layers of Meaning: An analysis of definition of culture' in J. R. Baldwin, S. L. Faulkner, M. L. Hecht and S. L. Lindsley (eds.) *Redefining Culture: Perspective Across the Disciplines.* New Jersey, Lawrence Erlbaum Associates, Inc., pp. 27-52
24. Fortier, J. (2009) *Kings of the forest: the cultural resileince of Himalayan hunter-gatherers*, Honolulu: University of Hawai Press.
25. Glavovic, B., Scheyvens, R., and Overton, J. (2002) *Waves of adversity, layers of resilience: exploring the Sustainable Livelihoods Approach*, 3rd Biennial Conference of the International Development, Institute of Development Studies, Massey University, New Zealand, DEVNET Conference, 2002, http://www.devnet.org.nz
26. Gunasekera, T. (1994) *Hierarchy and egalitarianism – Caste, class and power in Sinhalese peasant society*, Landon: The Athlone.
27. Harrison, L. E. and Huntington, S. P. (2000) *Culture Matters-How values shape Human Progress*, New York: Basic Books.
28. Hennayake, N. (2006) *Culture, Politics and Development in Postcolonial Sri Lanka.* Oxford: Rowman & Littlefield Publishers Inc.
29. Hutter, M. and Throsby, D. (2008) (eds.), *Beyond price: value in culture, economics and the arts*, New York, Cambridge University Press.
30. Jeannotte, S.M. (2003) 'Singing alone? The contribution of cultural capital to social cohesion and sustainable communities, *International Journal of Cultural Policy*, 9(1):35-49.
31. Jenkins, T. N. (2000) 'Putting postmodernity into practice: endogenous development and the role of traditional cultures in the rural development of marginal regions', *Ecological Economics* 34: 301-314.
32. Kingston, P.W (2001) 'Unfulfilled promise of Cultural Capital Theory', *Sociology of Education - Extra Issue*, 74:88-99.
33. Patterson, O. (2000) Taking Culture Seriously: A Framework and an Afro-American illustration' in Samuel Huntington and Lawrence E. Harrison (eds), *Culture Matters: How values shapes human progress*, New York, Basic Books, pp. 202-218.
34. Rahnema, M. and Bawtree, V. (1997) *The Post-Development Reader*, London: Zed Book.
35. Radcliffe, S. (ed.) (2006) *Culture in Development thinking: geographies, actors and paradigms*, New York, Routledge.
36. Rao, V. and Walton, M. (eds) (2004) *Culture and Public Action*, California: Stanford University Press.
37. Momsen, H. J. (2004) *Gender and Development*, London: Routledge.
38. Nanda, S. and Warms, R. L. (2007) *Cultural anthropology*, Belmont, California: Wadsworth/Thomson Learning.
39. Narayan, D. and Pritchett L. (1997) 'Cents and Sociability: Houesold Income and Soical Capital in Rural Tanzania', *Economic Development and Cultural Change*, 47(4): 871 - 897.
40. Njoh, A. J. (2006) *Tradition, Culture and Development in Africa: Historical Lessons for Modern Development Planning*, Hampshire: Ashgate Publising Limited.
41. North, D. C. (1990) *Institutions, Institutional Change and Economic performances.* New York: Cambridge University Press.
42. Ostrower, F. (1988) 'The arts as cultural capital among elites: Bourdieu's theory reconsidered, *Poetics*, 26(1):43-53.
43. Pinder, C. (2009) 'Revitalising the SLA', *id21 viewpoint*, (January).
44. Radcliffe, S. and Laurie, N. (2006) 'Culture and development: taking culture seriously in development for Andean indigenous people', *Environment and Planning D: Society and Space* 24: 231-248.
45. Robison, L. J., Schmid, A. A., and Siles, M.E. (2002) 'Is Social Capital Really Capital?', *Review of social economy*, LX (1):1- 21.
46. Schech, S. and Haggis, J. (2000) *Culture and Development: A critical introduction*, Oxford: Blackwell Publishers Inc.
47. Sen, G., and Grown, C. G. (1987) *Development, crises and alternative visions: Third World women's perspectives*, Monthly Review Press, New York.
48. Sen, A. (2004) 'How Does Culture Matters?' in V. Rao and M. Walton (eds), *Culture and Public Action*, California, Stanford University Press, pp.37 - 57.
49. Seneviratne, H.L. (1978) *Rituals of the Kandyan State*, Cambridge, Cambridge University Press.
50. Silva, K. D. (2006) 'Names, identities and distinctions in Sinhalese society: intergenerational changes in names of individuals in a Kandyan village', in John Holt and P. B Meegakumbura (eds) *Identity and difference: essays in society and culture in Sri Lanka*, Kandy: ISLE Program.
51. Stephen, L. (1991) 'Culture as a resource: Four cases of Self-managed Indigenous Craft Production in Latin America', *Economic Development and Cultural Change*, 40(1):101-130.
52. Tennakoon, S. (1988) 'Rituals of Development: The Accelerated Mahavali Development Program of Sri Lanka', *American Ethnology*, 15(2): 294 - 310.

53. Thilakasiri, J. (1994) *Survey of traditional craft villages and families descended from traditional craftsmen of Sri Lanka*, Colombo: S. Godage and Brothers.
54. Throsby, D. (1999) 'Cultural Capital', *Journal of Cultural Economics*, 23(1/2): 3-12.
55. Throsby, D. (2001) *Economics and Culture*, Cambridge: Cambridge University Press.
56. Throsby, D. (2003) 'Cultural capital' in R. Towse (ed.), *A Handbook of Cultural Economics*, Cheltenham, UK, Edward Elgar, pp. 166-169.
57. Throsby, D. (2006) 'Sustainability of Cultural Capital', unpublished paper, availabel at, http://www.econ.mq.edu.au/research/2005/cult_cap_throsby.pdf
58. Toner, A. (2003) Exploring sustainable livelihoods approaches in relation to two interventions in Tanzania, *Journal of International Development*, 15: 771-781.
59. Tucker, V. (1999) 'The myth of development: A critique of a Eurocentric discourse' in Ronaldo Munck and Denis O'Hearn (eds), *Critical Development Theory*, London, Zed Books, pp.1 - 25.
60. UNESCO (2003) 'Convention for the safeguarding of the intangible cultural heritage', Paris, UNESCO, Downloaded 16.04.2008, from http://www.unesco.org/culture/ich/index.php
61. United Nations Population Fund (UNFPA) (2008). *State of World Population: Reaching Common Ground - Culture, Gender and Human Rights*, United Nations Population Fund (UNPF), Downloaded 15. 03, 2008, from http://www.unfpa.org/swp/2008/presskit/docs/en-swop08-report.pdf
62. United Nations (1995) 'Report of the forth World Conference on Women', Retrieved 04.05, 2007, from http://www.un.org/esa/gopher-data/conf/fwcw/off/a--20.en
63. UNESCO (1982) 'Mexico City Declaration on Cultural Policies' – *Article 10*, Paris, UNESCO, Downloaded 15 January 2009, from http://portal.unesco.org/culture/en/files/12762/11295421661mexico_en.pdf/mexico_en.pdf
64. UNESCO (1995) *Our Creative Diversity: Report of the World Commission on Culture and Development*, Paris, UNESCO.
65. Wijesekera, N.D. (1956) 'Dynamism of traditional culture', in R. Pieris, *Some aspects of traditional Sinhalese culture*: A symposium, Ceylon University Conference on Traditional Culture, pp 14-24.

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Religious Value: An Instrument for Sustainable Environmental Management in Nigeria

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Abstract - As a sustainable environmental management remains elusive in Nigeria, this paper examines the viability of using religious value as a potent strategy to combat the myriad of environmental problems that have bedeviled the country in recent years. In doing so, it investigates the environmental ethics and values as embedded in the three major religions in Nigeria – Christianity, Islamic and African Traditional religions. The study finds that those religions are entrenched with different but complimentary environmental ethics and values which can serve as paradigm upon which a viable and sustainable environmental management can be developed. It recommends, therefore that governments and all other environment stakeholders should embrace ecotheology as a potent instrument to achieving sustainable environmental management in Nigeria.

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I. INTRODUCTION

In recent decades, environmentalal issues have generated discussions and consciousness of people around the world. It becomes clear that the physical, chemical as well as the biological integrity of the globe is being compromised on daily basis as the world continues to witness serious environmental disasters. These environmental disasters are not only continuous; they are increasing both in quantum and in rate. While those destructive processes understandably made headlines, it is the silent day – day deterioration of the environment that ultimately poses a devastating threat to humanity (Schaefer, 2004)

Man's insatiable demand for ever dwindling resources propelled by the greed of the present generation, which gives little thought to the survival of future generation has indeed imposed tremendous strains and stresses on the environment putting the planet into perilous danger. This ever constant danger of destruction and despoliation of the environment has been a source of concern for governments, international bodies, environmental stakeholders and individuals around the world.

Nigeria is not isolated from this widespread concern about sustainability of the environment and its entire ramifications. This concern becomes heightened as a result of increasing environmental degradation in the country. There is no doubting the fact that environmental degradation and poor sanitary conditions have affected Nigeria in recent years .These are particularly expressed in terms of environmental pollution, desertification, deforestation, and other negative environmental conditions.

The increasing concern for sustainable environment in Nigeria prompted the Federal Government, in 1988, to establish the Federal Environmental Protection Agency (FEPA) charged with the responsibility of safeguarding Nigerian environment. However, in 1999, the Ministry of Environment was created to absorb and takes over the functions of FEPA, with the additional responsibility of administering and enforcing environmental laws in Nigeria. Various organizations have also spearheaded polical activism and campaigns for changes in policies, laws, technologies, and development strategies to enhance environmental qualities (Ebong, 2001). It is however, disheartening that despite the concerted efforts of governments and non governmental organizations to address the issues of environmental degradation in Nigeria, the problem continues unabated.

Against the backdrop of seemingly intractability of environmental problems in Nigeria, this study examines the viability of using religion as a potent instrument to achieve sustainable environmental management in Nigeria.

II. CONCEPTUAL AND THEORECTICAL ISSUES

The concept of sustainable environment can simply be seen as involving the use of natural products and energy in a way that does not harm the environment. Sustainable environment is therefore, the balance between every component of environment – the human environment (the social, cultural, and economic environments) and the bio – physical environment (Wikipedia, 2009)

From the foregoing, sustainable environmental management, Is the one that recognizes the linkages between human-made and natural environment and integrates social, cultural, political, economic with environmental issues. By implication, sustainable environmental management is not the conservative of the environment solely for the environment's sake, but rather the conservation of the environment for humankind's sake (Wikipedia, 2009).

Religion, as a concept, has a considerably large number of definitions. All the definitions, however, emphasize certain aspect of religion and exclude others. While, some definitions tend to be too inclusive and too easy to qualify as a religion, others are too exclusive and too difficult to be passed for a religion.

In the words of Durkheim (1912) "Religion is a unified system of belief and practices relative to sacred things". From this definition, distinction is made between the sacred and the profane. Sacred objects produce a sense of awe, veneration and respect.Whereas, profane object do not. However, Robertson (1970) defines it in terms of supernatural belief "Religion refers to the existence of supernatural being that has governing effect on life". Spiro (1965) combines both supernatural element and institutional aspect of religion to define it as "an institution consisting of

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culturally patterned interaction with culturally patterned superhuman beings".

Although, none of the definitions given above is all embracing, it reveals, however, that religions comprise of sacred, supernatural and institutional elements. Thus, we can view religion as the system of culturally patterned faith that is based on the existence of god or gods (sacred or supernatural). From the foregoing, religion provides more general guidelines for action in the form of beliefs, values, and system of meaning which is necessary for value consensus, social order and collective conscience.

Every society or group evaluates the behaviour of its members as appropriate or otherwise through the widely conception about what is good, right or desirable, known as "value". The concept of value is conceived by Tukur (1999) as a conception of the desirable which influences or guides in the selection of one from any number of available means and end action. Schaefer (2004) also sees values as collective conception of what is considered good, desirable, and proper – or bad, undesirable, and improper – in a culture.

Deriving from above, it is logical to say that values influence people's behaviour and serve as criteria for evaluating the action of other. Religious value, therefore, can be explained as the conception of desirable, standards, or principles dictated by the belief system.

Having confirmed that religion is a cultural system, which provides more general guidelines for action in form of belief, values and system of meaning, it is pertinent to examine the perspectives of different scholars expressed in term of theoretical explanations on religion.

A variant of theories that exist on the nature and effects of religion are complex and contradictory. The scholars identified with each theory have convergence opinion on religion being an extremely important social variable.

The Functionalist sociologists such as Emile Durkheim and Talcot Parson examine religion in terms of society's need. Functionalists believe that society requires a certain degree of social solidarity, value consensus, and harmony and integration between its parts (Haralambus and Alburn, 2007). They, therefore, analyze religion primarily on the contribution it makes to the society. In the words of Durkheim (1912), values and moral beliefs that form collective conscience are central to the social life. In their absence, there would be no social order, social control, social solidarity or cooperation. Durkheim (1912) observes that religion reinforces the collective conscience by defining values and moral belief as sacred, thereby provides them with greater power to direct human action. He affirms that if religion has given birth to all that is essential in society, it is because the idea of society is the soul of religion.

Malinowski (1954) agrees with Durkheim (1912) that religion reinforces social norms and values but does not see religion as reflecting society as a whole, nor does he sees religious ritual as the worship of society itself. Like the previous scholars, Parsons (1964) believes that religion maintains social stability by relieving tension and frustration that could disrupt social order. According to him, the major function of religion is the provision of meaning to events that people do not expect or feel ought not to happen. By making sense of these frustrating and contradictory events, religion allows intellectual and emotional adjustments which ultimately promote order and stability in society. The works of Durkheim (1912), Malisnowski (1954) and Parsons (1964) represent the functionalist approach to the study of religion.

The Marxist perspective provides a sharp contrast to functionalist idea of religion. Central to Marxist theorists was the oppressive economic situation in which Karl Marx dwelt. Karl Marx viewed such elements as exploitation, objectification, and alienation as inherent elements in capitalism. It is on this basis that the Marxist theorists analyze religion

Marxists, like the Functionalists believe that religion acts as a mechanism of social control but they focus on its negative side. From their viewpoint, religion maintains the existing system of exploitation and reinforcing class relationship (Haralambus and Alburn, 2007).By "social control", the Marxist means "keeping people in their place". By this, religion does not simply cushion the effect of oppression, it is also an instrument of oppression which tends to discourage people from attempting to change their situation. In their analysis, the Marxist sees religion as the "opium of the masses" as it soothes and dulls the sense to the pain of oppression (Wikipedia, 2009)

Religion is also viewed by Marxist sociologist, as a justifier of social inequality. (Haralambus and Alburn, 2007). For instance, the lines from Victorian hymn "God made them high and lowly. And order their estate" shows how religion can make social arrangements appear inevitable. This makes those at the bottom of the stratification system to accept and come to term with their situations.

From whatever perspective religion is examined, one salient fact, that is very crucial to this study remains that religion can be the most powerful influence on the worldview, values, attitude, motivations, decisions, and behaviour of individuals, groups and societies for better or worse (Sponsel et all, 2007). Deriving from foregoing, the negative view, value, attitude, decision and behaviour of people towards environment can be altered through the powerful influence of religion.

I. Relevance of Religion in Environmental Issues

According to August Comte (1798 – 1857), human societies evolved through evolutionary processes of theology, metaphysical and positivistic (scientific). The course of scientific revolution, propelled by greed, has made man to become presiding deity of modern civilization which laid emphasis on the rights over obligations, particularly in the context of natural environment .The scientific research and development seemed to bring to the world technological superiority over nature. This development, no doubt, ignores the perennial wisdom of the world's spiritual traditions. The result is discernable dysfunctions in the form of environmental degradation which raises serious questions regarding the long term viability of modern society.

Unfortunately, all the technocratic, scientific solution to the problem of increasing environmental degradation could not yield any desirable results. The question now is what strategy can be formulated to protect our environment and keep it intact for future generation?

This question was answered by Sponsel et al (2007), while asserting that religion provides alternative ways of affording nature various cultural, cultural, moral, and spiritual meanings, and defining the place of humans in nature including how man should act towards non – human beings and other phenomena. This is because religion is grounded in the idea that nature as a whole is sacred, and or that particular spaces in nature are especially sacred.

The relationship between religion and environment gained relevance from the controversy generated by the famous article published in the "science" in 1967 by Professor Lynn White Jr. In this article, White affirms that western world attitudes were shaped by judeo – Christian traditions (with the inclusion of Islam and Marxian in the overall tradition). This tradition, according to White (1967), led to series of environmental crisis that bedeviled the planet today and was rooted in the concept of a world created solely for the benefit of man as entrenched in Genesis 1:28

"And God blessed them, and God said unto them, be fruitful, and multiply, and replenish the earth, and subdue it: and have dominion over the fish of the sea, and over the fowl of the air, and over every living thing that moveth upon the earth."

The controversy generated by this analysis stimulated the growth of the field of environmental ethics and ecotheology. This resulted in a sampling of discussions of viewpoints of various religions, as well as statements by some religion groups on environment.

A more affirmative approach to the relationship between religion and nature was the Assisi Declarations of 1986 (Sponsel et al, 2007), which brought together Buddhist, Christian, Hindu, Muslim and Jewish leaders, each to extract a viable environmental ethics from their faith. The Assisi Declarations rejected the idea that one religion is the cause of environmental crisis. Instead, they advocated that each religion may help resolve environmental problems for its followers. The world religion leaders agreed that religion is a more pluralistic, constructive, and pragmatic approach to solving intractable environmental crisis across the globe.

The place of religion in environmental management becomes prominent since 1980 through the growing dialogue among religions as well as between religions and sciences regarding the environment. This was despite centuries of recurrent mutual antagonisms. From the foregoing, it becomes obvious that substantial accomplishment have been accumulating in research, education, and action concerning the relationship between religion and nature. Accordingly, consideration of religion is very obvious, in the interest of environmental sciences, environmental studies, environmentalism and nature conservation.

II. Nigeria's Depreciating Environment

Nigeria has one of the worst environmental records in the world (Butler, 2008). The country has witnessed widespread social and environmental problems stemming from oil operations in the Niger Delta and has the world's highest deforestation rate having lost more than half of its primary forests in the last five years (Agagu, 2009).The combined effects of these and many other environmental features have resulted in a visible and alarming rate of degradation in its environment, causing great damage to the land and bringing sorrow and poverty to many Nigerians. The manifestations of environmental problems are as discussed below

III. Desertification

Desertification, the encroachment of the desert on land that was once fertile, is more pronounced in the northern part of the country (Omofonwan and Osa- Edoh, 2008).The states affected by desertification accounts for about 38% of the country's total land area (Agagu, 2009). In these areas, population pressure, resulting in overgrazing, over exploitation for fuel wood of mangrove land and aggravated drought due to global warming have accelerated the rate of desertification.

The reports from FORMECU (1997, 1998) show the increase in the total areas lost to sand dunes from 812 sq km in 1976 to 4829 in 1995. Desertification is a serious environmental problem which has led to famine, diseases, and destruction of crops, livestock and man.

IV. Pollution

Environmental pollution can be categorized into three groups: The air or atmospheric pollution, aquatic or water pollution and land pollution (Omofonwan and Osa- Edoh, 2008).However, municipal and industrial pollution constitute the two major sources of pollution in Nigeria. It is disheartening that most Nigerian cities lack proper solid waste management scheme and the monitoring of industrial waste is inefficient (Agagu, 2009)

Despite the low level of industrialization in the country, industrial waste pollution still poses a major threat to Nigerian environment. This is made manifest in the percolation of effluent from industrial process into public drains and rivers thereby contaminating the surface or ground water.

It is imperative to say that petroleum industry contributes a significant quota to Nigeria's environmental pollution. (Agagu, 2009). This is manifested in incessant oil pipeline spill incidents, equipment malfunctioning, corrosion of aged pipelines, sabotage of oil installations by militants and oil thieves.

V. Deforestation

Nigeria probably has the world's highest deforestation rate of primary forest today as half of its primary forest has been lost to deforestation in the last five years (Agagu, 2009)

In 2006, UNEP estimated the annual deforestation in Nigeria to have covered 663,000ha with an annual national deforestation rate of 0.76%. It also affirms that the

deforestation rate in southwestern geopolitical zone doubles that of national average.

The major cause of this problem is the rapidly growing population with attendant higher down for agricultural land, livestock production and fuel woods. The repeated cultivation of crops on cleared area of plant also plunders the forest and exhausts the soil and its mineral contents (Omiegbe, 1998)

The increasing global demands for agricultural developments, urban growth, industrial expansion, and pressure from increasing population have had profound impact on the deforestation in Nigeria. This has ultimately reduced the extent, diversity and stability of the Nigerian forest.

VI. Erosion

Erosion is one of the most critical environmental pollution affecting different parts of the country and this is particularly expressed in two types: soil erosion and coastal erosion.

Soil erosion is particularly severe in parts of the Nigeria underlain by sandy formation and are said to be prevalent in the states like Edo, Anambra, Imo, and Enugu. (Agagu, 2009). This problem is aggravated by such factors as increased agricultural activities, civil construction works, deforestation, bush burning, over grazing, drainage blockage, poor waste management, urbanization and increased population pressure.

On the other hand, coastal erosion is highly visible on Nigeria's coastline as 853km along Nigeria coastland are prone to coastal erosion (Agagu, 2009). This constitutes a series of ecological concern especially because a large percentage of Nigeria's population and economic activities are located within coastal zone.

Among the factors that influence coastal erosion in Nigeria, as identified by Agagu (2009) are (1) relatively flat coastal topography which restrain proper drainage, (2) climate change leading to rise in sea level, (3) reckless cutting down of mangroves which exposes the shoreline to increased energy and reduce sediment stability and (4) sand mining and dredging around beaches which depletes sand volume.

VII. Religion as Solution to Environmental Problems in Nigeria

The manifestations of various environmental threats to the overall developments of Nigerian society have attracted the attention of governments, non governmental organizations and individuals. For example, Federal government in its bid to tackle environmental problems in Nigeria established environmental regulatory bodies such as FEPA, ministry of environment e.t.c. It also promulgates various environmental laws and regulations such as FEPA Act of 1988, EIA Act of 1992, Harmful waste act of 1988 etc. various organizations have also embarked on political action and campaigns for changes in policies, laws, technologies and development strategies to enhance environmental qualities. Inspite of these efforts, there is not yet enough by way of concrete result indicating a drastic drop in Nigerian environmental problems.

In view of the foregoing, it becomes imperative that religious value be utilized as vital strategy to tackle the increasing environmental problems in Nigeria. As observed by Sponsel et al (2007), religion has the most powerful influence on the worldviews, values, attitudes, motivations, decisions and behaviour of individuals, groups and societies. Religion, therefore can serve as a moral compass in guiding the behaviours and actions of individuals and organizations towards the environment.

The three main religions in Nigeria: Islam, Christianity and African traditional religions have ethical values which favour the conservation of nature. This provides a paradigm upon which a viable environmental management can be attained in Nigeria.

Christian ethical values compel Christians to behave or act according to the dictates of the scriptures and in conformity with God's unchangeable moral values especially as it relates to the treatment of nature. The Bible's messages about the creation is very lucid and are discussed below

God's original creation is good "And God saw every thing that he had made, and, behold, it was very good". Genesis 1:31a.

Creation reveals God's character "For the invisible things of him from the creation of the world are clearly seen, being understood by the things that are made, even his eternal power and Godhead; so that they are without excuse" Romans 1:20

God values all creation "Are not two sparrows sold for a farthing? and one of them shall not fall on the ground without your Father." Mathew 10:29

All things depends on God's continuing care "And he is before all things, and by him all things consist"

All things belong to God "The earth is the LORD'S, and the fullness thereof; the world, and they that dwell therein"

From the foregoing, humanity must not plunder the creation because it reflects God's goodness, it is the revelation of god; it is what god values and it belongs to God.

What are the responsibilities of man to the nature? The Bible makes it clear that God bequeath unto man, the responsibility of earth keeping

"And the LORD God took the man, and put him into the Garden of Eden to dress it and to keep it" Genesis 2:15

Another bible verse put it that we are stewards of God's earth, ruling over which is not ours and of which we are going to give account.

"Thou madest him to have dominion over the works of thy hands; thou hast put all things under his feet: All sheep and oxen, yea, and the beasts of the field; The fowl of the air, and the fish of the sea, and whatsoever passeth through the paths of the seas". Psalm 8: 6 – 7

While it is true that God gave man dominion over all creations and made them subservient to man. However, Christians must treat nature as having value in itself, and must be careful to exercise dominion without being destructive. The Bible contains numerous examples of the care with which Christians are expected to treat the environment.

"Woe unto them that join house to house, that lay field to field, till there be no place, that they may be placed alone in the midst of the earth! In mine ears said the LORD of hosts, Of a truth many houses shall be desolate, even great and fair, without inhabitant. Yea, ten acres of vineyard shall yield one bath, and the seed of an homer shall yield an ephah" Isaiah 5:8 -10.

In this Bible verse, the Lord judges those who have misused the land. Furthermore, many of our environmental problems can be traced to man overindulgence and greed. The Bible warns on such greed and overindulgence

And he said unto them, Take heed, and beware of covetousness: for a man's life consisteth not in the abundance of the things which he possesseth." Luke 12:15

"Jesus said unto him, If thou wilt be perfect, go and sell that thou hast, and give to the poor, and thou shalt have treasure in heaven: and come and follow me" Mathew 19:21.

"But godliness with contentment is great gain" 1 Timothy 6:6

Like Christianity, Islam is built on ethical values which guide Muslims in their behaviour not only towards their fellow human being but also to the nature. Muslims derive their values and guidance through a fundamental source of Quaran while hadith serves as a source of some basic principles or standard of ethics.

The position of Quaran concerning the relationship between man and nature is clear. It is the responsibility of Muslims to treat nature with respect and reverence because it is God's creation (Sponsel et al, 2007). Humans are distinguished from animals by their capacity of reasons to moral choice. That is why they are entrusted and accountable as God's agents and stewards on earth. In other words, as part of God's creation, the human being has a special position as God's vicegerent (Khalifa) on earth.

"Behold, thy Lord said to the angels 'I will create a vicegerent (Khalifa) on earth'. They said 'wilst thou place therin one who will make mischief therein and shed blood?' Whilst we do celebrate Thy praises and glorify Thy holy name? He said ' I knopw what ye know not" Quaran 2:30

Environmental crisis reflect the failure of the trusteeship, thus nature becomes an index of how a well a particular society has performed its responsibility towards God.

Furthermore the Glorious Quaran made it known that God has made nature subservient (sakhkhara) to man. This gives man the potential to abuse to abuse nature. But man should also realize that this relationship is also to test man's gratitude towards God.

"It is Allah Who has subjected (sakhkhara) the sea to you, that ship may sail through it by His command, that ye may seek of His Bounty, and that ye may be grateful. And He has subjected to you, as from Him, all that is in the heavens and on earth: behold, in that are Signs indeed for those who reflect". Quaran 45:12-13

From these Quaranic verses, it is evident that all creations are for the use of mankind, however to show their gratitude to Almighty Allah, this must be done responsibly with as much consideration and kindness as possible.

While the attitude of Islam to environment, the sources of life, and the resources of nature is based in part on prohibition of abuse, it is also based on cultivation and sustainable development. This integration of the development and conservation of natural resources is clear in the idea of bringing life to the land and causing it to flourish through agriculture, cultivation and construction.

"The Earth is green and beautiful, and Allah has appointed you his stewards over it. The whole earth has been created a place of worship pure and clean. Whoever plants a tree and diligently looks after it until it matures and bears fruit is rewarded. If a Muslim plants a tree or sows a field and humans and beasts and birds eat from it , all of it is counted as charity on his part".(Hadith)

The African Traditional religion is also embedded with environmental ethics and morality. These are entrenched in their customs, traditional laws, taboo and traditions. For example, the Yoruba traditional religion recognizes and acknowledges God's divine lordship over the whole earth. They also believe that man is a tenant on God's earth (Idowu, 1978). The Yorubas believe that the creation is a wondrous work of God (Eledumare). This is clearly explained in the words attributed to Orunmila by the Yorubas.

"Orunmila fehinti, o wo titi
Oni, 'eyin ero okun,
Eyin ero osa,
Eyin o mo wi pe, ise Olodumare tobi."

VIII. Literally Translates

"Orunmila leaned back, gazing contemplatively, he said 'You travelers to the sea, you travelers to the lagoon, don't you perceived that the works of God are marvelous?"

The Yoruba believe that by respecting the nature, they are respecting the wondrous work of God. They also believe that all features in natures are created and placed for significant purposes. For instance, some of the natural features are to serve as abode for a category of divinities (Awolalu and Dopamu, 1979). The Osun groove in Osogbo, oke Ibadan in Ibadan and Olumo rock of Abeokuta are all being preserved because they serve as abode for some spiritual beings.

The Yoruba religion has always being regarded as environmental friendly religion. The religion has regularly involved in reforestation and preservation schemes and their shrines are protectors of nature. (Ogunade, 2009) The overall idea of this belief is that it creates healthy and beautiful habitats for human and spiritual beings.

The concept of nature in Yoruba religion regards humans, animals, plants, and non living beings as co – habitants. Therefore, human beings must be careful not to maltreat the nature in order to allow for a peaceful co – existence.

IX. Conclusion

The global environmental crisis is certainly as result of lack of self discipline of scientific knowledge propelled by greed. There is no doubt that the scientific knowledge disregards the perennial wisdom of the world's spiritual traditions while laying emphasis on rights over obligations particularly in the context of natural environment.

A cursory glance at Nigerian environmental profile presents a heartrending situation. Nigeria is confronted with enormous environmental challenges. For instance, Nigeria has been identified to have one of the worst environmental records in the world (Butler, 2008). Agagu (2009) also confirmed Nigeria to be one of the worst environmentally stressed region in the world. This abysmal record underlines Nigeria's vulnerability to environmental risks and lack of effective environmental management strategy to respond to the threats in a sustainable manner.

As effective environmental management in Nigeria remains elusive, this study has proved that religion provides the most viable means through which this could be achieved. The three main religions in Nigeria were examined to be rooted in environmental ethics and values which could be an all important solution to achieving sustainable environmental management in Nigeria.

Therefore, in their bid to solve the seemingly intractable environmental problems in the country, environmental managers and policy makers, governments, non governmental organizations, religious leaders and general public are advised to lay more emphasis on the religious value as it relates to sustainable environment. This will go a long way in formulating an effective and acceptable environmental management strategy in Nigeria.

X. References

1. Agagu, O.K. (2009) Threat to the Nigerian Environment: A Call for Positive Action Lecture Delivered at 7th Chief S.L. Edu Memorial Lecture (2009).
2. Awolalu, J. O. and P. A. Dopamu. (1979). West African Traditional Religion. Ibadan: Onibonoje Publishers.
3. Butler, J (2008) Nigerian environmental Profile. Retrieved from www.nigeriaworld.com on 20/12/2008.
4. Durkheim, E. (1912) The Elementary forms of Religious life. Free Press
5. Ebong, R.D. (2001), Appraisal of Knowledge and Attitude of Akwa Ibomites towards a Sustainable Environment in Nigeria National Institute of Environment Health science, 2001.
6. FORMECU (1998) The Assessment of Vegetation and land use changes in Nigeria between 1996/98 and 1993/95
7. Haralambus, J and M. Alburn (2007) Introduction to Sociology. N.Y.: McGraw Hill
8. Idowu, E. B. (1978). African Traditional Religion - A Definition. London: SCM Press Ltd. Malinoski. B (1954) Magic, Science, and Religion. Stanford : University Press.Marx, Karl M (1844). A Contribution to the Critique of Hegel's Philosophy of Right, Deutsch- Französische Jahrbücher,(February.)
9. Ogunade R.(2009) Environmental Issues in Yoruba religion.Retrieved from www.unilorin.edu.ng on 22/8/2009.
10. Omofonmwan, S.I and G. I . Osa-Edoh (2008)The Challenges of Environmental Problems in Nigeria. Journal of human Ecology 23 (1) Pp 53 - 57.
11. Omiegbe, O. (199) Bush burning and its effect in Africa: A case study of Nigeria. Benin: Journal of Environment Education, 1(1): 10-20 (1999).
12. Parsons, T. (1964) Social Structure and Personality.Free Press.Robertson R. (1970) Sociological interpretation of Religion. Schocken books
13. Schaefer, R.T (2004) Sociology: A brief Introduction 5th Edition. New York: McGraw Hill
14. Spiro M (1960) Religion in M.Bather (ed) Anthropological Approaches to the study of Religion. London: Tavistuck.
15. .Sponsel L.,E.P Leslie, Casagrande, D (2007) Religion, nature and environmentalism. In J. C. Cleveland (ed) Encyclopedia of Earth. Retrieved on 4/9/2007fromwww.eoearth.org/article/religion,nature and environmentism.
16. Tukur, M. (1999) Leadership and Governance in Nigeria: The Relevance of Values. London: Hudahuda/Hodder & Stoughton.
17. White Jr., L (1967) The Historical Roots of Our Ecological Crisis. Science .155 3767. Pp 1203-1207.
18. Wikipedia (2009) Sociology of Religion. (Retrieved on 24/10/2009 from"http://en.wikipedia.org/wiki/Sociology_of_religion)
19. Wikipedia (2009) sustainability (Retrieved on 24/10/2009 from"http://en.wikipedia.org/wiki/Sustainability"

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Plato's Feasible City: The Rational Use of Belief and Imagination in Politics

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Abstract - Plato"s perfect cities of the *Republic* and the *Laws* have often been criticized as utopias; that is, as unachievable cities. It is my argument that such a "utopian reading" is wrong. Plato"s best cities cannot be understood as utopias neither in the literary meaning of the word nor in the sense of theoretical projects of political recast. They must be seen as paradigms of feasible cities. To a broader extent, the conclusion of my argument is that, according to Plato, imagination and belief are constituent elements of a sound political rationality.

Keywords : *belief, city, imagination, Laws, paradigm, Plato, politics, Republic, utopia.*

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Strictly as per the compliance and regulations of:

Plato's feasible city: the rational use of belief and imagination in politics

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***Abstract*-Plato's perfect cities of the *Republic* and the *Laws* have often been criticized as utopias; that is, as unachievable cities. It is my argument that such a "utopian reading" is wrong. Plato's best cities cannot be understood as utopias neither in the literary meaning of the word nor in the sense of theoretical projects of political recast. They must be seen as paradigms of feasible cities. To a broader extent, the conclusion of my argument is that, according to Plato, imagination and belief are constituent elements of a sound political rationality.**

Keywords- belief, city, imagination, *Laws*, paradigm, Plato, politics, *Republic*, utopia.

I. Introduction

In the field of Platonic studies, the word "utopia" is often used to characterize both the literary genre to which the *Republic* and the *Laws* belong, and the essence of their political projects (Trousson 1975, Laks 1991, Bobonich 2002 and 2006, Schofield 2006, pp. 194-249). In these dialogues, Plato exposes the fundamental principles of a just society and government that some consider as unwanted, and others as perfect, but in both cases as impossible to achieve: according to them, a utopia, per definition, cannot exist in this world, as shown by the derogatory meaning of the word in expressions like "utopianism" or "utopian engineering" (Popper 1963, pp. 157-168). Even when some try to give it a positive meaning in subtle combinations like "utopian realism" (Schofield 2006, p. 203), it is always irresistibly understood as synonymous with irrelevance or failure to pass the test of reality.

This "utopian reading", however, is wrong if we refer to the letter of Plato's texts, and it results in a misunderstanding of the spirit of Plato's conception of political rationality. In order to prove this, I will deal first with utopia as a literary genre, and show that only the *Critias* belongs to this genre, but neither the *Republic* nor the *Laws*. Secondly, I will deal with utopia as a theoretical project of political recast, and underline that the "utopian readers" are mistaken about the ontological status of Plato's cities: they misunderstand the meaning and the function of its paradigmatic nature. At last, I will underline how and in what sense Plato makes his just cities achievable both by a peculiar conception of political rationality, and by a practical continuity between these cities and the empirical and imperfect cities where we are living

II. Utopia as a literary genre

The division between utopia as a literary genre and utopia as a political project is helpful to make my arguments clearer, but these two dimensions can merge in the same one text: literary utopias of course have a political meaning and can have some indirect practical effects, as they stimulate the imagination; theoretical utopias as projects of political recast can also be studied from a literary standpoint. The difference lies in the intention and the priority of the writer: literary utopias do not aim at practical implications first, while utopias as theoretical projects do not deal with formal and stylistic issues first.

A. A critical genre

The word 'utopia' was coined in the 15th century by Sir Thomas More. But utopia as a literary genre seems older: Plato is "usually considered as the true creator of the utopian genre, and this is true, but he is quite a special case" (Trousson 1975, p. 28). Plato is considered as the father of this genre because of the numerous references to his dialogues appearing in the works of his followers. For instance, Raphael Hythloday, More's interlocutor in Utopia, refers to Plato when he describes the Utopian customs; and the Genovese speaker in Tommaso Campanella's City of the Sun does the same. However, Plato "is quite a special case" because this so-called and "after the event" fatherhood is based on a misunderstanding. The utopian writers after Plato have found indeed their inspiration in the Republic and the Laws, but the true roots of the genre are to be found in the Critias (Trousson 1975, p. 28), if we are to rely on the definitions of utopia as a literary genre elaborated by various scholars. Let us consider two of them.

According to Trousson (1975, p. 24), the word "utopia" can be used "when a narrative (this excludes political treatises) describes a community (this excludes "Robinson Crusoe style" stories) organized according political, economic and ethical principles corresponding to the complexity of the society (this excludes reversed worlds, Golden Age or Arcadia descriptions); it can be represented either as an ideal to achieve (positive utopia) or as the prediction of hell (anti-utopia); it can be located in a real or an imaginary place, or in time; it can be described as the report of a fictitious likely or unlikely travel." According to other scholars (Negley & Patrick 1968, pp. 108-109), the utopian literary genre contains the three following features: it is fictitious, it describes a given community or State, and it focuses on its social and political structure.

In both cases, a literary utopia is a fiction excluding the conceptual approach of a political treatise. It does not expose the abstract reasoning justifying political or ethical principles on which the community rests: it rather

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exemplifies them in the concrete form they take in the institutions of this society. For instance, Raphael Hythloday illustrates how the Utopians hold precious metals in contempt with the following anecdote: "They eat and drink out of vessels of earth or glass, which make an agreeable appearance, though formed of brittle materials; while they make their chamber-pots and close-stools of gold and silver, and that not only in their public halls but in their private houses."[i] The explanation of this odd behaviour is that these metals are less useful than iron, which is indispensable for technical purposes. This explanation, however, just aims at lessening the strangeness of the anecdote. It does not give the anthropological or metaphysical grounds of such an inversion of ordinary values. Then, the function of the utopian narrative viewed as a literary genre is mainly critical. It is not an invitation to imitate and put into practice a socio-political structure based on abstract principles that would have been defined in the narrative, such as justice.[ii] It is rather designed to make readers aware of good and bad political and ethical aspects of their society by means of its gap with an imaginary state organized in a different way.

B. The Critias *as the only Platonic literary utopia*

Now neither the *Republic* nor the *Laws* corresponds to these definitions, due to three closely related causes. First, these dialogues are not narratives of a fictitious elsewhere, and they are still less travel narratives. In the *Republic*, the city "in speech"[iii] is built within a theoretical and conceptual frame, the subject of which is the ideal definition of justice. Having been defined at Book IV as "minding one's own business and not being a busybody"[iv], this principle serves as the abstract root of the three "waves", which are the conditions of possibility of the just city, exposed at Book V, as we shall see below. In the *Laws*, the laws of the city of Magnesia are inferred from ethical and political principles which have been explained in the first three books: the genuine lawgiver must establish laws making his city "free and wise and in friendship with itself".[v] In doing so, he or she respects and promotes the scale of values theoretically grounded at the very beginning of the dialogue.[9]

Secondly, and consequently, these dialogues do not offer any of the typical impressive and critical details of the utopian narrative. The city "in speech" of the *Republic* is just a sketch of constitution. In Book IV, Socrates and his interlocutors refuse to explore in detail the legislation of the city they are building: "most of the things that need legislation [i.e. the practical details of everyday life], the guardians will, no doubt, easily find for themselves."[vi] The same holds true for the education of these guardians – the dialogue just presents a sketch of it (*hupographèn*)[vii] – and for the whole city in general "that could never be happy otherwise than by having its outlines drawn (*diagrapseian*) by the painters who use the divine pattern."[viii] In the *Laws* as well, even if the legislation is much more detailed than in the *Republic*, the Athenian Stranger qualifies his discussion with his interlocutors as a "sketch (*hupographein*) of the laws of the constitution".[ix] The situation is the same in the various fields of the law mentioned in this dialogue. For instance, regarding criminal laws, the Athenian Stranger and his two interlocutors do not establish the nature and the amount of the penalties, they just give the spirit the future lawyers will have to abide by.[x] It is the judge's job to determine the nature of the sentence, "while the lawgiver, like a draughtsman, must give a sketch in outline (*hupographein*) of cases which illustrate the rules of the written code".[xi] Even when they mention definite sentences,[xii] the *Laws* do not give a full description of the concrete life of the Magnesians. They infer a consistent series of encouragements, prescriptions and sanctions from the set of ethical and political principles that have been rationally grounded in the first three books. Then, the details of the *Laws* are not of the same kind as those of the utopian narratives. Both kinds of details refer to universal principles by means of peculiar instances, but the former are the practical conclusions of a theoretical chain they help to figure out, while the latter are the anecdoctical motives of a polemical and critical attack. Plato's details and outlines correspond to the theoretical use of imagination, that is the rational creativity of the mind in search for the truth.

At last, the *Republic* and the *Laws* differ from the literary utopias by their function and scope. The evident polemical tone of these two dialogues[xiii] is secondary to their dialectical and practical scope. They both give the theoretical background required to elaborate the intelligible model of a possible, that is an achievable, city, as we shall see below. On the contrary, from the start, the fictitious dimension of the utopian narrative establishes a gap with the real world, and gives up any perspective of theoretical analysis, in favor of criticism and polemic against the contemporary world.

Among Plato's works, the *Critias* – the third dialogue of the trilogy including the *Republic* and the *Timaeus* – seems to be the only one that fits the standards of the utopian literary genre (Trousson 1975, p. 32). After the theoretical presentation of the principles or conditions of possibilities of the just city in the *Republic*, Socrates says at the very beginning of the *Timaeus* that he would like to hear someone "depicting in words our State contending against others in those struggles which States wage; in how proper a spirit it enters upon war, and how in its warring it exhibits qualities such as befit its education and training in its dealings with each several State whether with respect of military actions or with respect of verbal negotiations."[xiv]

After Timaeus' explanations about the nature of the universe, Critias, in the *Critias*, launches himself into an account of the population, geographical conditions, economy, and social and political organization of both Ancient Athens and Atlantis. The material conditions of the first city are advantageous to the limitation of the desires and appetites

Of its inhabitants; those of the second are beneficial to their increase. In this respect, these two descriptions are metaphorical of two opposite ways of life. For instance, to

take only one example of those suggestive details so typical of the utopian literary genre, there are elephants in Atlantis: "for there was an ample food-supply not only for all the other animals which haunt the marshes and lakes and rivers, or the mountains or the plains, but likewise also for this animal, which of its nature is the largest and most voracious."[xv] This voracity is precisely responsible of the moral and political fall of Atlantis.[xvi]

Contrary to the *Critias*, the *Republic* and the *Laws* are not utopias in the literary meaning of the word. They can be at most utopias in the sense of unachievable abstract political projects. But is that the case?

III. Utopia as a political project

A. *Is the just city a mirage?*

When it refers to a theoretical and abstract political project, utopia means, as its twofold etymology shows, a perfect ("*eu*-topia") socio-political world and, therefore, an inexisting ("*ou*-topia") world. Many scholars describe Plato's best cities as utopias in this twofold meaning, even if with some differences about the modalities and reasons for the inexistence of these cities. They all consider that a utopia can have no empirical translation, *de jure* or *de facto*. They can be divided into three main groups.

Of the first one, Karl Popper (1963) is the most representative member even if not the founder.[xvii] This group acknowledges that Plato was sincerely looking to contribute to the happiness of the human kind, but blames him for promoting blindly what they consider as a liberticidal political program, empirically exemplified, according to them, by the totalitarian regimes of the 20th century. They see the crimes perpetrated by these regimes as clear evidences against Plato's projects. These commentators consider that utopias in general, and Plato's ones in particular, are achievable *de facto* but unfeasible *de jure*. In the next section, I will discuss neither the value judgement of this interpretation nor its obvious anachronism, but its theoretical base that consists in considering Plato's just city as a program to be put into practice.

For the second group, a utopia is unachievable both *de jure* and *de facto*, and they think Plato agrees on this point. If he describes utopias, it is only in order to underline their limits and blind alleys. For these commentators and Plato, the so-called perfection of this kind of society is based on such extravagant, ridiculous and unnatural conditions that they can be but illegitimate and impossible. This interpretation is shared by Leo Strauss and his two disciples, Allan Bloom and Stanley Rosen. According to Strauss (1964, p. 127), in the *Republic*, Plato mentions all the required conditions to establish a perfect city; but as he knows they are impossible to achieve – "because the equality of sexes and absolute communism are against nature" – he shows

indirectly that political idealism, which pretends to achieve perfection in politics, is preposterous. Through the eccentric description of a so-called utopia, Plato in fact promotes anti-utopianism, for the sake of human kind. Bloom, for whom the abolition of the family in the group of the guardians is also unnatural in the *Republic* (1968, p. 369), sees Socrates as Aristophanes' challenger for the prize of best poetical critic of political utopias. In order to prove the superiority of philosophical persuasion on poetical persuasion, Socrates plays the role of a dramatist-philosopher and goes deep into absurdity with the three "waves", which are the basic conditions of the perfect city. Thus he shows that philosophy is funnier and harsher than comedy. His account of the just city, therefore, cannot be taken seriously. As to Rosen (2005, p. 244), he considers the obvious contradiction between the wisdom of the philosopher-king and the "Machiavellian" noble lie or suggestion of "killing" every citizen older than ten, as evidence of the impossibility of the philosopher-kings and then of the just city, *de facto* and *de jure* as well[22]

The last group, of a lesser importance, uses the term utopia in good part, as they consider it as a dimension of every consistent political theory. According to them, a utopia must not be seen as a program to be put into practice but as an alternative speculative direction created in order to cope with contemporary problems. In this perpective, M. Scholfield (2006, p. 203) speaks of Plato's "utopian realism". However, although this oxymoron softens the derogatory attack involved in the word "utopia" by the previous commentators, its meaning is ambiguous, for this word still implies that Plato's just cities are unachievable.

Despite their differences, these three interpretations share the same two grounds that the word "utopia" encapsulates: Plato's just cities are but pipe-dreams, with no ethical or ontological consistency, and they are therefore unachievable *de jure* or *de facto*. But both this so-called lack of consistency and its implications are wrong.

B. *The city in speech is not a utopia but the only true city*

In Plato's view, the city in speech is the only true city. The empirical cities are not real cities, as made clear in different passages of his dialogues.

In the *Republic*, Socrates tells Glaucon that the city in speech is the only one to be united, and therefore it is the only one that deserves the name of "city".[xviii] All the other ones, that is the cities in which we are currently living, are divided by several kinds of conflicts, the one between the rich and the poor being the most common. For lack of unity, they are not true cities.

The same holds true with the concept of political constitution or "*politeia*": the just or best city is the only true *politeia*. For, according to Socrates, "there is one form for virtue, and an unlimited number for vice", represented in politics by regimes like timocracy, oligarchy, democracy and tyranny.[xix] Even if Socrates uses the term *politeia* to refer to these regimes, they are only "bad and mistaken" forms of *politeiai*, as they do not match exactly the essence of a *politeia*.[xx] They are cities or *politeiai* only by honomyny, as Aristotle says in the *Categories*: they have the name of the thing, not its concept.[xxi] This is confirmed by the Eleatic Stranger in the *Statesman*: "all the other constitutions we are talking about [i.e. the empirical or existing ones] we must say not to be genuine, and not really

(*ontôs*) to be constitutions at all, but to have imitated this one [i.e. the genuine constitution, based on science]".[xxii] The ontological superiority of the just city over the other cities is shown here by the adverb *ontôs*: this term is usually used by Plato in the description of the intelligible Forms, as referring to their ontological fullness, contrary to sensible things that imperfectly participate in them and which are therefore less real, despite their empirical existence (Vlastos 1965). Even if there might be no Form of the just city, this adverb is an indication of its ontological superiority over the cities in which we are living.

The Athenian Stranger says more or less the same in the *Laws*. For him, democracy, oligarchy, aristocracy, monarchy and tyranny are not political regimes or constitutions (*ouk eisin politeiai*) but "arrangements of cities" (*oikèseis poleôn*), the names of which come from their predominant and ruling part. In these "arrangements of cities", the relation between the rulers and the ruled is one of servitude.[xxiii] Nevertheless, contrary to the *Statesman*, some empirical regimes such as those of Crete or Sparta are "true constitutions" (*ontôs politeiai*), because of their rational balance of freedom and servitude in the relations between the rulers and the ruled. What seems to be a concession to the ontological consistency of the empirical world is actually justified by the practical perspective of the passage, like in the *Republic*, as we shall see.

Ontological fullness is then the exclusive privilege of the just city in speech, which cannot be accused of inconsistency, contrary to what the word utopia implies. According to the usual definition of utopia, the two aspects – *ou*-topia and *eu*-topia – are two sides of the same coin: the perfect or ideal city (*eu*-topia) is an impossible city (*ou*-topia), precisely because of its perfection. On the contrary, in Plato's view, these two aspects must be separated: the city in speech is not a *ou*-topia because it is an *eu*-topia, a city whose nature is in keeping with what a city must be. In other words, the "utopian readers", focusing on the negative prefix "ou-" that dooms Plato's city to be but a pipe-dream, adopt a perspective opposite to his: for him, the perfect city is not a '*ou*-topia' because it is the only true city. The word utopia in this sense would be more relevant for the empirical cities, which are *ou*-topias precisely because they are '*dus*-topias', the prefix "dus-" meaning "bad" in Greek. They are not true cities because they are bad cities.

To consider the city in speech as a utopia is to infer its lack of essence from its empirical inexistence or the disasters it implies, while Plato separates these two aspects: the city in speech *is*, but it does not empirically exist. This is confirmed by the fact that it is a model or a paradigm.

C. A paradigm of the city

In the *Republic* and the *Laws* as well, Plato carefully elucidates the misunderstandings about the status of the city in speech. Of course, Glaucon is right when he asks if and how the city in speech can be achieved or not,[xxiv] for the relevance of philosophy in politics is at stake in this question (Schofield 2006, pp. 239-240), and in a broader extent, the relevance of rationality and theoretical argumentation in a field in which the many, like Thrasymachus,[xxv] consider the facts as the standards of every values and actions. But Glaucon's question – which is shared by some scholars (for instance Annas 1981, pp. 185 *sq*.) – also has its limits, for it overlooks the ontological status of the just city and its practical function, and the nature of Plato's political rationality. For to ask if and how the city in speech can be achieved implies to see Socrates as setting forth a political platform to be put into practice, as if he were an ordinary political speaker and leader, and it supposes an insuperable gap between theory and practice. Now these are precisely the ideas Plato rejects when he shows that the city in speech is a model or a paradigm, as made clear by many scholars (Burnyeat 2000, p. 298. Morrison 2007, pp. 234-235. Pradeau 2009, pp. 171 *sq*.)

As a matter of fact, Socrates says he has "create[d] in words the pattern (*paradeigma*) of a good state", like a painter who "draws a pattern (*paradeigma*) of what the most beautiful human being would be like and renders everything in the picture adequately but cannot prove that it's also possible that such a man come into being".[xxvi] He confirms later that the city "is a pattern (*paradeigma*) laid up in heaven for the man who wants to see and found a city within himself on the basis of what he sees".[xxvii] In the *Laws* too, referring to the most unified city in which everything is communal, the Athenian Stranger states: "Wherefore one should not look elsewhere for a model (*paradeigma*) constitution, but hold fast to this one, and with all one's power seek the constitution that is as like to it as possible".[xxviii]

By nature, a theoretical model cannot be reached empirically. The model of a city is not a city, just like the concept of a dog does not bark. The empirical realization of a model can be but an approximation of it, it can never reach the model itself: the just man is not similar to justice itself, he just looks like it and participates in it.[xxix] The fact that the just man and justice cannot "come into being", or that the city "cannot be realized in accordance with our words"[xxx], derives from their very natures as models or paradigms. For, as Socrates and the Athenian Stranger acknowledge, the truth of facts is inferior to the truth of speech:[xxxi] facts always contains a part of inescapable necessity and contingency that one must accept.

However, this does not lessen the value and function of the paradigm, nor those of the philosophical investigation at its source.[xxxii] A model is a practical and axiological norm. As it gives, as we have seen, the very nature of the thing, a paradigm aims at guiding the empirical achievement of the thing of which it is the model, as it provides its theorical conditions of possibility. It also serves as a standard for the evaluation of what has been realized in keeping with it, according to the degree of approximation. For instance, the portraits of the just man and of the unjust man enable us to know that "the man who is most like them will have the portion most like theirs".[xxxiii] The discrepancy between the model and what is achieved in keeping with it is inevitable, whatever the quality of the approximation. But this discrepancy is not an insuperable distance, since the nature

of the model is to show the good direction to be followed in practice.

Consequently, to infer, most often in a reproachful tone, that the just city cannot exist because of its paradigmatic dimension, and to characterize it as a utopia (*ou*-topia) is to be blind to the ontological superiority of the city in speech, to what a paradigm is and to Socrates' arguments about the relation between the model and the things that are built in accordance with it (Davis 1964, p. 397). It is precisely this "utopian reading" that simultaneously establishes and deplores the gap between theory and practice that makes it impossible to pass from the former to the latter. On the contrary, the function and the nature of a paradigm as a conceptual elaboration in speech consist in establishing their hierarchical and intelligible continuity – "it is the nature of acting to attain *less* truth *than* speaking"[xxxiv]– and in enabling one to act accordingly.

This paradigmatic status and function of the city in speech, however, is not enough to assure that its approximations are realizable, nor to totally rid it of the charge of utopia. One must prove besides that the fundamental condition of achievement of the paradigm is realizable itself, at least logically; that it makes sense to propel human action in its direction; and that such a movement can take place in the empirical cities where we live.

IV. A FEASIBLE CITY

The most precise arguments in favor of the feasibility of a city in keeping with the paradigmatic just city are located in two passages of the *Republic*: in the text known as the "three waves" at Book V; and indirectly at Book VIII with the intermediate psycho-political types between the aristocratic one and the tyrannical one. These two passages also define Plato's conception of political rationality.

A. The three "waves": the best and the feasible

To justify the actual possibility of an approximation of the just city requires two things. First, it must be proved that this approximation can logically appear, that its condition of possibility itself is possible. Secondly, it must be explained that living in such a regime is both desirable and reachable by human means.

Logically, these two things should be mentioned in that precise order. For would it not be useless to elaborate a perfect city without being sure from the start that it is reachable? To follow the reverse order would amount to building castles in the air, and acknowledging that those who blame Plato's utopianism are right. Now in the text known as the "three waves", Socrates precisely follows the reverse order. The first two waves deal with the way of life in the just regime, the second – the communism of wives and children – showing more specifically that it is the best way of life. It is only in the third wave that Socrates mentions the condition of possibility of the second wave and of the whole just regime. Why does Socrates follow this reverse order that might jeopardize the credibility of his political project?

The explanation is to be found in the practical perpective of this text, which is designed to avoid both the political quietism and the cynicism. As a matter of fact, according to Socrates, the ultimate condition of possibility of a city in keeping with the just city is the apparition of a genuine philosopher in the political sphere. This event is possible but its probability is very low: genuine philosophers are "few" (499 B4); and when one child gifted with the philosophical character appears in a family of political influence, he is doomed to the corruption that occurs almost inevitably in this kind of family (502 A8-B1). Exceptions can be found, logically, if one adopts the perspective of "the totality of time" (502 B1): in other words, they are very rare. The apparition of the just city, if not impossible, is difficult (499d4-7; 502c5-8).

Thus, as Socrates has to prove the realizability of the just city in order not to be considered as a daydreamer and his words as "mere prayers" (499 C4-5) or nonsense, he has no other alternative than to present the rareness of the philosopher after the arguments showing that this city is the best and the most desirable one. To begin with the low probability of the city would prevent his following arguments about its beauty from being received, and it would be discouraging also for those who would be ready to strive to come closer to it. For lack of an underlying desire for a better world, the purely theoretical rationality, which assures here the logical possibility of the city but acknowledges its low probability, is not enough to prompt people to act in favor of it. The meaning of this passage is clear: the foundation of political action consists in a rational belief in the possibility and utility of political action itself.

For this very reason, the whole passage of the three waves is pervaded by mentions of the confidence Socrates' interlocutors can have in his arguments, and of how far they can trust him. Socrates himself is reluctant to talk about the way of life of the guardians: he fears that his speech might "admit of many doubts (apistias). For it could be doubted that (apistoit'an) the things said are possible; and even if, in the best possible conditions, they could come into being, that they would be what is best will also be doubted (apistèsetai). So that is why there is

a certain hesitation about getting involved in it, for fear that the argument might seems to be a prayer" (450 C6-D2). Just after, he says that he is himself "in doubt (*apistounta*)" (450 E1). All these precautions are a way of stimulating the curiosity of his interlocutors, and of softening in advance the distrust his original speech might provoke. Glaucon assures him: "your audience will not be hard-hearted, or distrustful (*apistoi*), or ill-willed" (450 D3-4). Socrates can talk: Glaucon grants him the required trust to accept the seriousness of the three waves that are just ready to break.

The first wave (451 B-457 C) deals with the common education of men and women, and the similarity of the political functions they can hold in the just city. Socrates shows first that such a reform is possible (452 E-456 C), and then that it is the best (456 C-457 C). The first step is much longer than the second one because its persuasive function is more important. As a matter of fact, Socrates has to overcome the prejudice of those who find it ridiculous and

laughable that women might be practicing naked at the gymnasium, like men do. According to Socrates, such a prejudice is but the result of ignorance, as was the case with the Greeks in the past: they laughed at the Barbarians because they practiced naked, but they adopted this custom later as they eventually understood its advantages (451 D-452 E). With this concrete example of cultural relativism and its limits, Socrates wants to underline how fragile the prejudice he wants to destroy is, in order to prove analogically that his own proposition is possible and feasible: the prejudice of men against women is analogically similar with the prejudice of the Greeks against the Barbarians. And as the Greeks eventually followed a custom they had seen as barbarian at first sight, it is reasonable to think that men can eventually accept that women might be their equals. Because he argues that the nature of woman and the nature of man are the same if we see them from the standpoint of the required standard for political functions, that is intelligence, Socrates can prove that this prejudice is but ignorance. The similarity of nature allows the similarity of functions, and hence the similarity of the education needed for holding these functions: the women can pratice naked at the gymnasium (456 B 8-10). The ridiculous ones, consequently, are not those one would have thought at first, and such a change is good for the desirability of this first wave, as no one wants to be considered as an ignorant. After that, it is not very difficult for Socrates to show that his reform is the best for the city. The important thing in this wave is not simply the refutation of a wrong thesis but the denuciation of a prejudice, of a belief that prevents walking toward the just city, and its replacement by another belief, which is desirable, rational, feasible, and helpful to come closer to the best city.

Things are not so easy with the second wave, which prescribes that "all women [should] belong to all these men in common, and no woman [should] be living privately with any man. And the children, in their turn, will be common, and neither will a parent know his own off-spring, nor a child his parent" (V, 457 C10-D3). Contrary to the first wave, it is hard, not to say impossible, to reduce this wave to mere cultural or social prejudice: this reform seems to go against a sort of natural affective law. That is why Glaucon sees this wave as "far bigger than the other so far as concerns doubt both as to its possibility and its benefits" (V, 457 D4-5). For this reason, it is part of Socrates'strategy to pretend that only the realization of this reform is problematical (457 D 6-9), as if it were obviously desirable and therefore possible, while it is its desirability which is precisely problematical at first sight. As Glaucon urges him, Socrates eventually accepts to show how very beneficial and desirable it would be, supposing it were achieved (458 B 1-7). He first convinces his audience of its political value and utility – it is helpful for the unity of the city as it creates an affective community – in order to show how desirable it is. And thus, as the difference between the paradigm and its approximations has shown, what is helpful for the unity of the city is politically good even if it does not take the form of the community of women and children strictly speaking. After it has been labeled desirable, the second wave is now labeled possible.

The desire to see the realization of the just city depends on the reasons one has to believe in its possibility and its perfection. That is why Socrates deals with these two aspects – desirability and realizability – in the first two waves, even if he does not follow exactly the same order in both cases. This is the only way for him to design a desirable political perspective, before dealing with the last condition which, though necessary, might make the whole project more fragile, because of its low probability. Socrates follows this order – the first two waves first, and then their condition of possibility in the third wave – in order to produce a rational persuasion of the imagination, and good reasons to hope and act in favor of an approximation of the paradigm (Burnyeat 2000, p. 308). Although the low probability of the apparition of a philosopher-king reduces the possibility of approximating the paradigm, his theoretical possibility and the desirability of the whole paradigm, supported by the conviction and the impulse of the imagination awakened by the first two waves, can prompt people to act here and now in favor of it, or at least in order not to wander off the path to it. That is what we can see in the *Republic*, Book VIII.

B. Reforms for here and now

Despite the lack of a philosopher-king or a philosopher-queen, and the increasing corruption undermining the empirical political regimes and their corresponding citizens, as described in the *Republic*, Books VIII and IX, Plato considers men can avoid sinking into political quietism or cynicism. In other words, while we are waiting for an improbable but still possible philosopher-king, Plato promotes movements toward his best city, which is called the aristocracy, by preventing movements toward the worst city, that is the tyranny.

In order to make this possible, he proposes reachable actions to men and women. Such is the function of the intermediate steps between aristocracy and tyranny. They provide some concrete suggestions. For instance, in order to slow down the passage from timocracy to oligarchy, and to prevent the rich making the poor even poorer by granting them loans with interest, Plato suggests a law prescribing "that most voluntary contracts [should] be made at the contractor's own risks".[xxxv] In the democratic regime, he identifies a destructive permissiveness, that must be fought against with firmness in order to slow down the degeneration of the cities.[41]

Contrary to the claims of the "utopian readers", who introduce an anachronistic and insuperable break between theory and practice, Plato's just city is not supposed to appear *ex nihilo*, for it would be unachievable indeed (Pradeau 2009, p. 172). Far from this, Plato rather suggests to start from the current political context to make reforms towards the paradigm, or at least to slow down the degeneration of the empirical regimes.

V. Conclusion

The city in speech, therefore, is not a utopia. The "utopian readers" doom this city to be unachievable, and blame Plato for mistakes they make themselves. Plato's arguments in favor of the realizability of the city are designed to stimulate endeavours in the existing cities for a better, or at least a less bad, civic life. These arguments address the human barriers rather than the metaphysical bounds that prevent the realization of the just city (Burnyeat 2000). They show also that the first step toward it consists in a new conception of political rationality, that gives room to the creative dimension of imagination when it is guided by reason.

VI. References

A. *Plato's works*

1. *Critias*. *Timaeus*. *Plato in Twelve Volumes*, 9 (1925). Translated by W.R.M. Lamb. Cambridge: Harvard University Press. London: William Heinemann Ltd.
2. *Laws*. *Plato in Twelve Volumes*, 10 & 11 (1967 & 1968). Translated by R.G. Bury. Cambridge: Harvard University Press. London: William Heinemann Ltd.
3. *Plato's* Republic, *with an interpretive Essay* (1968). Translated by A. Bloom. New York & London: Basic Books.
4. *Plato*. *Statesman*. (1995). Introduction, translation and notes by C.J. Rowe. Warminster: Aris & Phillips.

B. *Commentaries on Plato*

1. Annas, J. (1981). *An introduction to Plato's* Republic. Oxford: Clarendon Press.
2. Bloom, A. (1968). *Plato's* Republic, *with an interpretive Essay*. New York, London: Basic Books, ,
3. Bobonich, C. (2002). *Plato's Utopia Recast his later ethics and politics*. Oxford: Clarendon Press.
4. Bobonich, C. (2006) [2002]. Plato on utopia. In *The Stanford Encyclopedia of Philosophy*. Retrieved March 6, 2010, from http://plato.stanford.edu/entries/plato-utopia/
5. Burnyeat, M. (2000). Utopia and Fantasy; the practicability of Plato's ideally just city. In G. Fine (Ed.), *Plato 2* (pp. 297-308). Oxford: Oxford University Press.
6. Davis, M. (1964). On the imputed Possibilities of Callipolis and Magnesia. *American Journal of Philology*, 85, 394-411.
7. Laks, A. (1991). L'utopie législative de Platon. *Les Études Philosophiques*, 417-428.
8. Morrison, D.R. (2007). The Utopian Character of Plato's Ideal City. In G.R.F. Ferrari (Ed.), *The Cambridge Companion to Plato's Republic* (pp. 232-255). Cambridge: Cambridge University Press.
9. Popper, K. (1963) (4th. ed. rev.). *The Open Society and its Enemies*. Princeton: Princeton University Press.
10. Pradeau, J.-F. (2009). *La Communauté des affections*. Paris: Vrin.
11. Rosen, S. (2005). *Plato's* Republic. New Haven, London: Yale University Press.
12. Schofield, M. (2006). *Plato*. Oxford : Oxford University Press.
13. Strauss, L. (1964). *The City and Man*. Chicago: Rand McNally.
14. Suolo, F. (2009, november). Replacing Utopia in Plato's Thought: Classical Definitions and a New Perspective. Article presented at the *VI Internatinal Meeting on Utopia: Ancient Utopía*, Madrid, Universidad Carlos III.
15. Vlastos, G. (1965). Degrees of reality in Plato. In R. Bambrough (Ed.), *New Essays on Plato and Aristotle* (pp. 1-19). London: Routledge & Kegan Paul.

C. *Other references on utopia*

1. Logan, G.M. (1983). *The Meaning of More's* "Utopia". Princeton: Princeton University Press.
2. Negley, G.R & Patrick, J.M. (1968). A Definition of 'Utopia'. In W. Nelson (Ed.), *Twentieth century interpretations of* Utopia*; a collection of critical essays* (pp. 108-109). Englewood Cliffs, N.J.: Prentice-Hall.
3. Trousson, R. (1975). *Voyages aux pays de nulle part. Histoire littéraire de la pensée utopique*. Bruxelles: Éditions de l'Université de Bruxelles.

VII. Notes

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2My translation.

[3] My translation.

[4] *Utopia*. Sir T. More [1516]. Retrieved March 4, 2010, from *The Project Gutenberg eBook*, H. Morley (ed.), http://www.gutenberg.org/files/2130/2130-h/2130-h.htm

[5] Mostly in the case of Thomas More who, despite appearances, does not seem to agree with many habits of the Utopians (Logan, 1983).

[6] *Rep*. II, 369 A5-6.

[7] *Rep*. IV, 433 A8 - B1.

[8] *Laws* III, 693 B3-4 et 701 D7-9.

[9] *Laws* I, 625 C - 632 D.

[10] *Rep*. IV, 425 C10-E2.

[11] *Rep*. VI, 504 D4.

[2] *Rep*. VI, 500 E2-4. See also VIII, 548 C9-D4.

[13] *Laws* V, 734 E5-6. The idea is the same at 737 D6-8; VI, 768 C3-D7, and more broadly 768 C-771 A.

[14] *Laws* XI, 934 B3-6.

[15] *Laws* XI, 934 B7-C2.

[16] See for instance VI, 774 A1-8 and IX, 877 B6-7.

[17]For instance the portrait of democracy (*Rep*. VIII, 555 B-558 C) and the limitations on trade (*Laws* VIII, 847 B-850 A; XI, 916 D-921 D) clearly attacks Athens.
[18]*Tim*. 19 C 3-7.
[19] *Crit.* 114 E8-115 A3.
[20] *Crit.* 121 A7- C5.
[21] About this trend of thinking, see Lane, M. (2001), *Plato's Progeny. How Socrates and Plato Still Captivate the Modern Mind*. London: Duckworth.
[22]Socrates does not say "to kill" but "to send out to the country all those in the city who happen to be older than ten" at the moment of its foundation, *Rep*. VII, 541 A1.
[23]*Rep*. IV, 422 E3-9.
[24] *Rep*. IV, 445 C5-6.
[24] *Rep*. V, 449 A2-3.
[25]*Cat*. 1 A1-2.
[26] *Stat*. 293 E2-5.
[27] *Laws* IV, 712 E9-713 A2.
[28] *Rep*. V, 471 C4-472 B2.
[29]*Rep*. I, 343 C1-344 C4.
[30] *Rep*. V, 472 D4-E2.
[31] *Rep*. IX, 592 B1-2.
[32]*Laws* V, 739 E1-3.
[33] *Rep*. V, 472 B6-C3. See also the previous quotation from the *Laws* for the idea of likeness.
[34]*Rep*. V, 472 D2; E3-4.
[35] *Rep*. V, 473 A1-4; *Laws* V, 745 E7-746 D2.
[36] *Rep*. V, 472 E3-5.
[37] *Rep*. V, 472 C9-D1.
[38] *Rep*. V, 473 A1-2. Italics are mine.
[39] *Rep*. VIII, 556 A9-B5.
[40] *Rep*. VIII, 558 A5-6.

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Correlates of Abuse Among Indian Adolescents in Rural Punjab

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Abstract - The present study comprising a sample of 310 adolescents from rural locations of Ludhiana district of Punjab state, was conducted to determine the correlates of abuse using a Personal Information Sheet, Self-concept Inventory and school records relating to academic achievement of the adolescents. Abuse among adolescents has been found to be associated with their birth-order, family income and family type. Significant differences are noted in the abuse among adolescents from joint and nuclear families. Mothers‟ education and occupation have also been found to be associated with abuse. A high degree of negative correlation has been observed between abuse and academic achievement of adolescents. Various preventive and remedial measures to check the menace of abuse among adolescents are suggested.

Keywords : *abuse, adolescents, correlates, rural.*

GJHSS Classification : *FOR Code : 160503,160509,160804*

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Correlates Of Abuse Among Indian Adolescents In Rural Punjab

GJHSS Classification – C (FOR) 160503,160509,160804

Sukhminder Kaur [1] Suman Verma[2]

***Abstract*-The present study comprising a sample of 310 adolescents from rural locations of Ludhiana district of Punjab state, was conducted to determine the correlates of abuse using a Personal Information Sheet, Self-concept Inventory and school records relating to academic achievement of the adolescents. Abuse among adolescents has been found to be associated with their birth-order, family income and family type. Significant differences are noted in the abuse among adolescents from joint and nuclear families. Mothers' education and occupation have also been found to be associated with abuse. A high degree of negative correlation has been observed between abuse and academic achievement of adolescents. Various preventive and remedial measures to check the menace of abuse among adolescents are suggested.**

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I. INTRODUCTION

Child abuse is a complex, cosmopolitan and longstanding problem. It exists in a variety of settings: at home, in school, society, workplaces and even religious places. It is more prevalent within the family (Anuradha and Rehman 1991); while family is expected to provide love, protection and nurturance to the child, still for some children family can be a source of violence, fear and pain because of various parental, familial and cultural practices. Predictive family background factors such as living in an apartment sharing with a stranger, constant fights and quarrels between family members, overcrowding, an income insufficient to meet family basic needs or others, unemployment, marital conflicts, frequent moves and extreme household disorganization lead to adoption of corporal punishment by parents (Pianta et al. 1989;Youseff et al. 1998). Moreover authoritarian and patriarchal style of parenting, cultural beliefs among various societies/communities where physical punishment is an acceptable means of controlling children may also indirectly set the stage for child abuse. Child abuse in the Indian context was defined by a committee formed at the National Seminar on Child Abuse in India, held under the aegis of National Institute of Public Cooperation and Child Development, New Delhi (NIPCCD 1988:10) as " Child Abuse and Neglect is the intentional, non-accidental injury, maltreatment of children by parents, caretakers, employers or others including those individuals representing governmental/non-governmental bodies, which may lead to temporary or permanent impairment of their physical, mental and psychosocial development, disability or death"The Child Abuse Prevention and Treatment Act 1974 of United States (PL 93-247) defines child abuse as "the physical or mental injury, sexual abuse, negligent treatment or maltreatment of a child under the age of 18 by a person who is responsible for the child's welfare under circumstances which indicate that the child's health or welfare is harmed or threatened thereby" (cited in Maurya 1996: 2). According to Parke and Collmer (1975) child abuse refers to any child who receives non-accidental physical injury as a result of acts and omissions on the part of his parents or guardians that violate the community standards concerning the treatment of children. Burgess and Conger (1978) also highlight child abuse as non-accidental physical and psychological injury. Burgess (1979:143) has, however, given a modified and wider definition of child abuse as "any child who receives physical and psychological injury as a result of acts and omissions on the part of his parents or guardians or employers". Kempe and Kempe (1978) have defined child abuse as a condition having to do with those who have been deliberately injured by physical assault. But this definition is limited in scope, for it restricts abuse to those acts which provide a diagnostic injury. The above definitions reflect the opinions of different authors regarding child abuse and there seems to be no standard definition of child abuse appropriate at cross-cultural levels. However, comparing commonalities among definitions of child abuse from 58 countries (cited in Krug et al. 2002: 59), the WHO Consultation on Child Abuse Prevention in the year 1999 drafted the definition as "Child abuse or maltreatment constitutes all forms of physical and/or emotional ill-treatment, sexual abuse, neglect or negligent treatment or commercial or other exploitation, resulting in actual or potential harm to the child's health, survival, development or dignity in the context of a relationship of responsibility, trust or power".

Estimates of prevalence of child abuse, are available for developed world; in the United States an estimated rate of physical abuse of 49 per thousand children has been obtained (Straus et al. 1998), at least one million children and young people are harmed each year in the United Kingdom (National Commission of Inquiry into the Prevention of Child Abuse 1996), 4.6 per cent children suffered from severe and frequent physical abuse, including being hit with an object, being burnt or being deprived of food in households in Romania (cited in Krug et al. 2002). In a cross- sectional survey of children in Egypt, 37 per cent reported being beaten or tied up by their parents; 26 per cent suffered physical injuries such as fractures, loss of consciousness or permanent disability (Youssef et al. 1998).

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In Ethiopia, 21 per cent of urban school children and 64 per cent rural school children reported bruises or swelling on their bodies resulting from parental punishment (Ketsela and Kedebe 1997) and in the Republic of Korea, two-thirds of the parents reported whipping their children and 45 per cent confirmed that they were hit, kicked or beaten (Hahm and Guterman 2001). Risk of physical punishment is greatest among parents from lower socio-economic status family background and whose own parents were controlling, restrictive and overprotective and use of harsh discipline by both parents has been found to be related to greatest adolescent depression and externalization behaviour (Bender et al. 2007; Sharma and Sandhu, 2006). Children who have been exposed to physical aggression during childhood have been reported to generate high risk of verbal and physical aggression towards their mothers in adolescence (Tremblay et al. 2004) and aggression from youth to parent is significantly occurs in families where parents are aggressive towards their children (Mahoney et al. 2009).

Researches have highlighted the existing problem of child abuse in Indian society also; however, due to the sensitivity of the issue and the paucity of adequate surveys, scientific studies and related statistics on the subject, the magnitude of the problem has not been assessed systematically and comprehensively. There is, thus, a need to plan detailed research studies that would help document the prevalence of abuse among children and adolescents in different settings. Moreover, research work in the area of child abuse has primarily confined itself to urban settings (Kewalramani 1996) and institutions/remand homes, that too in the area of child labour. In a country like India where more than 72 per cent people live in villages with a literacy rate of 59.4 per cent (Census of India 2001), any research study which does not include village as its unit, is not a true representation of the existing situation. Punjab has a rural population of 66.05 per cent (Census of India 2001). It was, therefore, considered worthwhile to conduct the study in the rural areas of the state where no prior work in this area exists.

Moreover, it is highly relevant to study abuse during the adolescent years which is the most sensitive period and the experiences during adolescence are likely to have indelible effects on later life as adults. Apart from physical development, adolescent years are also characterized by significant psychosocial development which has long lasting effects on the attitude and behaviour of adolescents. Hence, this study attempts to document the prevalence and correlates of abuse among adolescents since there is practically no information recorded as regards their abuse though the adolescents form a substantial part of Punjab population (18.93 %) with 53.35 per cent males and 46.65 per cent females (Census of India 1991).

These days, the media is playing a very significant role in highlighting the prevalence of abuse among children at home, in schools and at workplaces. Such information needs to be substantiated with empirical data on the issue and the documentation of correlates of abuse will provide greater insights into the life experiences of rural youth. In the light of the facts that little comprehensive work has been done in the area of abuse among rural adolescents, the present study aims to (1) To determine the correlates of abuse among adolescents such as age, gender, birth order, type and size of family, education, occupation and income of parents (2) To study the impact of abuse on certain individual factors such as academic achievement and self-concept (3) to suggest preventive/remedial measures to deal with adolescent abuse in family setting.

I. Method

The study was conducted in rural areas of Ludhiana district of Punjab state. Punjab, in the north-western corners of the country, is bound on the west by Pakistan, on the north by Jammu and Kashmir, on north-east by Himachal Pradesh and on south by Haryana and Rajasthan. The name Punjab is derived from two Persian words that is, 'Punj' meaning 'five' and 'ab' meaning 'water' since the erstwhile Punjab was the land of five rivers: Beas, Chenab, Jhelum, Ravi and Sutlej. Following partition of the country in 1947, Punjab was deprived of Chenab and Jhelum but the old name still continues and the language, culture and the typical Punjabi spirit persist and flourish.

II. Sampling procedure

One block (Ludhiana-1) out of 11 blocks of the district was selected by using simple random sampling technique. The Ludhiana-1 block forms the central part of the district with 63 villages spread over an area of 24889 hectares. Ten per cent of the villages were randomly selected for the study.

Following selection of the villages, visits were made to each village to contact the Sarpanch (village head), President Mahila Mandal (a women's organization), Incharge Anganwari (a village-level preschool), Headmaster/Headmistress of the village school (wherever applicable) to establish rapport with the villagers since it was not possible to collect information on such a sensitive issue without having prior contacts with the villagers and taking them into confidence. After comprehensive discussions with important persons of each selected village and educating them about the significance of conducting such a study, the households with the adolescents (both boys and girls) in the age group of 10 to 16 years were listed. A total of 2044 adolescents were identified belonging to different social strata (upper, middle and lower).

Systematic sampling technique was employed to obtain respondents as 1000 out of total of 2044 to assess the incidence of physical and emotional abuse among them using a Personal Information Sheet and a self-structured Assessment Proforma (Kaur 2004). The selected adolescents were personally interviewed and scored for physical and emotional abuse as per the scores given in the proforma. Among the selected subjects (with abuse score ranging from 20 to 195), 449 were females and the rest 551 were males. Mean of the total scores on physical and emotional abuse was calculated to be 97.36 with standard deviation at 37.13.

Correlation Coefficient for physical and emotional abuse was computed out to be 0.78 there by showing the positive correlation. For segregation of the abused adolescents, the

total sample was divided into three categories that is lower, middle and upper range of abuse by using the formula $\bar{x} \pm$ SD (mean ± standard deviation). Finally, a total of 310 adolescents falling in the upper range of abuse (score 116 to 155 and above) were segregated based on the formula $\bar{x} \pm .50$ SD (mean ± half standard deviation). After segregating the abused adolescents, correlates of abuse viz selected demographic variables, individual traits such as academic achievement and self-concept were studied.

III. Evolving a Culturally Relevant Definition of Child/Adolescent Abuse

The meaning of child abuse differs in various cultures and societies and hence there is no accepted universal definition of the abuse which fits in every situation. It was therefore, imperative to evolve a definition which better describe child/adolescent abuse in the context of present study relating to rural area of the state. For this purpose, a pilot study was undertaken in the selected villages to assess the awareness, perception and understanding of parents and adolescents with respect to abuse. Thirty families (5 from each selected village) representing different socio-economic strata and having adolescents falling in the age groups of 10-16 years of both sexes (boys and girls), were randomly selected and their opinions and that of their parents and grandparents regarding the use and relevance/irrelevance of various disciplinary techniques were sought. Based on the facts and opinions of adolescents and their parents, the abuse was defined as,

Acts committed by parents/caretakers with respect to the child which leave physical marks/scars on his/her body as well as the acts which do not leave any physical scars but are equally or more harmful to the child and keep him/her perturbed. Behaviours such as depriving the child of privileges (withdrawal of love, restrictions to play with friends etc.), scolding, verbal abuse, use of physical violence (leading to injuries such as bruises, wounds, bleeding, burns and fracture), attitude of parents towards problems of adolescents, lack of parental interest in child's activities; criticizing, rejecting, authoritarian, reluctant, blaming, discouraging and belittling attitude of parents were included under the domain of abuse.

Tools

Personal Information Sheet

Information relating to various demographic factors such as age, gender, birth order, type and size of family and number of siblings, education, occupation and income of parents was listed in a Personal Information Sheet.

School records for assessing academic achievement

Information relating to academic achievement of the abused adolescents was obtained from the school records of the last final examination taken.

Self-concept inventory

Self-concept inventory developed by Saraswat (1992) was administered to determine the self-concept of the rural adolescents after getting it translated into Punjabi from the original Hindi version. The inventory provides six separate dimensions of self-concept viz. physical, social, intellectual, moral, educational and temperamental and a total self-concept score. It comprises of 48 items. Each dimension contains 8 items and further each item has 5 options which are arranged in such a way that the scoring system for all the items will remain the same that is 5, 4, 3, 2, 1 whether the items are positive or negative. The summated score of all the 48 items provides the total self-concept score of an individual. A higher score indicates a high self-concept while a lower score hints at drlow self-concept. Reliability of the inventory is 0.91 for the total self-concept measure whereas it varies from 0.67 to 0.88 for its various dimensions.

IV. Data Collection

Data were collected in two phases through personal interviews and focus group discussions with the adolescents in primary and high schools of the selected villages. In the first phase, personal interviews of 1000 adolescents were conducted to determine the incidence of abuse among them. In the second phase, after segregating the final sample of 310 abused adolescents, information relating to correlates of abuse, academic achievement and self- concept, was collected in small groups. Information relating to academic achievement of the abused adolescents was obtained from the school records maintained by respective Heads/Principals.To collect required information, a strong rapport had to be established with the respondents which was really a challenging job. It was very tough to convince school Principals/villagers about the significance of the study and to make them to agree for interviewing their students since the issue was too sensitive and personal. The interviews had to be conducted as per the convenience of the students and school authorities due to which number of visits required swelled to 3 to 4 times than that was thought of while planning the study.

V. Data Analyses

Chi-square test was applied to find out the association of the abuse with selected demographic factors such as age, gender, birth-order, family type and size, education and occupation of parents and income of the family. Percentage of marks obtained by the adolescents were calculated to assess their academic achievement. Correlation analysis was performed to study the impact of abuse on certain individual traits of the adolescents that is academic achievement and self-concept.

VI. Results

Results pertaining to correlates of abuse have been discussed in this section under the following heads:

VII. Profile of the Respondents

Data contained in Table 1 presents the profile of the respondents. The sample comprised of adolescents in the age group of 10 to 14 years (62.26 %) and 14 to16 years (37.74 %). The percentage of the male and female adolescents were 53.87 and 46.13, respectively. Majority of the adolescents were third born and above and relatively

higher proportion (64.52%) of them belonged to nuclear families. Nearly sixty five per cent adolescents were from large size families with members six and above. Also, majority of the adolescents had three or more siblings. Approximately eighty per cent fathers and seventy per cent mothers were educated up to Matriculation and above. More than eighty per cent of the mothers were non-working. Fathers of the adolescents were engaged in different occupations such as farming, business, service and labour. Families of abused adolescents had monthly income ranging from < Rs. 1500 to > Rs. 7000; however, the maximum number of families had a monthly income not exceeding Rs. 3000.

VIII. Abuse among Adolescents and Selected Demographic Variables

Association of abuse with select demographic factors such as age, gender, birth order, family type, size, education and occupation of parents and family income, is presented in Table 2. The analysis of chi-square does not reveal association of abuse with age and gender of the adolescents; the values of chi-square being non-significant. However, It is also obvious from the data that abuse among the adolescents is associated with their birth-order (ordinal position); the value of chi-square has been calculated to be significant $\{\chi^2 (4) = 9.75; p<.05\}$. Significant differences are noted in abuse among adolescents having different ordinal position.

Family type is also found to be associated with abuse among adolescents (Table 2). The value of chi-square has been computed to be highly significant $\{\chi^2 (2) = 9.37; p<.01\}$. Hence, significant differences are noted as regards abuse among adolescents from joint and nuclear families. However, family size is not found to be associated with abuse among adolescents as is evident from a perusal of chi-square values.

Mothers' education has been found to be associated with abuse whereas no association emerged with respect to fathers' education (Table 2). The values of chi-square are computed to be significant for mothers' education $\{\chi^2 (4) = 12.77; p<.05\}$ and non-significant with respect to fathers' education. Magnitude of abuse among adolescents varies significantly with educational level of the mothers, whereas no significant differences are registered with respect to the fathers' educational level.

Data contained in the Table 2 also highlight the association between abuse and occupation of parents. Chi-square analysis reveals an association between mothers' occupation and abuse among adolescents whereas no association emerged between fathers' occupation and the abuse. The values of chi-square are found to be highly significant $\{\chi^2 (2) = 10.01; p<.01\}$ for mothers' occupation and non-significant with respect to fathers' occupation. There are significant differences in the prevalence of abuse among adolescents with working and non-working mothers. Occupation of fathers, however, does not have any significant relationship with the abuse among adolescents. Income of the family has also been found to be associated with abuse among adolescents. The value of chi-square has been worked out to be highly significant $\{\chi^2 (8) = 49.79; p<.001\}$. There are significant differences in the magnitude of abuse among adolescents from families with varying income levels.

IX. Correlation of Abuse with Academic Achievement and Self-Concept of Adolescents

Correlation of abuse with individual traits of the adolescents viz academic achievement and self-concept is highlighted in this section:

A. *Academic achievement*

Correlation analysis was computed to determine relation between abuse and academic achievement of the adolescents. A significant negative correlation between scores of academic achievement and cumulative abuse (physical and emotional) among adolescents is evident from Table 3 ($r = -.96$; $p < .001$). Similarly an analysis of correlation coefficient for physical and emotional abuse separately, reveals a negative correlation between scores on the academic achievement and physical and emotional abuse among adolescents. The values of correlation coefficient were calculated to be highly significant (physical, $r = -.89$, $p < .001$; emotional, $r = -.44$, $p < .01$). Academic achievement of the abused adolescents has been found to be negatively affected with the increase in the level of abuse. A similar trend of negative correlation between abuse and academic achievement was observed among male and female adolescents separately (Table 3); the academic achievement of both male and female adolescents was negatively affected with increased level of abuse.

B. *Self-concept*

A negative correlation was recorded between scores on self-concept and cumulative abuse among female adolescents (Table 4). The value of correlation coefficient was found to be significant ($r = -.20$; $p<.05$). The scores on the physical abuse also indicate a significantly negative correlation with self-concept among female adolescents ($r = -.17$; $p<.05$). However, scores on the emotional abuse among female adolescents do not reveal any significant correlation with self-concept. But the differences emerge in various dimensions of self-concept; physical dimension of self-concept is determined to be negatively correlated with the emotional abuse among female

adolescents; the value of correlation coefficient being significant ($r = -.19$; $p < .05$). There is also significantly negative correlation of physical and cumulative abuse with the third dimension of self-concept relating to temperament among female adolescents (physical abuse, $r = -.27$; $p < .01$ and cumulative abuse, $r = -.24$; $p <.01$). Another dimension of self-concept which is found to be negatively correlated with emotional and cumulative abuse among female adolescents relates to education. The values of correlation are found to be significant for emotional abuse ($r = -.17$; $p < .05$) and cumulative abuse ($r = -.18$; $p <.05$). The self-

concept of male adolescents has, however, not been found to be correlated with abuse (Table 4).

X. Discussion and Conclusions

A. *Demographic Factors*

Inferences drawn from the present study indicate that abuse among adolescents is associated with the type of family. It is however, prevalent in both joint and nuclear families but more pronounced in the nuclear families (Table 2). Over the years, the family structure has changed; nuclear families are replacing the joint families which is also evident from the sample of present study where out of 310 families, 200 were the nuclear families and rest 110 being joint families. In a nuclear family, the child is more in parents' contact and hence there are more of conflicting situations resulting in his/her abuse. However, in a joint family, parents' problems are shared by other family members and hence the child is likely to escape the outlet of parental stress in the form of abuse.

Khanna (1987), however, opines that both nucleated and extended families exhibit high rate of battering and number of children in the family may not be associated with the battering. It is very difficult to conclude that small families in comparison to larger families are free from child battering. Results of the present study also do not show any significant differences as regards the abuse among adolescents from small and large families. As per the record of the United States Department of Health and Human Services (1981), the only child in the family is likely to suffer more from emotional abuse whereas four or more children in a family experience more of physical, emotional and sexual abuse. Findings of several other studies point out that children in the larger families are more subjected to physical abuse/violence (Gil 1970; Park and Collmer 1975; Straus et al. 1980; Jaya and Narasimhan 1999). However, overall rate of violence towards children is somewhat higher for one-child families.

An association between abuse and mothers' education and occupation has also been revealed in the present study. Mothers educated up to Matriculation or below/illiterate, exercised more of punishment against the adolescents as compared to those with educational qualification above Matriculation. This may be attributed to the fact that mothers having education above Matriculation, are more aware and conscious about better child rearing practices and hence the least abusive. Maurya (1996) also records that illiterate and less educated parents believe more in physical punishment of their children. Observations of Gil (1971) that education of the child abusers are lower than those of general public, are also in line with the results of this study.

Mothers' occupation has also been found to be associated with abuse. Non-working mothers are determined to be more punitive than the working ones. This may probably be due to the fact that being at home they are more in contact with their wards. Moreover, in our culture, it is the mother's responsibility to care for children compared to fathers and hence more likelihood of conflicting situations between mothers and children.. Some other researchers also agree that non-working mothers are more likely to be abusive (Chapa et al. 1978; Korbin cited in Mahajan and Madhurima 1995). Prasad (2001) also reports that non-working mothers are more punitive than working mothers. Contrary to this, a few other researchers opine that physical abuse is more among the working mothers because of the irritation resulting from day long stress (Galstone 1965; Mahmood 1978). Working mothers are more prone to use overall violence towards children whereas non-working mothers are more abusive and more likely to use severe form of violence (Prasad 2001). Further, working mothers are more punitive towards teenage group (15-18 years) as compared to non-working mothers. However, Gelles and Hargreaves (1981) state that whether a mother works or not, it has no direct impact on her chances of abusing her child.

The current study also shows association of abuse with the family income and abuse has been found to be more prevalent among adolescents from the poor families (low family income) due to more of financial stress. Garbarino (1976) also notes that economic stress and inadequate resources, undermine the functioning of parents, particularly mother and out of such stress emerges child abuse. Moreover young mothers from low socio-economic status families are more likely to use harsh parenting measures with their children (Lee 2007).

B. *Academic achievement*

Academic achievement of the adolescents is influenced by both the family and school environment. In the present sample, the academic achievement of abused adolescents was found to be negatively correlated with abuse (both physical and emotional); the primary reasons being non-comprehension of the lessons taught at school and failure to complete the school work required to be done at home. Some adolescents confessed that they feared going to school when their parents could not make them available the required text books and fee in time or they could not be provided with proper school uniforms due to financial constraints. Uncongenial home environment due to various family related factors is also likely to disturb the adolescents emotionally leading to their poor academic performance. Apart from this, various household jobs may also overburden the adolescents which ultimately affect their academic performance at school. All this generates frustration among adolescents and sometimes they would not reach school even after leaving their homes in time and would rather sit on the way the whole day long and then return to their homes after the school timings are over; this practice adversely affect their academic achievement. Kewalramani (1992) also analyzed a child's own evaluation of his/her performance at school and found that a high per centage of children (75 %) who are physically and emotionally abused, feel that they are weak at studies and/or have to make more than one attempt to pass the examination. Earlier research has also pointed that the abused school children suffer from learning disabilities, retarded intellectual development and academic failure (Sandgrund *et al.* 1975). In another study by (Prabhakar 2003) also, a negative correlation between academic

performance and abuse among adolescents has been established.

C. *Self-concept*

Self-concept may be defined as conscious, cognitive perception and evaluation by individuals of themselves; it is their thoughts and opinion about themselves (Rice 1984). Adolescents' self-concept and self-esteem are important for their optimum mental and social development. Adolescents with low or inadequate self-concept manifest internal conflicts and anxiety which consequently affect their interpersonal relationships. Therefore, development of adequate self-concept is of paramount significance.

The abuse is known to result in poor self-concept among the children and they develop a negative view of themselves (Kinard 1980). The present study has also highlighted a negative correlation between the scores on self-concept and abuse among female adolescents. Female adolescents exhibit a negative self-concept with respect to the physical abuse. A negative correlation between scores on emotional abuse and a physical dimension (individual's view of their body, health, physical appearance and strength) of self-concept among the abused female adolescents, was also noted. An inherent higher sensitivity and vulnerability of the girls coupled with low parental affection may be the cause of low self-concept among them. So is the case with the temperamental state and moral dimension of the self-concept. Kewalramani (1996) also reveals that child's self-esteem is devalued by his/her abuse. Moreover, family matters are considered to be internal affairs and sorted out within the family. Parents/caretakers never like to disclose the occurrence of child abuse to the outsiders to avoid interference. Therefore the child is traumatized and in number of cases lives with low esteem.

XI. Preventive and Remedial Measures to Check Adolescent Abuse

- As a measure to check abuse, the abusive parents/caretakers need to be acquainted with effective child rearing techniques to improve upon their parenting skills and disciplinary strategies and to enrich their overall ability to cope with the stressful life events in a non-damaging way so as to ensure congenial abuse-free family environment for their children.
- Village level functionaries should be trained in this respect, because being in constant touch with the parents, they can help them handle the abusive situations effectively.
- Child guidance and counseling facilities should be made accessible to parents and would-be-parents so as to enable them to discuss their children's problems.
- Preventive and remedial measures relating to the abuse should be highlighted through mass media (newspapers, magazines, radio, television, documentary films, training programmes, seminars etc.) to promote greater understanding of child abuse and its impact on mental and physical health of children.
- Parents/caretakers, social workers and concerned functionaries of government and non-government organizations must also be made aware of child's rights and various measures to protect them from cruelty, abuse and exploitation. Children are also required to be acquainted with their own rights and self-worth so that they can avoid abuse or seek assistance if they are at risk of abuse. They should be equipped with sufficient knowledge and skills to tackle the abusive situations appropriately.

Research in the area of adolescent abuse is deficient as regards its documentation throughout the length and breadth of the country. Scant studies made here and there, do not give a comprehensive picture of the actual situation. There is a dire need to conduct longitudinal study in the area of abuse right from the birth of the baby till the end of adolescence/attainment of adulthood in a particular setting, for better comprehension of the developmental effects of the abuse.

XII. References

1. Anuradha, B. S. & Rehman, L. (1991). 'An attitude survey of parents towards child abuse' (pp. 1-18). Bangalore: National Institute of Public Cooperation and Child Development, Southern Regional Centre.
2. Bender, H. L., Allen, J.P., Mc Elhaney, K. B., Antonishah, J., Moore, C. M., Kelly, H.O.and Davis, S.M., (2007). Use of harsh physical discipline in children and developmental outcomes in adolescence. Developmental Psychopathology, 19(1): 227-242.
3. Burgess, R. L. (1979). 'Child abuse: a social international analysis.' In Advances in Clinical Child Psychology (Vol. 2) (pp. 141-172). New York: Plenum Press.
4. Burgess, R. L. & Conger, R. D. (1978). 'Family interaction in abusive, neglected and normal families.' Child Development, 49 (3-4): 1163-1173.
5. Census of India (1991). 'Socio-cultural Tables.' Series 20, Punjab: Directorate of Census Operations.
6. Census of India (2001). 'Provisional population totals: Population data sheet.' Punjab: Directorate of Census Operations.
7. Chapa, D., Smith, F., Rindson, F., Valdez, R. & Cripps, T. (1978). 'The relationship between child abuse and neglect and substance abuse in a predominantly Mexican-American population.' In R. J. Gelles (Ed.). Family Violence. New Delhi: Sage Publications.
8. Galston, R. (1965). 'Observations on children who have been physically abused and their parents.' American Journal of Psychiatry, 122 (4): 440-443.

9. Garbarino, J. (1976). 'A preliminary study of some ecological correlates of child abuse: The impact of socioeconomic stress on mothers.' Child Development, 47 (1-2): 178-185.
10. Gelles, R. J. & Hargreaves, E. (1981). 'Maternal employment and violence towards children.' Journal of Family Issues, 2, 509-530.
11. Gil, D. G. (1970). Violence against children: Physical abuse in the U. S. Cambridge, MA: Harvard University Press.
12. Gil, D. G. (1971). 'Violence against children.' Journal of Marriage and Family, 33, 637-648.
13. Hahm, H. & Guterman, N. (2001). 'The emerging problem of physical child abuse in south Korea.' Child Maltreatment, 6, 169-179.
14. Kempe, R. S. & Kempe, C. H. (1978). Child Abuse. London: Fontana.
15. Ketsela, T. & Kedebe, D. (1997). 'Physical punishment of elementary school children in urban and rural communities in Ethopia.' Ethopian Medical Journal, 35, 23-33.
16. Kewalramani, G. S. (1992). Child abuse: A sociological study of working and non-working children. Jaipur, India: Rawat Publications.
17. Kewalramani, G. S. (1996). 'Child Abuse: A system analysis.' Indian Journal of Social Work, 57 (1-4): 396-413.
18. Khanna, S. (1987). Social correlates of child battering. Master of Philosophy thesis. Panjab University, Chandigarh.
19. Kinard, E. M. (1980). 'Emotional development in physically abused children.' Journal of Orthopsychiatry, 50, 686-696.
20. Krug, E. G., Dalberg, L. L., Mercy, J. A., Zwi, A. B. & Lozano, R. (2002). 'Child abuse and neglect by parents and other caregivers.' In World report on violence and health (pp. 57-81). Geneva: World Health Organization.
21. Lee, Y (2007). Early motherhood and harsh parenting: The role of human, social and cultural capital. Child Abuse and Neglect. 33(9): 625-37.
22. Mahajan, A. & Madhurima (1995). Family violence and abuse in India. New Delhi: Deep and Deep Publications.
23. Mahmood, T. (1978). 'Child abuse in Arabia, India and the West-comparative legal aspects.' In J. Eekelaar and S. Katz (Eds.). Family violence: An international and interdisciplinary study. Tronto: Butterworth.
24. Mahoney, A. Boxer, P., & Giella, R.L. (2009) Adolescents physical aggression towards parents in clinic- referred sample. Journal of Clinical Child Adolescent Psychology, 38 (1): 106-161
25. Maurya, M. R. (1996). Child abuse in urban settings. Lucknow, India: University of Lucknow.
26. National Commission of Inquiry into the Prevention of Child Abuse (1996). Childhood matters: The report of the national commission of inquiry into the prevention of child abuse (Vol. 1). London: Her Majesty's Stationery Office.
27. NIPCCD (1988). 'Child abuse in India: Report of a national seminar.' New Delhi: National Institute of Public Cooperation and Child Development.
28. Parke, R. D. & Collmer, C. W. (1975). 'Child abuse: An interdisciplinary analysis.' In Hetherington (Ed.). Review of Child Development Research (Vol. 5) (pp. 509-589). Chicago: University of Chicago Press.
29. Pianta, R. C., Egeland, B. & Erickson, M. F. (1989). 'The antecedents of maltreatment: Results of the mother-child interaction research Project.' In D. Cicchetti & V. Carlson (Eds.). Child Maltreatment (pp. 203-253). New York: Cambridge University Press.
30. Prabhakar, V. P. (2003, March 18). 'Violence, bullying rampant in schools, says study.' The Tribune, p. 13
31. Prasad, B. D. (2001). 'Maternal employment and child abuse.' The Indian Journal of Social Work, 62 (3):328-346.
32. Rice, F. P. (1984). The adolescent development, relationships and cure. Boston: Allyn and Bacon, Inc.
33. Sandgrund, A., Gaines, R. & Green, A. (1975). 'Child abuse and mental retardation: A problem of cause and effect.' American Journal of Mental Deficiency, 79 (3): 327-330.
34. Saraswat, R. K. (1992). Manual for self-concept questionnaire (SCQ). Agra: National Psychological Corporation.
35. Sharma, V. & Sandhu, G. K. (2006) A community study of association between parenting dimensions and externalizing behaviour, Journal of Indian Association of Child Adolescent Mental Health, 2(2): 48-58.
36. Straus, M. A., Gelles, R. J. & Steinmetz, S. K. (1980). Behind closed door: Violence in the American family. New York: Anchor
37. Straus, M. A., Hamby, S. L., Finkelhor, D., Moore, D. W. & Runyan, D. (1998). 'Identification of child maltreatment with the parent-child conflict tactics scales: Development and psychometric data for a national sample American parents.' Child Abuse and Neglect, 22 (10):249-270.
38. United States Department of Health and Human Services (1981). Study findings: National study of the incidence and severity of child abuse and neglect. DHHS, Publication No. (OHDS) 8130325, pp. 22-56.
39. Youssef, R.M., Attia, M. S. & Kamel, M. I. (1998). 'Children experiencing violence: Parental use of corporal punishment.' Child Abuse and Neglect, 22(10): 959-973

Table 1 Background characteristics of adolescents from the selected villages in Ludhiana district of Punjab state (N = 310)

Characteristics	Frequency	Per cent
Age (Years)		
10-14	193	62.26
14-16	117	37.74
Gender		
Male	167	53.87
Female	143	46.13
Birth order		
First	81	26.13
Second	99	31.94
Third and above	130	41.94
Family type		
Joint	110	35.48
Nuclear	200	64.52
Family size		
Small(5 and below)	109	35.16
Large(6 and above)	201	64.84
Number of siblings		
One	55	17.74
Two	119	38.39
Three and above	136	43.87
Education of parents		
Mother		
Illiterate	99	31.94
Up to Matric	165	53.23
Above Matric	46	14.84
Father		
Illiterate	56	18.06
Up to Matric	236	76.13
Above Matric	18	5.81
Occupation of parents		
Mother		
Working	58	18.71
Non-working	252	81.29
Father		
Business	92	29.68
Service	96	30.97
Farming	58	18.71
Labour	64	20.65
Family Income / month		
<1500	46	14.84
1501-3000	104	33.55
3001-5000	62	20.00
5001-7000	42	13.55
>7000	56	18.06

Table 2
Association of abuse among adolescents with demographic variables (N = 310)

Variable	Abuse level				Chi-square (χ^2)
	Moderate	High	Severe	Total	
Age (years)					
10-14	93 (30.00)	58 (18.71)	42 (13.55)	193	1.24
14-16	64 (20.65)	31 (10.00)	22 (7.10)	117	
Gender					
Male	82 (26.45)	54 (17.42)	31 (10.00)	167	2.59
Female	75 (24.19)	35 (11.29)	33 (10.65)	143	
Birth-order					
First	40 (12.90)	24 (7.74)	17 (5.48)	81	9.75*
Second	51 (16.45)	20 (6.45)	28 (9.03)	99	
Third and above	66 (21.29)	45 (14.52)	19 (6.13)	130	
Family type					
Joint	59 (19.03)	21 (6.77)	30 (9.68)	110	9.37*
Nuclear	98 (31.61)	68 (21.94)	34 (10.97)	200	
Family size					
5 and below	58 (18.71)	30 (9.68)	21 (6.77)	109	0.45
6 and above	99 (31.94)	59 (19.03)	43 (13.87)	201	
Mother's Education					
Illiterate	40 (12.90)	32 (10.32)	27 (8.71)	99	12.77*
Up to Matric	97 (31.29)	38 (12.26)	30 (9.68)	165	
> Matric	20 (6.45)	19 (6.130)	7 (2.26)	46	
Father's Education					
Illiterate	26 (8.39)	17 (5.48)	13 (4.19)	56	5.08
Up to Matric	126 (40.65)	65 (20.97)	45 (14.52)	236	
> Matric	5 (1.61)	7 (2.26)	6 (1.94)	18	
Mother's Occupation					
Working	40 (12.90)	12 (3.87)	6 (1.94)	58	10.01**
Non-working	117 (37.74)	77 (24.84)	58 (18.71)	252	
Father's Occupation					
Business	50 (16.13)	27 (8.71)	15 (4.84)	92	7.49
Service	39 (12.58)	33 (10.65)	24 (7.74)	96	
Farming	35 (11.29)	12 (3.87)	11 (3.55)	58	
Labour	33 (10.65)	17 (5.48)	14 (4.52)	64	
Family Income (Rs.)					
<1500	10 (3.23)	30 (9.68)	6 (1.94)	46	49.79***
1501-3000	52 (16.77)	21 (6.77)	31 (10.00)	104	
3001-5000	36 (11.61)	13 (4.19)	13 (4.19)	62	
5001-7000	29 (9.35)	5 (1.61)	8 (2.58)	42	
> 7000	30 (9.68)	20 (6.45)	6 (1.94)	56	

Note: Figures in parentheses are the respective per cent values
**p<.05, **p<.01, ***p<.001*

Table 3
Correlation of abuse with academic achievement of the adolescents (N = 310)

Abuse	Academic achievement		
	Overall	Female	Male
Physical (P)	–.89***	–.90***	–.89***
Emotional (E)	–.44**	–.40**	–.51**
Cumulative (P + E)	–.96***	–.96***	–.95***

**p < .01, ***p < .001

Table 4
Correlation of abuse with self-concept of male and female adolescents

Abuse	Total Self -concept	Dimensions of self-concept					
		Female adolescents (N = 143)					
		Physical	Social	Temper-amental	Educat-ional	Moral	Intelle-ctual
Physical (P)	–.17*	–.078	–.12	–.27**	–.13	–.15	.05
Emotional (E)	–.14	–.19*	–.11	–.03	–.17*	.02	–.01
Cumulative (P + E)	–.20*	–.14	–.14	–.24**	–.18*	–.12	.04
	Male adolescents (N = 167)						
Physical (P)	.05	.12	.09	–.08	.08	–.07	.00
Emotional (E)	.02	–.07	–.04	.11	.06	–11	.13
Cumulative (P + E)	.05	.08	.06	–.02	.09	–.10	.05

*p < .05, **p < .01

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Implications of Fuel Wood Yield, Availability and Harvest in Tubah Mountain Forest, Cameroon

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Abstract - The paper focuses on the problems of wood fuel yield, availability and harvest. It investigates the underlying causes of the wood fuel crisis and establishes that the root causes are diverse and require a more comprehensive and objective view of the problem. The study demonstrates that focusing development efforts on wood fuels and the symptoms of their scarcity ignores the much broader and deeper strains in the environmental, social, economic and political fabric of which firewood scarcity is only one of the manifestations. It finally elaborates strategic guidelines for the sustainability of wood fuel resources based on the adoption of ecologically integrated land use systems and the appreciation of the complex, extremely dynamic, and multi-sectoral issues underlying the broader crisis of population pressure, food security, energy acquisition poverty and natural resource management.

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Strictly as per the compliance and regulations of:

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Ndenecho Emmanuel Neba

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***Abstract*-The paper focuses on the problems of wood fuel yield, availability and harvest. It investigates the underlying causes of the wood fuel crisis and establishes that the root causes are diverse and require a more comprehensive and objective view of the problem. The study demonstrates that focusing development efforts on wood fuels and the symptoms of their scarcity ignores the much broader and deeper strains in the environmental, social, economic and political fabric of which firewood scarcity is only one of the manifestations. It finally elaborates strategic guidelines for the sustainability of wood fuel resources based on the adoption of ecologically integrated land use systems and the appreciation of the complex, extremely dynamic, and multi-sectoral issues underlying the broader crisis of population pressure, food security, energy acquisition poverty and natural resource management.**

INTRODUCTION

Fuel wood and related energy problems are important and pressing concerns in their own right in developing countries. Since most Africans are poor and can afford or have access to little other than firewood, charcoal or crop animal residues to meet their basic energy needs, wood fuels dominate the energy economies of virtually all African countries. In sub – Saharan Africa they account for 60 to 95 percent of total national energy use, with the highest proportion in the poorest countries (FAO, 1983). It will take many years of rising incomes and infrastructure development before such countries can afford alternatives to this massive fuel wood dependence (Anderson et al., 1984). The shortage of fuel wood is very acute and it has been estimated that in Africa South of the Sahara close on two-thirds of the population were experiencing fuel shortages in 1980. It is expected that, by 2000, only nine million Africans will have adequate fuel wood supplies (Beets, 1989). The fuel wood situation is expected to have an increasing detrimental effect on the environment; shortages are threatening to disrupt the existing farming systems and the general social fabric (spears, 1986).The more obvious symptoms of this dependence are well known. In many places wood fuel resources are dwindling because of deforestation. As wood resources diminish and recede the cost of obtaining firewood whether in cash, or time for gathering them, are imposing severe and increasing strains on already marginal household survival and production strategies. These impacts are greatest for the poor and for women, who normally bear the responsibility of fuel provision and use (Williams, 1983). Over the past two or three decades the government of Cameroon adopted an energy policy, planning and donor aid structures to address the wood fuel crisis directly as a problem of energy supply and demand. The issues appeared quite simple and the solutions self-evident. Protected public forests were created. Foresters tried to increase firewood supplies with peri-urban plantations of eucalyptus and the promotion of rural people to create village energy woodlots. The Ministry of Mines and Energy tried to curb rising consumption of fuel wood by promoting more energy efficient cooking stoves in order to reduce pressure on the forest. These energy focused efforts have had little success and have failed to turn the tide of wood depletion. The misleading premise was that the use of wood fuels is the principal cause of deforestation. This provided a powerful economic rationale for all kinds of afforestation and conservation measures in peri-urban and semi-urban areas.

This study focuses on a survey of the Tubah cloud forest at the periphery of Bamenda city. The forest survey seeks to demonstrate that focusing development efforts on wood fuels and the symptoms of their scarcity is looking only at the tip of the proverbial iceberg, it ignores the much broader and deeper strains in the environmental, social, economic and political fabric of which firewood scarcity is only one of the manifestations. The study therefore, elaborates strategic guidelines for the sustainable development of the wood fuel sector.

I. ENVIRONMENTAL SETTING

Tubah Mountain range is part of the Cameroon Highlands. The range forms a ridge which divides Bambui village from Sabga Plateau, Bamessing and Babanki-Tungo in the Bamenda Highlands. This, ridge belongs to the geographical boundary between West and Central Africa, that is, the actual division of the large basins of the rivers Congo and Niger. The area has a very important diversity of plants and animals with numerous endemics particularly among the birds and vascular plants. The high and often very localized endemism is believed to have arisen during the Pleistocene age when climate changes caused the forest to retreat to the wetter mountainous areas, leaving tracts of forest or "refugia" cut off from one another. Within Cameroon, the most important refugia are thought to have existed in the areas surrounding Mount Cameroon, Mount Kupe and Bamenda Highlands (Stuart, 1986). Despite their scientific importance, these cloud forests of Cameroon have received little conservation attention. The Tubah montane forest is situated at an altitude of 1800 to 2200m and has a high conservation importance.

The slopes range from flat and gently sloping in the upland basins to very steep towards the ridges and downwards to

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streams. Rainfall varies from 1780 to 2290mm per year and most rain falls between July and September. Generally January and February have the lowest relative humidity (average 45 – 52%). The monthly average exceeds 80% in July and August. During the rainy season, mist and low cloud occur frequently. The rainy season lasts from mid – November to mid – March when the dry season sets in. Mean maximum temperature is 20 to 22oc and the mean minimum 13 to 14oc. November has the lowest mean minimum and December the highest mean maximum.

II. Socio-economy and land use historya

ccording to Nkwi and Warnier (1982) the Bamenda Highlands have experienced over 300 years of intensive cultivation and dramatic transformation of the montane forest landscape to a domesticated landscape characterized by a patchwork of farmlands, grasslands, fallows, woodlots, homegardens and montane forest refugia. The current population density of 100 persons per square kilometres is imposing serious biological stresses on montane forests. About 250 migrant farmers farm in the forest. Grazing takes place at the 2000 metre altitude and situated at the vicinity of Bamenda city and Bambui town fuel wood demands for both rural and urban needs increase this ecological stress. Slash – and – burn cultivation kills the trees. These are eventually harvested for fuel wood. An ethnobotanical study of the forest was undertaken in order to determine the livelihood activities provided by it. These are summarized in table 1.

Table 1: Ethnobotanical survey of Tubah mountain forest

.Scientific Name	Family Name	Local Uses
Acacia sp	*Mimosoideae*	Charcoal, Fencing, Firewood
Albizia coriara	*Mimosoideae*	Timber, Fencing, Charcoal, Firewood
Angaura salicifolia	*Ericaceae*	Highly medicinal
Bridelia Speciosa	*Euphorbiaceae*	Local tooth brush production
Canarium schwei	*Bursearaceae*	Fruits, shell, timber, medicinal
Cordia africana	*Boraginaceae*	Poles, carving, medicinal
Carapa grandifora	*Meliaceae*	Timber, poles
Croton macrost	*Euphorbiaceae*	Fencing, poles, timber, shade, medicinal
Entada abyssinica	*Mimosoideae*	Charcoal, poles, timber
Eucalyptus sp	*Wyrtaceae*	Timber, poles, fencing
Ficus sp	*Moraceae*	Shade, fencing, carving
Kigelia africana	*Bignoniaceae*	Carving, traditional
Cola allata	*Rubiaceae*	Medicinal, edible seeds
Lasiociphon glaucus	*Thymelaeceae*	Local production of papers and envelopes
Maespsis manii	/	Timber, shade, carving, medicinal
Newtonia buchananii	*Mosaceae*	Carving
Nouboulidia laevis	*Bignoniaceae*	Timber, carving
Polyscia fulva	*Araliaceae*	Poles, timber, honey, charcoal
Schefflera abyssinica	*Araliaceae*	Timber, carving
Vitex diversifolia	*Verbenaceae*	Timber, carving
Vitex doniana	*Verbenaceae*	Edible fruits, carving
Voacanga sp	*Apocynaceae*	Seeds, medicinal, local and industrial poles, timber
Entandrophragma	*Meliaceae*	Timber (furniture)
Trema orientalis	*Ulmaceae*	Medicinal value for women
Xailobier sp	/	Fire wood
Pittosporum manii	*Pittosporaceae*	Furniture, medicinal
Prunus africana	*Rosaceae*	Highly medicinal bark
Nuxia congesta	*Loganiaceae*	Musical instruments
Faraga rubescens	*Rutaceae*	/
Khaya senegalensis	*Meliaceae*	Good timber
Raphia farinifera	*Palmae*	Fibre, handicraft, wine, construction bamboo, wood

From the ethrobotanical survey the needs of the mountain people from the forest are mainly timber, poles, fuel wood and charcoal. Most of the forest was intact by the 1920s. Increasing monetarization of the rural economy, urbanization and market orientation of livelihood activities after independence in 1960 accelerated the forest degradation process. Moreover, graziers entered the mountain in the sabga plateau by 1920. Overgrazing has since established a moribund vegetation landscape. Forest invasion by both farmers and graziers in recent years is resulting in social tensions, conflicts, inter-personal and inter-community bloody scuffles. Without any conservation status the forest is an open access resources facing a "tragedy of the commons". The construction of the

Bamenda – Ndop Highway through the Sabga Pass between 1920 and 1940 opened the forest to growing urban centres at the middle and low altitude areas (Ndop, Bambui, Bamenda). Enormous quantities of fuelwood are harvested and staked along the highway destined for urban household consumption. Charcoal burners cause accidental bush fires which destroy large portions of the forest. Similarly, migrant farmers now have easy access to the cloud forest.

III. Methods

The survey of the cloud forest was based on species characteristics such as functions, condition of tree and the ecology of sampled plots. Two approaches were used, that is the sampled plot and the transect approach. Pre-knowledge of the classification of the forest area was obtained from 1987 aerial photographs. These aerial photographs and base maps of the study area permitted the survey team after ground reconnaissance surveys to select plots for study within the different patches of the cloud forest. The patches of these remaining indigenous forests were mapped and are presented in figure 1. The various land use types are presented in table 2.

The fieldwork was carried out with the assistance of forestry technician and two agricultural technicians working in the area. With the background knowledge about the forest, sample plots were then selected by visual observation, when a plot was selected a central point with 10m radius was established forming a circular plot. This was followed by:

Measuring of distance and compass angle of each tree with a tape.

Identification of species and the estimates of volume of stems and branches.

Description of forest type and importance of fuel wood on the stand.

Identification and measurements were carried out on all trees enumerated as found within the circular plot. The measurements taken were:

Distance of tree to plot centre.

Distance between tree and measuring point of angle and circumference with the use of tapes.

Total height of the tree and stem height measured indirectly using a "sunnto" clinometre.

The direction of the tree to plot centre was measured using a compass while slopes were measured using an altimeter.

All tree measurements were for stem height determination, for volume computation of each tree species and plot volume of timber.

For each plot detailed information was collected on the following aspects:

Situation of plot and accessibility.

-Land use/exploitation.

Species composition, height and density of the forest.

Evidence of recent forest fires and fuel wood collection or harvesting.

Measurements on trees respected the following rules:

Measuring the circumference(c) at the height of 1.3m.

Measuring both stems if the fork of a tree is below 1.3m height.

Counting only trees with circumference larger than 31cm or a 10cm diameter (d).

$$C = d \times \pi \text{ where } \pi = 3.14.$$

The height of trees was estimated by the use of a clinometers. The following formulae were used for height measurement with clinometers.

TOTAL HEIGHT	(B3 – B1) x d x cos a	Where B1 = angle to bottom B3 = angle to top crown a = slope angle of the ground d = distance between tree and person.
STEM HEIGHT	(B2 – B1) x d x cos a	Where: B1 = angle to bottom B3 = angle to top crown a = slope angle of the ground d = distance between tree and person

Final volume calculations were made by employing the following formula:

$$\frac{(\pi \cdot D2 \cdot H)}{4}$$

Where: V = volume

Tree = 0.785398 stem height H =

D = average diameter of tree of breast height i.e. 1.3m

$\frac{\pi}{4}$

The volume of wood (m3) per hectare of forest stand was established from the above calculations. Based on an average farm size of 8 persons and a monthly average fuel wood consumption of 3m3 the rate of deforestation was estimated in order to establish the final exhaustion time. Informal interviews of migrant farmers and farm family heads in Tubah community identified the root causes and the effects of deforestation. These assisted in the elaboration of strategies for the sustainable management of land resources, and a strategy that can turn the tide towards the sustainability of wood fuels.

IV. Results

The original vegetation of montane and sub-montane forest is fast disappearing. Among the tree species, which dominate, are Croton, Albizzia, Trama, Ficus, Newtonia, Polysias, fulva, and Cimbretum. Apart from these, Vocanga, Maissa, Phonix, reclinata and a large variety of plants which form a thick undergrowth in undisturbed forest areas. The undergrowth is slashed and set on fire. Trees scorch at their base and quickly dry up and die. The biodiversity of the forest is being lost due to this destructive practice.

Table 2: Vegetation and Land use on different sites (figure 1).

Location Name	Area (ha)	Indigenous forest	Subsistence farming	Grazing land	Bush land and fallow
Bambili upland	750 ha	~200 ha 26%	~ 100 ha 13.3%	250 ha 33.3%	~ 200 ha 26%
Bafunge upland	1400 ha	240 ha 17.1%	> 200ha 14.2%	959 ha 68.5%	?? Seasonal grazing
Tchabal (Bamessing)	770 ha (+)	~ 60 ha 7.7%	10 ha 0.1%	600 ha 77.9%	??? Seasonal grazing
Bambili	600 ha	Totally degraded	Large area ~ 200	Mainly grazing 400	None
Tchabal (Kedjom K)	430 ha	None left	Less than 250 ha	Mainly grazing 300	??? Seasonal grazing
TOTAL	3950	500	760	2509	???

Grazing land, as elsewhere in Cameroon is burnt every year by the graziers, mainly to stimulate regrowth in the early rainy season. Generally the pastures are in a poor state, badly eroded and have a very low fodder potential and have a widespread growth of the fern between the dominating stubbles of Sporobolos grass. Table 2 presents some approximate data on the vegetation and land use based on a rough cartographic survey of the study area. The increase in population combined with improved market access (the area is located at the urban fringe) has meant that farmers are cropping more intensively than before and the traditional system of fallowing for 10 to 15 years is faltering. The slash and burn cultivation system has destroyed most of the cloud forest to the extent that remaining patches are mainly in upland riparian areas. Cattle grazing and associated annual bush fires accelerated the degradation and fragmentation of the natural forest. The following is a description of the sampled plots.

PLOT 1:

Altitude: 2010m and 2030m above sea level.

Floristic composition: Lasiocephon glaucas, croton macrostachyus, Bridelian sp. And Nuxia sp. With Nuxia being the dominant species. Generally an open wood with an open canopy. The undergrowth is composed of Bracken fern. Sporobolus Africnas, Cedar circulata, and Aframumun sp. Sporobolus is the dominant grass.

Land use: site is partially used by graziers and was partially burnt to stimulate new growth for cattle. Signs of timber and fuel wood extraction were visible.

PLOT 2

Altitude: 1910m and 1930m above sea level.

Floristic composition: Trees include Carapa grandifolia, Ficus oreodryadum, Canarium schwei, Schefflera

Floristic composition: Trees included Albizia, Carapa, and Voacanga, with Carapa being the dominant species. Trees were very tall forming a one layer close canopy. The undergrowth was composed of Aframumum, Bracken fern and Sporobolus africanus.

Land use: Evidence of bush fires was visible on tree trunks and the undergrowth. Cattle tracks at the forest fringe were abyssinica, Newtonia buchananii with Carapa and Canarium being dominants. This was a dense forest area with a close canopy, with shrubs, climbers, twigs and grasses interwoven, and forming a thicket. The forest floor was covered with dense litter, dead tree logs and branches, fresh and dry leaves. Aframumum and Bracken fern were dominant undergrowth.

Land use: Some timber and fuelwood extraction and signs of dry season bush fires on trees trunks.

PLOT 3

Altitude: 1800m above sea level.

Floristic composition: Similar to plot 2. The dominant species was Carapa grandifolia.

Land use: Some timber and fuelwood extraction and signs of dry season bush fires on tree trunks.

PLOT 4

Altitude: 1840m to 1858 above sea level.

Floristic composition: Hill slope completely burnt by slash-and-burn cultivation. Signs of burning were concentrated on tree stumps. Few trees included Croton, Albizia and Bridelia, with Bridelia being the dominant species.

1

PLOT 5

Altitude: 1920 above sea level

Floristic composition: Tall trees with a one canopy layer: Albizia, Carapa, and Voacanga, with Voacanga being the dominant species. The forest floor was clean (probably swept by bush fires).

Land use: Plot accessible by cattle track close to a stream. Plot undergrowth probably degraded by grazing and bush fires during the dry season. Visible signs of fuelwood extraction and logging were present.

PLOT 6

Altitude: 1020m above sea level.

also indicative of some grazing. Fuelwood extraction and logging were also visible.

The volume of wood (cubic metres per sampled plot) was then determined. Wood is extracted for various purposes: charcoal, fencing, fuelwood, construction timber, poles, carving, tooth brush production, production of packaging bags, fabrication of musical instruments and bridges. The volume of wood in the remaining forest expressed in cubic

metres per hectare is presented in table 3. Table 4 is derived from table 3.

Table 4: Fuel wood indicators for Tubah communities

PLOT 1		
Lasiociphon	1.49	47.422
Nuxia	1.78	56.652
Croton	0.5	15.913
Bridelia	1.43	45.512
Total	5.2	165.499
PLOT 2		
Capara	3.42	108.848
Ficus	0.22	7.001
Canarium	3.35	106.62
Total	6.99	222.469
PLOT 3		
Wink	13.7	436.028
Capara	3.7	117.759
Khaya	0.5	15.913
Unident	3.5	111.394
Total	21.4	681.094
PLOT 4		
Croton	3.12	99.300
Bridelia	4.19	133.355
Albizia	6.33	210.464
Total	13.64	434.119
PLOT 5		
Carapa	1.130	35.964
Unident	0.84	35.964
Newtonia	10.9	346.913
Birdelia	2.36	75.111
Total	15.230	484.723
PLOT 6		
Albizia	4.52	143.857
Unident	.18	5.729
Capara	3.6	114.577
Voacanga	.03	.955
Total	8.330	265.120

	2.253.024 m^3
Average volume per hectare	375.504 m^3
Standing volume for Tubah forest (500 ha)	187.752.000 m^3
No. of farm families in Tubah (1998)	2.362 families
Average fuel wood requirements/month/family	3.0 m^3
Annual fuel wood requirement/family	36.0 m^3
Annual fuel wood requirement for communities	58.860 m^3
Annual fuel wood requirement as a percentage of standing wood per hectare	22.8%
No. of years required to totally degrade a hectare by fuel wood harvesting alone	53 months or 4.4 years

Assuming an average farm size of 8 persons table 4 presents an analysis of the wood demands of the Tubah community. In 1998 the population dependent on the Tubah forest for their livelihood was estimated to be 18.891 inhabitants or 2362 farm families, with an estimated annual growth rate of 3.8%. This population will be 24.527 and 35.613 inhabitants in 2005 and 2015 respectively. Deforestation is attributed to slash-and-burn shifting cultivation, harvesting of construction wood and medicinal plants, fuel wood and inadequacies in the supply of forest products to the masses. The forest originally covered 3950 hectares. Today only 500 hectares of indigenous forest are left. Slash and burn shifting cultivation has degraded about 850 hectares and grazing by pastoral tribes on an estimated

2509 hectares. The remaining indigenous forest is refuged in narrow upland riparian areas (figure 1). The following were identified as the possible causes of the alarming threat to the forest; ignorance of the value of forest protection, lack of water and grazing resources, lack of integration of forest protection into local economy, poor communication between local rural development workers and local people resulting to misconceptions, lack of funding for forest management, top-down approaches and political interference by administrative and technical officers. The pressure on fuelwood extraction is increasing as it becomes more profitable to sell wood. Growing urban populations are becoming reliant on wood from rural areas accessible by motorable roads.

Figure 2 presents an analysis of the core problem, that is, poor or unsustainable harvesting of products from the montane forest and their effects. Apart from the fuel wood crisis, rural people sense the following effects of deforestation; loss of biodiversity, water contamination, soil erosion, dry season potable water shortages, farmer grazier conflicts, land disputes and poor crop yields under slash-and-burn cultivation. These are the consequences of poor forest resources management whose root cases are: annual bush fires, grazing encroachment into forests, population pressure resulting in invasion of upland forests by landless farmers, institutional weakness and inefficient extension service, poor farming methods, poor grazing methods, and gender/land ownership problems related to adoption of agroforestry practices and the establishment of woodlots. Limited access to credit and training also hamper the adoption of agroforesty practices. The prices of staple foods are low hence obliging farmers to migrate to afro-alpine zones where market gardening is more profitable. Figure 2 identifies the strategies that can resolve the fuel wood scarcity problem using ecologically integrated land use systems.

V. Discussion and Conclusion

An ethnobotanical survey of Tubah cloud forest reveals that it supports several livelihood activities. Some 23 tree species out of 30 species (76.7%) provide wood for diverse purposes. These range from fuel wood, fencing poles, charcoal, construction timber, carving wood, furniture, and other handicrafts. Non-timber forest products account for 23.3% of the uses. Fuel wood demands and An ethnobotanical survey of Tubah cloud forest reveals that it supports several livelihood activities. Some 23 tree species out of 30 species (76.7%) provide wood for diverse purposes. These range from fuel wood, fencing poles, charcoal, construction timber, carving wood, furniture, and other handicrafts. Non-timber forest products account for 23.3% of the uses. Fuel wood demands and construction wood (timber) requirements are imposing a severe strain on tree species such as Lasiociphon glaucus, Nuxia congesta, croton macrostachyus, Bridelia micrantha, carapa grandiflora, ficus spp. Canarium sp,. Khaya, Albizia gummifera, Newtonia and voacanga.

Annual fuel wood requirements per farm family for the Tubah community are 36m3/year. The annual fuel wood requirements for this community of 2,362 farm families stands at 58,860 m3 or 22.85% of the standing wood per hectare. At the current population growth rate of 3.8% it will take 4.4 years for the community to totally destroy a hectare of the remaining forest. 4.4 years of degradation by wood fuel demand does not reflect the underlying causes of deforestation and can mislead rural development policy to heal symptoms rather that root causes. The study established that fuel wood and timber extraction were not major activities causing forest degradation. These are secondary processes intensifying degradation. After areas have been cleared for farming then the resulting dead timber is removed for fuel wood and timber. Similarly timber from fire damaged forest is utilized for fuel. Grazing also causes shrinking forest borders.

These findings show that a more comprehensive and objective view of wood fuels is needed and that there are no single, simple answers and that the problems surrounding them are inseparably linked to the complex, diverse, extremely dynamic and multi-sectoral issues underlying the broader crisis of population pressure, food security, poverty, land and natural resource management. These are summarized in figure 2. Successful remedies for the fuel wood crisis must therefore be firmly rooted in this broader context. Most farming systems in sub – Saharan Africa are subsistence systems where the use of land is directed towards satisfying the basic needs of food, fuel, fibre, medicine and shelter. It is therefore apparent that they constitute a prime area for the adoption of ecologically integrated land use systems and agroforestry must form an element of such systems. If interventions are to create lasting successes they must recognise at least three basic factors:

- The need for local assessment and actions and the unhelpful nature of large scale averages. The “landscapes” and “peoplescapes” of rural areas are extremely diverse. Problems and opportunities for solving them are therefore specific to place and to social groups in each place. The aim therefore should be to reach underlying causes rather than heal the symptoms;
- The need for indirect approaches to wood fuel issues and greater participation by local people at every stage to help them to prioritise and solve their own problems. This follows from the first point, and also from the fact that success normally depends on starting and strengthening processes rather than delivering technical packages on “how” rather than “what” things are done; and
- The need for decentralized and multi-disciplinary approaches, including the use of competent and

trusted "grassroots" agencies, to facilitate the two first points. However, this does not exclude the need for economic, legal and political initiatives at the macro-level to improve the broad contexts for local, positive change.

VI. Acknowledgements

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VII. References

1. Anderson, D. and Fishwick, R. (1984) Fuel wood consumption and deforestation in African countries Washington D.C., World Bank.
2. Beets, W.C. (1989) Potential role of agroforestry in ACP countries. CTA, Wageningen.
3. A. O. (1983) Fuel wood supplies in the developing countries. Rome: UN food and Agriculture Organisation.
4. Nkwi, P.N. and Warnier, J.P. (1982) Elements for a history of the Western Grassfields. Yaounde; Sept. of Sociology, University of Yaounde.
5. Spears, J. (1986) Deforestation, fuel wood consumption and forest conservation in Africa: an Action Programme for FY 86 – 88. Washington D.C. World Bank.
6. Stuart, S.N. (1986) Conservation of Cameroon Montane Forests. Report of the ICBP. Cambridge: International Council for Bird Preservation.
7. Williams, P.J. W. (1983) "Women and Forestry", special invited paper for the Ninth World Forestry congress, July, Mexico City.

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Indigenous Trees and Shrubs in Silvopastoral Systems of the Bamenda Highlands of Cameroon

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Abstract - In the dry savannas characterized by seasonal fluctuations in pasture ecological resources and extensive grazing systems involving transhumance, trees and shrubs are essential perennial components of rangelands. This tree and shrub germplasm helps in alleviating dry season forage shortages. Unfortunately, it is being eroded for multipurpose uses and also data on these resources are haphazardly documented for the afro-alpine areas. The study uses a combination of primary and secondary data sources to describe the significance of afro-alpine ecological niches for silvopastoral development, the current range condition and its potential in trees and shrubs as browse plants that can alleviate dry season forage shortages. Three pasture ecological zones based on altitude are identified. Zone 1, 2, and 3; possess 17, 25 and 6 browse plants respectively. These form large plant communities in the transition zones (zone 2). The study identifies the scope for their integration in crop- livestock production systems and finally, recommends that further research should focus on the analysis of the nutritive quality of the plants, the frequency of occurrence in each habitat and their methods of propagation. These could be sufficiently rich in their crude protein content so as to maintain animals during the drought season.

Keywords : *indigenous trees and shrubs, browse plants, silvopastoral, afro-alpine, crop-livestock production system.*

GJHSS Classification : *FOR Code : 040306,040202,040601*

Strictly as per the compliance and regulations of:

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I. INTRODUCTION

The roles of trees and shrubs in traditional farming systems in general are very wide and have been described by many authors (Everist, 1972; Walker, 1980; Le Houerou, 1987; Beets, 1989; Behmel and Neumann, 1982; Boudet and Toutan, 1980; Getahun, 1984; Getahun, 1979; Harowitz and Badi, 1981). Their roles are extremely varied and dependent to a large extent, on indigenous land use practices, ecology and vegetation, population density, indigenous knowledge base, beliefs and values, level of household income and socio-cultural habits. Over the years information on multipurpose trees and shrubs in the highlands of Cameroon has been haphazardly recorded. Most of the previous research effort has focused on agroforestry and tended to neglect silvopastoral development. This explains to a large extent, why the potentials of these germplasm are not rationally exploited by graziers. This paper describes the afro-alpine range ecological niches of the Bamenda Highlands and assesses the potential of trees and shrubs as browse plants that can alleviate dry season forage shortages for ruminants in different ecological niches. With increasing pressure on land, rapid biogenetic erosion in alpine regions and drastic seasonal fluctuations in range ecological resources in the drier tropics, there is a need to improve the utilization efficiency of trees and shrubs in crop-livestock production systems.efficiency of trees and shrubs in crop-livestock production systems.

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II. THE STUDY AREA CHARACTERIZATION

The dominant geographical feature is the high lava plateau, above 1500 m with its mountainous backbone composed of Mount Lefo (2550 m), Foleshele (2621 m), Mount Oku (3011 m), and Mount Binka (2222 m). At the foot of the west and northeast facing scarps is an undulating erosion surface (1000 to 1500 m). Embayed in the mountain block are valleys and depressions between 300 and 900 m above sea level.

The study area is found in the North West Province of Cameroon. It has a land surface area of 17,836 km2. The area is characterized by very diverse ecological zones described by Keay (1953), Hawkins and Brunt (1965) and Champaud (1973). Topographically, it is a varied relief of mountains, plateaux, valleys and flood plains in intermontane basins. The soils are ultisols derived from basalts, trachytes and granites with varying degrees of weathering. Precisely, the soils are acidic, low in major ‘nutrients and have high phosphorus requirements (Yamoah *et al*., 1984). Furthermore, some food crops fields and the main natural pastures are found on steep slopes in upland areas where erosion losses are phenomenal as decline in soil fertility.

The climate is highly varied and is influenced by topography which ranges from an altitude of 300 m to 3010 m above seal level. It has been described by Moby (1979) as a tropical montane climate characterized by 1500 to 3000 mm of rainfall per year, 0 to 3 dry months; a mean annual temperature of 21°c and a mean annual temperature range of 2.2°c. Moist montane forest is the climax vegetation community of the wetter mountains. Lowland evergreen forest is found at elevations below 300m above sea level. These climax floristic communities have been anthropogeneically degraded and what exists today is a complex mosaic of montane woodlands, tree and shrub savanna, grass savanna, farms and fallow fields derived from tropical montane forests (Nkwi and Warnier, 1982; Tamura, 1986; Ndenecho, 2005). In these diverse ecological circumstances tree and shrub germplasm is extremely varied and reflects to a large extent the

differences in ecological factors such as climate, altitude, land use management and edaphic conditions.

III. Materials and Methods

The study focused on the Bamenda Highlands. Using vegetation — altitude correlation maps established for the region by Hof et al. (1987); Hawkins and Brunt (1965); Macleod (1986) and Champaud (1973) a pasture ecological zoning of the highlands was made and presented using quantitative and qualitative terms and also in cartographic form. A combination of primary and secondary data sources enabled a mapping of the distribution of natural pastures, the identification of tse-tse fly infested zones, critically degraded areas, critically invaded sites by undesirable plant species, available infrastructure for pastoral development and the principal transhumance routes. Using quadrant analysis, the pasture composition and structure of Hyperrhenia grassland and Sporobolus grassland were established. Archival material of the Provincial Delegation of the Ministry of Livestock and Animal Industries was used to derive quantitative data on stocking rates, cattle distribution on natural pastures and transhumance. In order to identify the browse resource potentials for each ecological zone, 6 transects originating from the high lava plateau (areas above 1600 m) and ending in river valleys (areas between 300 and 900 m) were used. These coincided with major transhumance routes. Drovers generally transhume with herds ranging from 35 to 60 cattle. Two drovers representing two herds were identified for each route or transhumance zone monitored by a veterinary post. They were each allocated red paint and a brush to mark the stems of the frequently browsed trees and shrubs as they descend from the high lava plateau down to the river valleys and vice — versa. The main transhumance zones monitored were: Ndop plain, Lip plain, Njinikimbi valley, Lower Menchum valley, Baligham and Dumbo. With the assistance of the veterinary technicians samples of the identified trees and shrubs were collected as per ecologic zone using an altimeter to determine the elevation of samples. The samples so collected were forwarded to the herbarium of the Zoo - Technical Research Station in Bambui for identification by the range ecologists.

IV. Presentation of Results

Figure 1 presents the location of the study area, the relief and pasture ecological zonation. The main browse resource niches identified are (Figure 1):

- Zone 1: 300 to 900 m above sea level. This is a very moist zone. The mean annual rainfall exceeds 2000 mm with 0 to 1 dry months. The main ecological niches in the zone are:

- Moist evergreen forest (Celsalpinaceae dominant). The trees are not very tall and Myristicaeceae are more abundant at the 800m to 900m elevation.
- Moist semi — deciduous forest found where the rainfall ranges from 1500 to 2000 mm per year and has 1 to 2 dry months. The main tree and shrub elements are Triplochiton schieroxyton, Sterculia spp., Cola Spp., Mansonia altisima, Celtis spp., Terminalia superba and Khaya sp. There is a complex of moist semi — deciduous forest on valley slopes and grassland on the ridges, woodland savanna (Burkea africanna, Daniella oliveri) generally with a dense network of gallery forest, tree savanna and shrub savanna (Terminalia glauceens, Lophira lanceolata, Annona senegalensis) generally with a dense network of gallery forest. The main graminae found in the tree and shrub savannas are Pennissetum purpurum (25%), Hyparrhenia spp (40%), Andropogon (10%), Pennisetum clandestinum (15%) and weeds (10%). These are mainly dry season range sites.

- Zone 2: 900 to 1600 m above sea level. These are medium altitude zones. It is sub — humid with 1400 to 1700 mm of rainfall per year and 2 to 4 dry months. The main floristic elements are:

Moist semi - deciduousforest (Alfzelia africana, Albizia spp., Chioroplora excelsa),
Degraded semi — deciduous forests;
Woodland savanna (Burkea africana, Daniellia oliveri, Borassus aethiopum),
Tree and shrub savanna (Daniellia oliverii, Lophira lanceolata) generally with a dense network of gallery forest, and
Grasslands (Sporobolus africanus (35%), Pennisetum clandestinum (15%), Hyperrhenia spp. (15%). These are mainly transitional range sites.

- Zone 3: These are elevations above 1600 m above sea level. The mean annual rainfall generally exceeds 1500 mm. This is the montane zone with the following floristic elements:

Evergreen mountain forest at 1700 to 2100 m above sea level. It is dominated by Schefflera abyssinica, and Carapa grandflora. Other common trees are Syzygium staudtti, Schefflera mannii, Pygeum africanus, Rapanea neurophylla and Barsama abyssinica. Small trees include Nuxia con gesta, Ixora foliosa, Pittosporum mannii and Clausena aniseta. Most of the forests have been degraded to shrub and tree savannas dominated by Lasiosiphon glaucus, Hypericum lanceolatum, Pteridim aqulinum and numerous forest edge species. Afro-alpine grasslands exist above 2100 m altitude and cover the high lava plateaux and mountain crests. The grasslands are dominated by Hyparrhenia spp. Montane short grassland occurs between 2360 m and 3000 m elections. It is derived from bamboo forest and thickets due to fire hazard, deforestation, and retreating tree species. The main grasses include Eragrostis volkensii and Tristachya. These are mainly wet season range sites.

Table 1: Pasture ecological zonation of the Bamenda Highlands (Area in km2)

Division	*Total area (km²)*	*Zone l* *300 to 900 m*		*Zone 2* *From 900 to 1600 m*		*Zone 3* *Above 1600 m*	
		Area	*%*	*Area*	*%*	*Area*	*%*
Mezam	1841	-	-	69.5	1,279.25	30.5	561.75
Boyo	1636	8.3	136.6	82.4	1347.9	9.3	151.5
Momo	1734	9.3	334	46.3	803.5	34.4	596.5
Menchum	4489	35.7	1603.3	64	2873.7	0.3	11.9
Donga Mantung	4340	34.6	1503.2	54.6	2371.3	10.8	460.45
Ngoketunjia	1117	0	0	88.7	991.4	11.25	125.6
Bui	2252	5.5	124.74	42.8	963.85	51.7	1162.4
Total	17401	21.3	3702	61.1	10630.9	17.6	3076.1
Transhumance		*Dry season grazing ,zones (December to March)*		*Transitional grazing zones (Temporal encampment sites)*		*Wet seasons grazing zones (June to December)*	

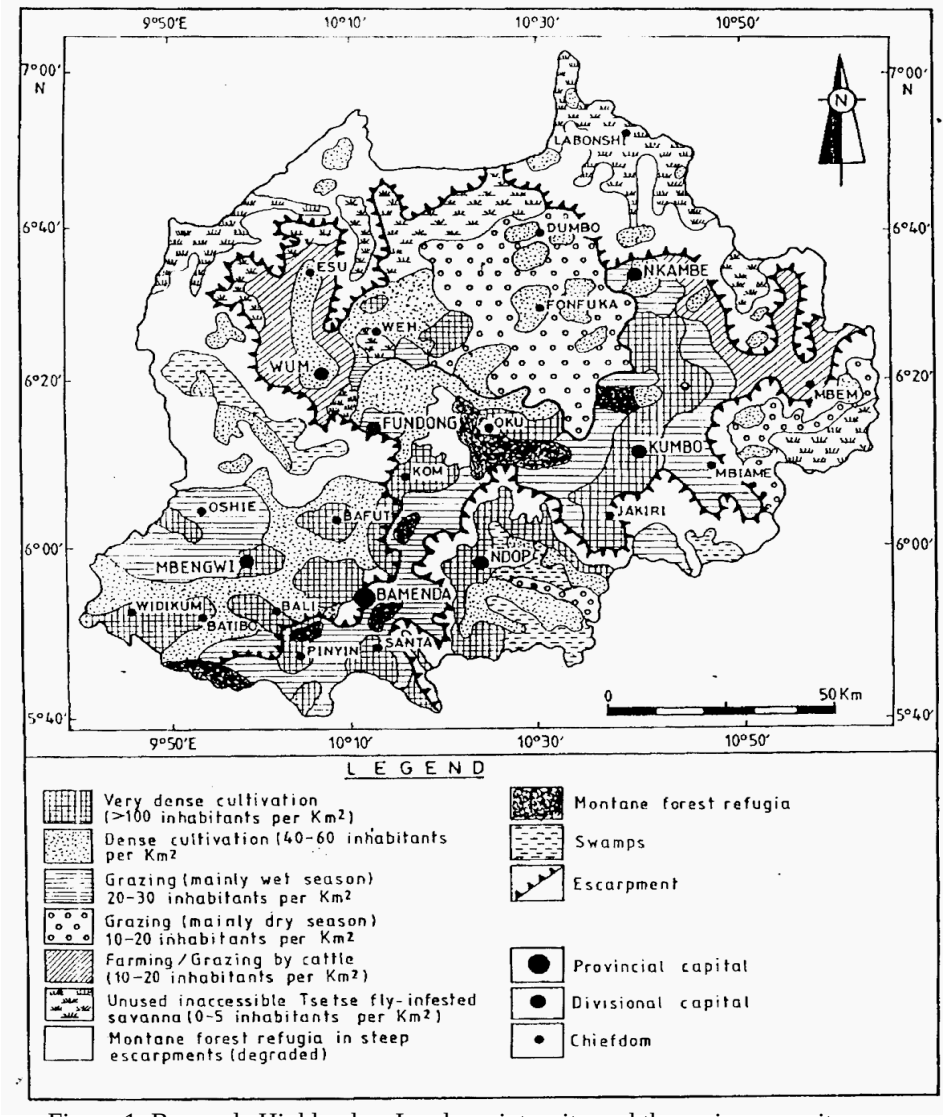
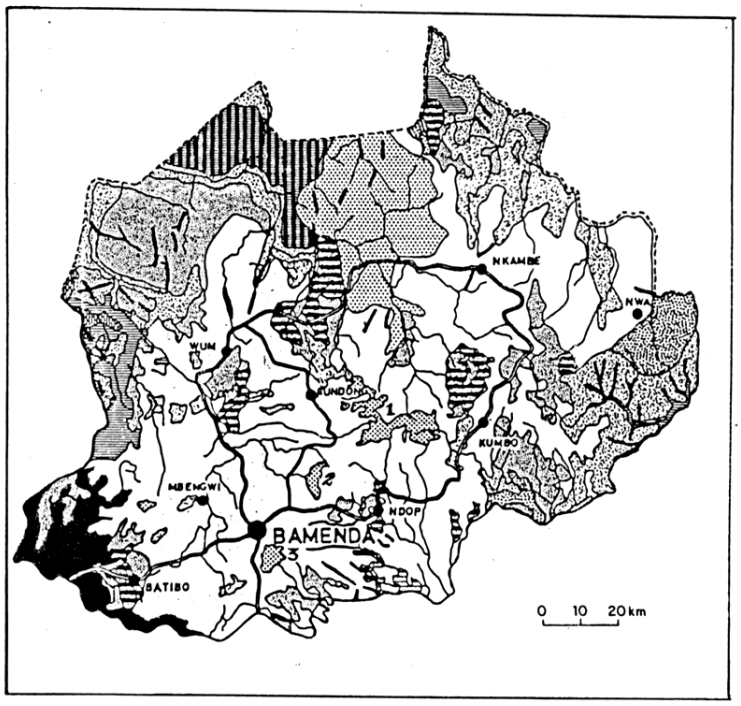


Figure 1: Bamenda Highlands – Land use intensity and the main range sites



Vegetation map of the Bamenda Highlands

LEGEND

ECO-FLORISTIC ZONES AT LOW AND MEDIUM ALTITUDE (generally below 1800m)

Very moist zone at low and medium altitude (rainfall exceeding 2000mm, 0-1 dry months)

Moist evergreen forest (*Cesalpinaceae dominant*). Trees less tall and *Myristicaceae* more abundant at medium altitude (> 800m).

Sub-humid zone at low and medium altitude (1500-2000mm, 1-2 dry months)

Moist semi-deciduous forest (*Triplochiton scleroxylon, Sterculia* spp., *Cola* spp., *Mansonia altissima, Celtis* spp., *Terminalia superba, Khaya* spp.).

Complex of moist semi-deciduous forest (slopes and valleys) and grassland (ridges)

Woodland savanna (*Burkea africana, Daniellia Oliveri*; generally with a dense network of gallery forest.

Tree savanna and shrub savanna (*Terminalia glaucescens, Lophira lanceolata, Annona senegalensis*) generally with a dense network of gallery forest.

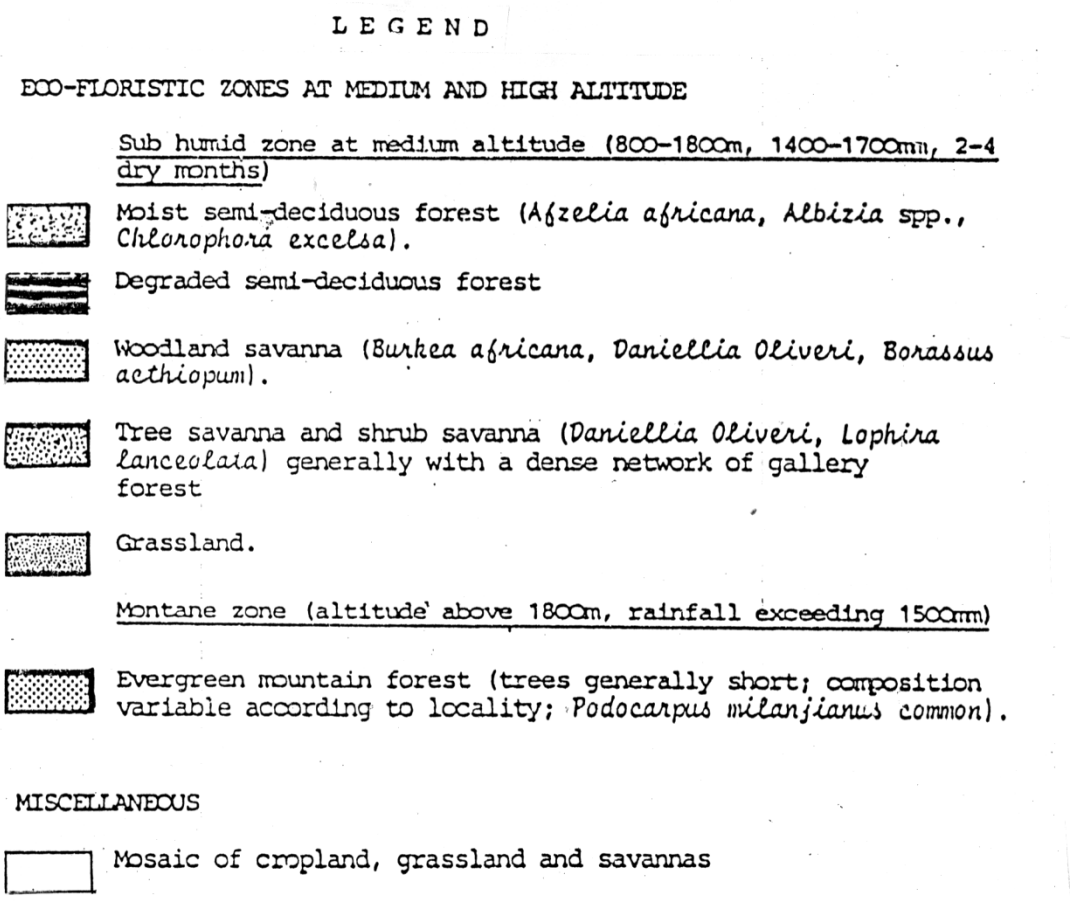


Figure 2: Vegetation map of Bamenda Highlands (Modified after Hof *et al*. 1987)

The intermediate and high altitude zones are characterized by a mosaic of cultivated fields, fallow plots, homesteads and natural pastures. This system faces a number of range ecological problems:

- Overgrazing of wet season pastures: Santa, Sabga, Pinyin, Mnem, Abar, Esu, Tatum, Jakiri, Kishong, Mbiame, Misaje, (dry season) Nkambe. (Figure 2).
- Invasion of pastures by undesirable plant species: Bracken fern *(Pteridium aquilinum)* in wet season pastures: Fungom, Tchabal, Wum, Oku and Dumbo. *Chromolena adorata* and toxic plants *(Spondiathus Preuesii)* in Wum, Ngwo and dry season (wet land) pastures of Donga plain and Mbaw plain. (See figure 2).
- Infestation of pasture lands by tse-tse fly. Mainly the dry season low-lying pasture lands. Mbaw plain, Misaje, Menchum valley, Ako, Lower Fungom, Furu Awa.
- Inaccessibility of pasture lands to markets leading to overstocking and overgrazing: Wum central, Mmen, Kuk and Yemngeh.

Table 2: Total grazing area and available grazing land for ruminants

Division	*Available grazing land (ha)*	*% of grazing land per division*	*Available grazing land (hectare per animal)*	
			Year: 1990	*Year: 2000*
Mezam	105,667	7.2	1.5	1.2
Momo	124,200	11.7	3.9	4.1
Menchum	41,533	37.2	3.6	2.8
Bui	108,000	17.2	1.7	1.5
Donga – Mantung	305,714	26.7	2.3	2.5
Total	**1,054,914**	**100**	**2.3 (averages)**	**1.44 (averages)**

Source: Archival material of MINEPIA (1990 and 2000 Annual Reports)

Table 2 presents the available grazing land. Rumnants account for 90% of the total breeding stock. Each ruminant is entitled to about 4 square metres of grazing land per day on the average. The stocking rate in 1990 was 1.44 hectares per animal. Experts consider that the ideal stocking rate in the highlands is 2.21 hectares per animal per year. We can also assume that the grazing area in 1990 has been considerably reduced as a result of demographic pressure. Consequently, the stocking rate is much higher and there is clear evidence of overgrazing and pasture degradation. The major obstacle to cattle raising is the shortage of forage and water in high altitude pasture zones during the dry season. Factors such as water shortage, low nutrition and grazing on dry parched bracken infested pastures contribute to bracken poisoning on rangelands. Fresh bracken is more toxic than dry bracken.

Bracken fern invades the wet season pastures on the High Lava Plateaux. It is believed to have originated from forest margins and galleries in the intermediate and low altitude zones. It progressively invaded pastures right up to plateaux summits. The spread of the plant is accelerated by land management practices such as bush burning for both shifting cultivation and pasture renewal, forest conversion to farmland and rangelands, intensive annual cropping of land and over-grazing. The extent of invasion varies with soil type; nature of vegetation associated with it and land management practices. It is estimated that about 65% or 685,694 hactares of available grazing land in the high lava plateaux is infested with bracken fern (IRZ Bambui Annual Report, 1987).

Although several trees and shrubs are browsed during the dry season, very few of these trees are deliberately planted for this purpose. Tree planting in this,system is limited to the fencing of night paddocks. As the dry season sets in fodder soon becomes scarce as forages mature and lignify

to become straw of very low nutrition value. Cattle soon resort to browse plants. Many trees and shrubs occur on range sites. These remain green all year round.

Table 3: Common browse plants identified in the Bamenda Highlands

Family	Species	Habitat
Anacardiaceae	Magnifera indica	Zone 1
Boraginaceae	Cordia milleniy	Zone 3 Zone 3
	Cordia Africana	
Celsalpiniaceae	Daniellia oliveri	Zone 1 Zone 1
	Piliostigma thonningii	
Vernon iaceae	Veronica amygdalina	Zone 2 and 3
	Veronica leucocalyx	Zone 2 and 3
	Veronica corferta	Zone 2
Ebanaeceae	Dalberghia oligophylla	Zone 2 Zone 2
	Diospyros sp.	
Euphobiaceae	Bridelia micrantha	Zone 2
	Bridelia stenocarpa	Zone 2
	Antidesma membranaccum	Zone 1
	Bridelia grandflora	Zone 1
Hyperiaceae	Parinari spp.	Zone 2
	Psorosperum aurantiacum	Zone 2
	Pseudarthria hookeri	Zone 2
	Psychotria succulenta	Zone 2
Maliaceae	Khaya grandifolia	Zone 1 Zone 1
	Khaya sp.	
Mimosaceae	Albizia adianthifolia	Zone 2 and 3
	Albizia gumifera	Zone 1, 2 and 3
	Albizia zygia	Zone 1
	Entanda abyssinica	Zone 2
Moraceae	Ficus vogeliana	Zone 2 Zone 2
	Ficus spp.	
Rubiaceae	Can thium vulgare	Zone 2
	Carapa grandflora	Zone 2
	Cola anomala	Zone 2
	Mitragyna stipulosa	Zone 1
Saptaceae	Croton macrostachyus	Zone 2
	Nuxia congesta	Zone 2
	Uapaca heudlotii	Zone 1
Sapindaceae	Aleurotes cordifolia	Zone 1 Zone 2
	Allophylus bullatus	
Papillionanceae	Millettia conraui	Zone 2 Zone 2
	Erythrina signoides	
Pittosporaceae	Pittosporum mannii	Zone 2 Zone 1
	Podocarpus milanjianus	
Ulmaceae	Celtis brownii	Zone 1
Verbenaceae	Vitex sp.	Zone 1
	Voacanga africana	Zone 1
Total (species)	42 plant species	Zone 1 = 17 Zone 2 = 25 Zone 3 = 06

NB Some plants occur in more than one zone.

Table 3 presents the distribution of browse plants for each ecological zone. 42 trees and shrubs occur on range lands of the Bamenda Highlands as native vegetation of the area (Zone 1=17, Zone 2 = 25 and Zone 3 =06) . Some trees and shrubs occur in more than one zone. Shrub species make up the bulk of the browse plants. These are present in relatively high proportion in the transition zones or intermediate altitude zones (zone 2). In terms of species composition, quite a number of different shrub browses and occasionally trees can be found in most grazing areas, particularly in the transition zones, where they form large plant communities. In ruminant production, malnutrition during the dry season due to low forage availability and poor nutritive quality is the most significant factor affecting production in the area (Asah, 1984).

V. Discussion

The bulk of these woody plants are multipurpose trees that do not only serve as animal feed but are used for fuel wood and construction wood. These are rapidly disappearing as a result of exploitation for the above purposes, increasing browsing pressure, expanding crop fields and annual burning. Ndenecho(2005) established that the grasslands in the highlands are derived from moist montane, sub-montane, bamboo and lowland evergreen forests and that pyrogenic and anthropogenic factors have created the complex mosaic of montane woodlands, tree and shrub savanna, and grass savanna. The process of savannization involves the reduction of natural tall forest to a xerophilous environment. This on-going process threatens the browse resource potential of the highlands. As the most desirable food-plants are consumed, they are replaced by less desirable plants. Intense dry season grazing of the intermediate and low altitude range sites therefore degrades the wooded savanna, tree and shrub savanna. Eventually, these trees die out causing widespread loss of feed sources for ruminants and nesting and roasting habitats for 53 species of montane forest birds and 85 species of sub-montane areas (Macleod, 1986). There is therefore an urgent need for the integration of trees and shrubs in the pastoral livestock production systems of sub-saharan Africa.

Integration of trees and shrubs on rangelands and among pastoral men to improve utilization in their production system has two major objectives (Asah, 1984):

- to improve management and utilization efficiency of the natural rangeland's woody vegetation, and
- to increase integration of miltipurpose browse plants into current rangeland management production system.

The scope of the former is large and has a high probability of success while that of the latter has limited adoption among the Fulani and Aku cattle men as they rely mostly on transhumance. Due to insecurity in land tenure, they are unwilling to cultivate forages in their grazing lands. Also, cattle are the major enterprise of the pastoral men and since

cattle are mainly grazers, when compared to goats, pastoral men find no economic benefits in tree and shrub farming. However, due to the poor nutritional quality of forages in the dry season, trees and shrubs should serve as important protein sources for grazing animals. Encouraging efficient utilization of the existing resources offers a much broader scope of adoption among Fulani and Aku cattle men. Three major strategies are proposed for this approach:

- Encourage diversification of animal enterprises on rangelands to exclude goats that are principally browsers to optimize utilization of range browse plants;
- Encourage the use of browse plants for fencing land and establishing contour bunds on grazing areas as these could be important reserves for protein supplement in the drought period and
- Over-seeding of pastures with improved legumes such as *Calliandra*, *Leucaena* and *Cassia sp.*

Under free ranging conditions and when other forage species are available, cattle prefer grass species to browse plants even when the feed value is poor (Peyre de Fabrigues, 1975 and Dicko-Touré, 1980). Dicko-Touré (1980) found that cattle spent less than 4% of grazing time per day on grass during vegetation growth but increased browse fodder time to 26% in the drought period. Adopting cattle enterprises that incorporate goats would optimize utilization of these resources on rangelands.

Plants of the Moraceae family, particularly Ficus spp. are readily browsed by ruminants and are also recommended for life fencing. Their use on rangelands could be of advantage to range resource utilizers since they are readily browsed by ruminants and are fire resistant. Principal niches for the incorporation of tree and shrubs for this system are natural rangelands, contour bunds and fence lines. The planting of leguminous shrubs in compound gardens and sleeping paddocks appears promising in the future as many of the Akus and some Fulanis are already doing small scale subsistence agriculture and are becoming sedentary. Although large quantities of organic manure is produced in this system most of the manure is not used for crop production as only limited crop cultivation is done in this system. All the manure produced is lost in pastures and almost very little is sold to crop farmers. The use of organic manure has been shown to be profitable in establishing woody vegetation (Yamoah et al, 1993).

In this system there is considerable loss of range resources as mostly extensive and semi intensive production practices are used. Incorporation of trees and shrubs will for a long time be limited to fence lines and contour bunds. It is also possible that over-seeding pastures, in strips or zones, with legume browses may be a common practice in the future.

VI. Conclusion

Desertification is an environmental concern in the tropics and in the savannas of Africa in particular. Overgrazing is a major cause of desertification. The pastoralists are also affected by over cultivation by farmers resulting in decreases in areas of pasture available to them. Weather systems such as droughts in sub — Saharan Africa together with the actions of man triggering desertification call for urgent action in the development of browse resources (trees and shrubs) for multi-purpose uses. Research should focus on the analysis of the nutritive quality of browse plants in terms of average dry matter and crude protein, mineral content of phosphorus, calcium and magnesium; the frequency of occurrence in each habitat, and method of propagation. These could be sufficiently rich in their crude protein content as to maintain animals during the drought season. Secondly, many of these trees and shrubs could be found throughout the afro-alpine ecological zones and should be an incentive for both agroforestry and ruminant nutrition. Trees and shrubs will for a long time continue to play a vital role in traditional farm families despite their neglect in the region. This study therefore serves as a basis of research for improving the utilization efficiency of trees and shrubs in traditional crop-livestock production systems in the afro-alpine ecosystems. More elaborate research is required to fully characterize the potentials of these plants for agroforestry and silvopastoral purposes.

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VIII. References

1) Asah, H.A. (1984) Potentials of multi — purpose trees and traditional trees and shrubs in traditional crop — livestock production systems of the Bamenda Highlands of Cameroon. Proceedings of agroforestry harmonization workshop, 4th_7th April 1984 sponsored by USAID, GTZ and HELVETAS, Regional college of Agriculture Bambili, p. 8 — 19.
2) Beets, W. C. (1989) The potential role of agroforestry in ACP countries. CTA Wageningen 68p.
3) Bahmel, F. and Neumann, I. (1982) An example of agroforestry for tropical mountain areas In: Agroforestry in the African Humid Tropics (Proc.), L. H. Mac Donald (ed), The United Nations University p. 92—98.
4) Boudet, G. G. and Toutan, B. (9180) The integration of browse plants within pastoral and agropastoral systems in Africa. In: Browse in Africa: the current state of knowledge. Le Houerou H. N (ed). ILCA, Addis Ababa. p. 427 — 432
5) Champaud, J. (1973) Atlas Regional Ouest 2. Republique Unie du Cameroun. ORSTOM 68 p.
Dicko — Touré, M. S. (1980) The contribution of browse to cattle fodder in the sedentary system of Niger. In: Browse in Africa: The current state of knowledge. Le Houerou H. N. (ed). ILCA, Addis Ababa. p. 313 — 319.

6) Everist, S. L (1972) Australian situation, physiography, climate, soils and land use. In: Wildland shrubs: their Biology and utilization. p. 16—23.
7) Getahun, A. (1979) Ecological aspects of agroforestry in the highland ecosystems of tropical Africa. In: International cooperation in Agroforestry (Proc.), T. Chandler and D. Spurgeon (eds.). DSE/ICRAF, Wageningen. p. 59—107.
8) Getahun, A. (1984) Stability and instability of mountain ecosystems in Ethiopia. Mountain Research and Development 4 (1): 39 -44
9) Harowitz, M and Badi, K. (1981) Introduction of forestry into grazing systems. FAO, GCP/INT/347/SWE.
10) Hawkins, P. and Brunt, M. (1965) Soils and ecology of West Cameroon. FAO Report No. 2083, Rome. p. 479 — 496.
11) Hof, J; Kips, P. and Awa (1987) Land evaluation, general methodology and results for the Ring-RoadArea. FAO/UNDP, soil Resource Project, Ekona Research Centre.
12) IRZ Bambui (1987) Annual Report of Activities: 1986/87. Institute of Zoo-Technical Research, Bambui. 68p.
13) Keay, R. W. J. (1953) An outline of Nigeria Vegetation. Government Printer, Lagos.
14) Le Houerou H. N. (1987) Indigenous trees and shrubs in silvopastoral systems of Africa In: Browse in Africa: the current state of knowledge. Le Houerou H.N. (ed) ILCA, Addis Ababa.
15) Macleod, H. (1986) conservation of Oku Mountain forest. ICBP study Report No. 15, Cambridge. p. 36—58.
16) Moby, E. (1979) Climate. In; Atlas of the United Republic of Cameroon. J — F Loung (ed) Edition Jeune Afrique, Paris. p. 16— 19.
17) Ndenecho E. N. (2005) Savannization of tropical montane cloud forest in the Bamenda highlands of Cameroon. Journal of the Cameroon Academy of Sciences, 5(1):3-10
18) Nkwi, P. N. and Warnier, J-P (1982) Elements of a history of the Western Grassfields. Publication of Dept. of Sociology, University of Yaounde. 236p.
19) Peyre de Fabriques, B. (1975) Problémes poses par l'evaluation du potential ligneux en zone saheliene. Coll. sur L'evaluation et la cartographie des partürage tropicaux africains. CIPEA, Addis Ababa. p. 281 — 284.
20) Tamura, 1. (1986) Regolith strtigraphic study of Late Quaternary environmental history in the West Cameroon Highlands and the Adamaoua Plateau. In: Geomorphology and environmental changes in tropical Africa: Case studies in Cameroon and Kenya. H. Kadomura (ed). Hokkaido University, Sapporo. p. 63—88.
21) Walker, B.H. (1980) A review of browse and its role in livestock production in Southern Africa. In: Browse in Africa: the current state of knowledge. Le Houerou H.N. (ed.) ILCA Addis Ababa. p. 7-31.
22) Yamoah, C.F., Ngueguim, C.; Ngong, J. and Tambi, E. (1993) Stimulation of top and root growth of Leucaena leucocephala with farm manure on soils with contrasting fertility status in North West Cameroon. Agronomy Abstracts, ASA Madison, USA.
23) Yamoah, C.F., Ngueguim, C.; Ngong, J and Cherry, S. (1984) Soil fertility conservation for sustainable crop production: Experiences from some highland areas of the North West Cameroon. In: Proceedings of agroforestry harmonization workshop. 4th — 7th April, USAD, GTZ, HELVETAS, Regional College of Agriculture Bambili. p. 1 —6.

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Socio-Cultural Determinants of the child's Parents in the Eradication of Polio: A Study of Aligarh District of the State of Uttarpradesh

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Abstract - This paper is based on the primary data collected from rural and urban areas of the Aligarh District of the state of Uttarpradesh .The data has been collected from the child"s parents residing in these areas. All these respondents were randomly selected. The data was collected through an interview scheduled in an unbiased manner. The sample included 600 respondent residing in rural as well as urban areas of Aligarh. The main basis of the study is to find out that upto what extent socio-cultural determinants of the child"s parents help in the eradication of polio which is the serious disease affecting the child between the age group of 1 to 5 years.

Keywords : *socio-cultural determinants, polio, education, religion, parents.*

GJHSS Classification : *FOR Code : 040604,160804,160403*

Strictly as per the compliance and regulations of:

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Abhimanyu Kumar[1] Anshu Taunk[2]

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***Abstract*-This paper is based on the primary data collected from rural and urban areas of the Aligarh District of the state of Uttarpradesh .The data has been collected from the child's parents residing in these areas. All these respondents were randomly selected. The data was collected through an interview scheduled in an unbiased manner. The sample included 600 respondent residing in rural as well as urban areas of Aligarh. The main basis of the study is to find out that upto what extent socio-cultural determinants of the child's parents help in the eradication of polio which is the serious disease affecting the child between the age group of 1 to 5 years.**

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I. INTRODUCTION

The word Polio (grey) and Myelon (marrow, indicating the spinal cord) are derived from the Greek. It is effect of poliomyelitis virus on the spinal cord that leads to the classic manifestation, Paralysis. Although records from antiquity mention crippling diseases compatible with poliomyelitis, it was Michael Underwood from England who in 1789 first described disability of the lower extremities in children that was recognizable as poliomyelitis1. The first outbreaks in Europe were reported in the early 19th century, and outbreaks were reported in the United States a few years later. For the next hundred years, epidemics of polio were reported from developed countries in the northern hemisphere each summer and fall. These epidemics became increasingly severe, and the average age of persons affected rose2. The increased age of primary infection increased both the disease severity and number of deaths from polio. Polio reached a peak in the United States in 1952, with more than 21,000 paralytic cases. Polio incidence fell rapidly following introduction of effective vaccines. The last case of wild-virus polio acquired in the United States was in 1979, and global polio eradication may be achieved within the next decade3. Polio is a disease caused by a virus. It enters a child's (or adult's) body through the mouth. Sometimes it doesn't cause serious illness. But sometimes it cause paralysis (can't move arm or leg). It may be possible to kill people who get it, usually by paralyzing the muscles. The four types of polio are:

1. Bulbar polio.
2. Cerebral poliomyelitis.
3. Non-paralytic polio.
4. Paralytic polio

There are three poliovirus serotypes (P1, P2, and P3). There is minimal heterotypic immunity between the three serotypes. That is the immunity to one serotype does not produce significant immunity to the other serotypes4. The poliovirus is rapidly inactivated by heat, formaldehyde, chlorine, and ultraviolet light.

The virus enters through the mouth and primary multiplication of the virus occurs at the site of implantation in the pharynx and gastrointestinal tract. The virus is usually present in the throat and in the stool before the onset of illness. One week after onset there is little virus in the throat, but virus continues to be excreted in the stool for several weeks5. The virus invades local lymphoid tissue, enters the blood stream, and then may infect cells of the central nervous system. Replication of poliovirus in motor neurons of the anterior horn and brain stem results in cell destruction and causes the typical manifestations of poliomyelitis6.

II. THE OBJECTIVE

1. To study the impact of parent's education on the response to PEP (Polio Eradication Programme)
2. To study the impact of parent's religion, socio-economic status on the response to PEP.
3. To study of the impact of response of parents living in the rural and urban areas to PEP.

III. THE HYPOTHESIS

1. There is no significant difference of response of rural and urban parents to PEP.
2. There is no significant difference of response of Hindu and Muslims parents to PEP.
3. There is no significant difference of response of educated and illiterate parents to PEP.

IV. RESEARCH METHODOLOGY

Aligarh district is a part of Central Ganga Plain of the state, covering an area of 5498 sq. Km. with the total population of 4,32,37,60 as per 2001 census (density: 786 person/sq.Km.). It has 6 tehsils, 12 development blocks, 112 Nayaya Panchyats, 853 Gram Panchyats and total 1184 villages. The demographic situation of the district is that as per the latest available information with the total

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population of 352366 distributed between rural areas with the population of 276517 and urban areas with population of 75849[7].The study was conducted in 12 blocks of Aligarh District .All these blocks were purpose sample. The total number of respondent were 600 including 300 Hindu and 300 Muslim respondents. This paper is based on observed frequency subject to some hypothesis according to the rules of probability. As the paper is based on independent observations, therefore χ^2 tests is applied to test the goodness of fit, to test the independence of attributes, to test if population has a specified value of the variance[8].

The first hypothesis as "There is no significant difference between response of rural and urban parents to polio eradication programme. It is tested by applying χ^2 tests. The results in this regard are summarized in the table.

Table -1

Significance of difference between response of rural and urban parents to polio eradication programme (PEP)

	Responses					
	No Response	Low Response	Average Response	High Response	Very high Response	Total
Urban	5	62	132	101	00	300
Rural	4	77	158	60	1	300
Total	9	139	290	161	1	600

χ^{*2} = 15.502 χ^2_t = 9.488

$\chi^{*2} > \chi^2_t$ at 5% level of significance

Where χ^{*2} = Computed value

χ^2_t = Tabulate value / theoretical value

It can be seen that χ^{*2} (Calculated) value has come out to be 15.502 but χ^2_t (tabulated) value to be 9.488 since here calculated value is greater than to tabulated value ($\chi^{*2} > \chi^2_t$). Which is significant at 5% level of confidence therefore null hypothesis is rejected. It shows the significance of difference among the responses from urban and rural areas. The above table shows thatin urban areas the number of no response is 5, number of the low response is 62 while number of average response is 132, and the number of high response 101 but in case of very

high responses equal to zero.Similarly the number of response is also observed in case of rural areas the number of no response is 4, in case of low response 77 while in case of average response are 158 as well as high response is 60 but in case of very high response it is 1.

By the closed observation we have noted that number of no responses in case of urban areas is greater than rural areas (5>4). In case the number of low response is related, urban areas have lesser then rural areas (e.g. 62<77). In case of average response is related urban areas have lesser than rural areas (132<158) whereas in case of high response the number of response related with urban areas is greater than rural areas (101>60) while in case of very high response the number of responses related with urban areas is perfectly inelastic it means zero. While in case of rural areas equal to 1.

The inference drawn from the analysis of the above table shows that the number of responses in case of rural areas are greater than urban areas although there is fluctuation in responses as it is seen from average response as analyzed from the table –1.But in whole it is concluded that the parents of rural areas are more conscious in comparison to urban areas.

The second hypothesis is "There is no significant difference between response of Hindu and Muslim parents to polio

(df = 4)

eradication programme (PEP). It is tested by applying χ^2 test. The results in this regard are summarized in table.

Table -2

Significance of difference between response of Hindu and Muslim parents to PEP.

	Responses					
	No Response	Low Response	Average Response	High Response	Very high Response	Total
Hindu	00	28	144	127	1	300
Muslim	9	111	146	34	00	300
Total	9	139	290	161	1	600

(df.4**)**

χ^{*2} = 113.295 χ^2_t = 9.488
$\chi^{*2} > \chi^2_t$ at 5% level of significance
Where χ^{*2} = Calculated value
χ^2_t = Tabulated value
It can be seen that χ^{*2} (calculated) value has come out to be 113.295 but χ^2_t (tabulated) value to be 9.488 since here method mainly based on interviews and surveys. Their responses are categorized into low response, average response, high response and very high response. In Hindu religion the number of no response is zero, the number of low response 28, the number of average response 184, the number of high response 127 and in case of very high response which is equal to 1 now the number of responses have also been observed in case of Muslim religion that the number of no response is 9, the number of low response is 111, the number of average response 146, the number of high response is 34 and in case of very high response it is zero. By the closed observation it has been observed that the number of no response in case of Hindu religion is nil in comparison to (00<9) Muslim religion, the number of low response in case of Hindu religion is lesser than Muslim religion (28<111). In case of average response Hindu religion responded lesser than Muslim religion (144<146), in case of high response number of response relative with Hindu religion is greater than Muslim religion i.e. (127>34) while in case of very high response the number of Hindu response relative with Muslim religion is perfectly inelastic which means, zero while incase of Hindu parents is equal to 1.

By the analysis of table –2 it has been concluded that the there significant difference in response of Hindu parents and Muslim parents to polio eradication programme. Hence, null hypothesis is rejected.

The third hypothesis is 'There is no significance of difference between response of literate and illiterate parents to polio eradication programme (PEP). It is tested by applying χ^2 tests; the results in this regard are summarized in the table.

Table –3
Significance of Difference between response of literate and illiterate's parents to PEP.

	Responses					
	No Response	Low Response	Average Response	High Response	Very high Response	Total
Illiterate	9	116	156	50	00	331
High School	00	17	71	67	1	156
Intermediate	00	3	18	18	00	39
Graduate & P.G.	00	1	22	14	00	37
Other	00	2	23	12	00	37
Total	9	199	290	161	1	600

(df=4)χ^{*2} = 98.613 χ^2_t = 9.488
$\chi^{*2} > \chi^2_t$ at 5% level of significance
Where χ^{*2} = Calculated value
χ^2_t = Tabulated value
It can be seen that χ^{*2} (calculated) value has come to be 98.613 but χ^2_t (tabulated) value to be 9.488 since here calculated value in greater than to tabulated value ($\chi^{*2} > \chi^2_t$) which is significant at 5% level of confidence therefore null hypothesis is rejected. Thus, by analysis of the above table it has been concluded that there is significance of difference between responses of illiterate and literate parents to the polio eradication programme

V. Conclusions

This study of Poliomyelitis continues to be a major problem in India leading to high morbidity and mortality among children under age of 5 years. To address this problem, pulse polio immunization (PPI) and two National Immunization Days was conducted in the country in 1995. The migration of children to rural areas, the other significant finding was an indirect effect of intensive oral polio vaccine (OPV) administration as part of polio eradication initiative. The lack of awareness and fear of side effects constituted a small minority of reasons for non-immunization. The implications of the study are: to enhance the maternal knowledge about the vaccine preventable diseases and importance of completing the immunization schedule through interpersonal mode and to overcome obstacles to immunization such as accessibility and lack of family support. There was statistically significant difference, by chi-square analysis, The inference drawn from the analysis

of the above table shows that the number of responses in case of rural areas are greater than urban areas as regards to the polio eradication programme (PEP) although there is fluctuation in responses as it is seen from average response

as analyzed from the table –1.But in whole it is concluded that the parents of rural areas are more conscious
in comparison to urban areas. Still there is statistically significant difference, by chi-square analysis as to the response of both the religion towards polio eradication programme (PEP). Significant difference of response has also been seen between literate and illiterate of child's parents towards polio eradication programme (PEP), by chi-square analysis. Thus, it has been concluded that there is more awareness and consciousness in literate parents in comparison to illiterate parents towards the polio eradication programme (PEP).

VI. Reference

1. Ahluwalia, A(1967):"Sociology of Medicine in India" : An approach In Economic and Political Weekly, vol.42.(I), pp. 1007-1072.
2. Bird CE, Conrad P, Frement A, Bird CE, Conrad P. (2000): Handbook of Medical Sociology, Fifth Edition Prentio Hall, New Jersey, pp-1-10.
3. Sutter RW, Cochi SL (1997): Ethical dilemmas in worldwide polio eradication programs [Comments]. An Journal Public Health, 87:913-6
4. World Health Organization. Progress towards global poliomyelitis eradication, 1999. Weekly Epidemiological Record 2000; 75:134-143.
5. C.D.C. Progress towards global eradication of poliomyelitis eradication, (2002). MMWR 2003; 52: 366-9.
6. Dharamver, (1988) "Studies is Medical Sociology in India" In Indian Journal of Social Research, Vol. 29 (3).
7. Gaur. R.C., Excavations at Atranjkhera - Earlv (1983) Civilization of the Upper Ganga Basin. Aligarh Muslim University and Motilal Banarasidass. Delhi. 1983. p. 497
8. Hauser, R.M. & Warren, J.R. (1997). Socioeconomic indexes for occupations: a review, update, and critique. Sociological Methodology, 27:177-298

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Microcredit and Poverty Alleviation through the Labour Market: Evidence from Women Microcredit Clients in Tanzania

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Keywords : *microcredit, poverty alleviation, labour market, job creation, women enterprises, Tanzania.*

GJHSS Classification : *FOR Code : 160605,160609,160702*

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Microcredit and Poverty Alleviation through the Labour Market: Evidence from Women Microcredit Clients in Tanzania

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GJHSS Classification – C (FOR) 160605,160609,160702

***Abstract*-This study explores whether or not there are significant mean differences between new and mature enterprises supported by PRIDE Tanzania loans in terms of their ability to create jobs. We also explore the impacts of other factors likely to influence the ability of PRIDE-supported enterprises to create jobs. The ANCOVA results of 159 surveyed microcredit clients in Iringa town show that although microcredit access has enabled women to fund their enterprise operations, credit access does not seem to have enabled them to achieve job creation to any substantial level. This study instead establishes that much of a PRIDE-supported enterprise's ability to create jobs seems to be related to other factors, such as duration of membership in the PRIDE program and whether or not the owner of the enterprise has control over enterprise-related decision making and over the use of the loan and the proceeds generated. Notwithstanding, a significant part of the variance in an enterprise's ability to create jobs remains unexplained. These results suggest that microcredit alone is not a magic bullet in reducing poverty among women. Therefore, for any new policy to have a meaningful effect, a holistic approach needs to be brought to bear on the issues surrounding women ownership of micro and small businesses, women entrepreneurship, women's empowerment, and poverty reduction.**

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I. Introduction

A. *Women Micro- and Small-Business Owners in Tanzania*

There is no comprehensive and current estimate of the national size of the micro and small enterprises (MSEs) sector in Tanzania. Likewise, there is no precise estimate of the number of women-owned micro and small businesses, nor of the size of their enterprises or their distribution by sector. The estimates that are available are based on the rather outdated National Informal Sector Survey (NISS) of 1991 (URT, 1991). However, evidence suggests that women are increasingly becoming involved in off-farm, non-domestic economic activities (business ownership), which help them supplement household income. This is particularly so in urban areas. According to the NISS, in 1991 there were about 2.7 million business units employing about 3 million persons accounting for approximately 20 per cent of the Tanzanian labour force (URT, 1991; IFC, 2007). The survey estimates that women accounted for about 35 per cent of enterprises. Most recent estimates suggest that the number of women-owned businesses could range between 35- 43 per cent of the total numbers of operators in the MSEs sector in the country (Stevenson & St-Onge, 2005). It is also estimated that about 98 per cent of businesses in the informal sector are micro enterprises employing less than five people, usually family members (IFC, 2007), suggesting that the MSEs sector in Tanzania is mainly dominated by the informal sector.

Women get into these activities mainly out of necessity. As a result, even when women enter into entrepreneurship, they have less capital, both human and financial, to bring to their businesses during start-up and operational phases. Above all, among the challenges facing women small-business owners in Tanzania, the lack of access to formal credit sources is perhaps the most debilitating (Stevenson & St-Onge, 2005). This is attributed to the failure of the formal financial system to provide access to convenient and affordable financial services needed by the poor. Consequently, there has been an increasing reliance on microcredit as the main source of finance to support new business start-ups and expansions by most women micro- and small-business owners in Tanzania (IFC, 2007).

The objective of this study is therefore firstly to determine whether there are significant mean differences between new and mature enterprises supported by microloans from Promotion of Rural Initiative and Development Enterprises Limited (PRIDE), in terms of these businesses' ability to create jobs. Secondly, this study aims to explore the impact of other factors likely to influence the ability of PRIDE-supported enterprises to create jobs.

II. Microcredit, Poverty Reduction, and Women's Empowerment: Opposing Perspectives

Microcredit has won increasing support among development practitioners, policy makers, and the donor community as an important ally in poverty alleviation and women's empowerment (MkNelly & McCord, 2001). As a result, a number of microcredit programs worldwide have been targeting women. There are several reasons why this is so, some of which are described in brief below.

Firstly, research has shown that women constitute the largest segment of the poor and also have a higher unemployment rate than men in many countries (Ledgerwood, 1999). Therefore, targeting women with microcredit services is a way to help unemployed women

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to get involved with income-generating enterprises that can eventually help to both reduce unemployment among women as well as expand their avenues for escaping poverty (Bali Swain, 2004). In this regard, there is a call for increased microcredit services to enable women to take advantage of entrepreneurial opportunities by investing in income-generating activities and expanding their existing businesses.

Similarly, women make up the majority of the poor and the majority of informal sector participants in most economies (ILO, 2007). Moreover, women have limited access to formal sources of credit and other economic resources. Consequently, they cannot discharge their socio-economic roles and responsibilities effectively. Therefore, there is a shared view among proponents of microcredit that with proper access to such a resource, women are more likely to discharge their roles and responsibilities more effectively (Ledgerwood, 1999; Brau & Woller, 2004).

It is also assumed that with reliable and affordable access to microcredit services, women will be able to build assets of their own, which will help them reduce their susceptibility to crises and better manage household emergencies, and also serve as an important cushion or safety net for poor women and their households (Littlefield et al., 2003). Kumar (2005) suggests that microcredit has the potential to not only bring about sustainable, equitable development gains and fight poverty, but also to keep those just above the poverty line from falling below it, particularly through the building of assets, diversification of household income, and a smoothing out of household consumption patterns.

On the other hand, studies on microcredit and women empowerment have established that microcredit is likely to have a limited impact on women micro enterprising, poverty alleviation, and empowerment when women are not sheltered against the hijacking of their loans by their spouses or other members of their families (Hunt & Kasynathan, 2001). When women do not have control over their loans and the profits generated by them, they cannot reinvest in their enterprises and expand their businesses. As a result, their possibilities for escaping poverty are constrained.

Studies also show that most microfinance programs, under the guise of sustainability concerns, charge very high interest rates, much higher than those charged by commercial banks (Bali Swain, 2004). As the cost of capital is greater than the return on investment, clients end up facing loan repayment difficulties. In some instances, microcredit has been used as a tool for women's impoverishment and the feminization of debt especially if the repayment is met from other income sources in the household (Mayoux, 2002).

Moreover, as the name *microcredit* suggests, in most cases, loans given by microfinance programs are often very small (Mayoux, 2002). Small loan amounts coupled with the lack of a grace period and weekly repayments usually force microcredit clients to enter subsistence activities in the informal sector, which require only small amounts of capital, rather than investing in entrepreneurial activities with better growth prospects (Mayoux, 2002). In addition, such activities do not add value because they have no prospects of creating a comparative advantage (Andersson et al., 2007), and are less likely to be incubators of entrepreneurial skills or significant contributors to overall economic growth (Ditcher, 2006).

Likewise, the majority of microcredit clients are operating in the informal sector, where opportunities for economic growth are minimal. This is because the informal sector's ease of entry leads to stiff competition, which leads to market saturation (URT, 2002) thus, limiting their enterprise growth prospects. Moreover, most women-owned businesses are part-time, or home-based (Andersson et al., 2007) and concentrated in the service sector (Orser et al., 2006), which limits their possibilities for growth and job creation. Snow and Buss (2001) are of the opinion that if forces and regulations that condemn and limit women's operation in the informal sector are not correctly addressed; African countries are unlikely to benefit from the entrepreneurial opportunities created by microcredit programs.

Most of microcredit clients also lack the necessary business and management skills. Therefore, their ability to identify, respond to, and exploit entrepreneurial activities is constrained, and these women are consequently incapable of taking their businesses beyond micro enterprises to create jobs.

Given these limitations, the impact of microcredit on enterprise growth and women empowerment and poverty alleviation is still inconclusive and disputed. Consequently, there has been an ongoing debate as to whether previously assumed microcredit socio-economic benefits are actually attainable and sustainable, and as to the effectiveness of microfinance as a poverty-alleviation tool (Hulme & Mosley, 1998).

III. Study Variables and Hypotheses

A. Dependent Variable

One of the more important impacts of microcredit is to enable the enterprise supported by the loan to generate paid employment opportunities for the owner, for other unemployed members of the household, and for non-household members. Similarly, studies in micro and small business growth often consider the number of persons employed by the business as a proxy for the size of the firm (Robichaud & Zinger, 2007). Persons employed by the business may include permanent or part-time employees. Depending on whether a business is formal or informal, business owners may employ paid employees or use unpaid family members. However, micro- and small-business owners are more likely to use unpaid family labour or employ cheaper, part-time employees, with a view to controlling cost increases (Barnes et al., 2001).

In this study, growth in the number of paid employees was initially proposed as a measure of the effects of PRIDE loans on the ability of women-owned enterprises to create jobs; in other words, the difference between the number of paid employees before and after joining PRIDE. This is

because paid employment is often considered a significant contribution of the microcredit program (Sebstad & Chen, 1996). The expectation is that loans from PRIDE would help women clients to increase the size of their businesses, take on other profitable activities that may call for more labour, and perhaps most importantly also enable them to pay regular wages. However, given that only a few of the clients interviewed were employing paid employees, the use of this measure was not feasible. It was therefore decided to use the total number of paid employees both permanent and part–time, including the business owner, to measure growth.

B. *Independent Variables*

Loan Size and Duration of Membership in the Microcredit Program Studies on the impact of microcredit on enterprise performance have shown that the extent of impact differs according to loan size, number of loans taken, and duration of membership in the program (Littlefield et al., 2003). Possibly, this is because most microfinance programs require their clients to start with small loan sizes and slowly graduate to bigger loan sizes over the course of time. Given that loan sizes differ according to duration of membership in the microcredit program (PRIDE in our case), this suggests that mature clients are more likely to create more jobs and hence employ more labour in their enterprises as compared to new clients. Our hypothesis therefore predicts that:

The number of paid jobs created by a business that uses microcredit increases with loan size and duration of membership in the microcredit program. (H1a)

Control Over Decision Making and Loan Use

The impact of microcredit on women entrepreneurs and their enterprises partly depends on who controls decision making regarding the use of credit and income generated by the loan-supported enterprise (Hunt & Kasynathan, 2001). This implies that credit accessed by women entrepreneurs, if they lack control over their loans, may make a limited contribution to the growth of their businesses and therefore limit their job-creation potential. Based on this argument, the hypothesis is:

The number of paid jobs created by a business that uses microcredit is dependent on the owners' role in decision making as well as the owners' control over the loan and profits generated by the business
(H1b)

C. *Human Capital*

Human capital refers to the sets of skills, knowledge and experiences possessed by individuals (ECA, 2005). A stock of human capital owned by an entrepreneur enhances the individual's cognitive abilities, which allow him or her to take advantage of more productive, efficient activities (Davidsson & Honig, 2003). This suggests that greater access to human capital by the business owner would lead to a more profitable enterprise, hence increasing the enterprise's ability to generate jobs. Variables proposed for testing the impact of human capital on an enterprise's ability to create jobs include previous business ownership experience, training in business management skills and the education of the owner. Therefore:

The number of paid jobs created by a business that uses microcredit is dependent on the owner's stock of human capital
(H2)

IV. Business Characteristics

A. *Business Age*

Business age represents the number of years the business has been operating, and can serve as a proxy for business survival and growth experiences (Papadaki & Chami, 2002).This implies that older and more established businesses are likely to create jobs than younger and less established businesses. Therefore:

The number of paid jobs created by a business that uses microcredit is dependent on the age of the business (H3)

B. *Business Location and Ownership*

Business location plays an important role in business growth because different geographical locations may have different business growth potentials (Sternberg & Tamásy, 1999). Growth possibilities may also differ for businesses located in urban areas, townships, or rural areas, whether home-based or otherwise. Moreover, businesses located at the owner's residence are more likely to use family labour and therefore reduce the enterprise's ability to create paid employment opportunities. Therefore:

The number of paid jobs created by a business that uses microcredit is dependent on having a business location that is different from the owner's residence (H4)

V. Methodology

A. *Sampling Procedure*

The target population for the study was 5,400 clients, of which a sample of 159 respondents was drawn. These are women entrepreneurs who have accessed credit/loans from Promotion of Rural Initiative and Development Enterprises Limited (PRIDE) in Iringa town.

B. *Study Design*

This is a cross-sectional study that involves the use of a quasi-experimental design, employing a quasi-random control group. This design estimates the effects of a program by measuring changes that have taken place in its clients, and isolates the effects of other factors that might have contributed to changes by using a control group (Bali Swain, 2004; Hulme, 2000; Barnes and Sebstad, 2000). In this study, the comparison groups consisted of new (control group) and mature (treatment group 1 and 2) clients. New clients included those who had received their first loan but had not yet finished their first loan cycle.

C. Data Sources

Data for this study were obtained from primary sources. The data collected mainly focused on the demographic and household characteristics of the entrepreneur, her motivation, the loan size, and the number of persons employed by the business.

To avoid the problem of selection bias, clients were clustered based on loan size and duration of membership in the program, and then a random sampling design was used to select respondents from PRIDE's list of clients. It was assumed that the ability of enterprises to employ labour depends on both loan size and duration of membership in PRIDE. All those who were involved in the survey were owners of the enterprises. The survey was undertaken in February 2009.

D. Demographic and business characteristics

Demographic and business characteristic are presented in the following table.

Table 1. Demographic and Business Characteristics

Owners Age	Frequency	Percentage
18–25	11	6.9
26–35	86	54.1
36–45	30	18.9
46–55	27	17.0
Education level		
No schooling	5	3.1
Primary	129	81.1
Form 1–4	24	15.1
Marital Status		
Married/living common law	110	69.2
Widowed	29	18.2
Separated/divorced	7	4.4
Business age		
Less than one year	53	33.3
1–5 years	87	54.7
6–10 years	18	11.3
Business location		
At owner's residence		70.4
Away from owner's residence		62.5
Size of capital base (Tsh.)		
Less than 100,000	28	17.6
101,000–400,000	82	52.6
400,001–800,000	31	19.9
800,001–1,200,000	10	6.4
1,200,001–1,600,000	7	4.5
2,000,001–5,000,000	1	.6
Business experience and management practices		
Previous business ownership	86	54.1
Training and specialized skills	31	19.5

E. Business and Employment Creation

Of the sample, 14.5 per cent of clients employed paid part-time and full-time employees, of which 34.8, 30.4, and 34.8 per cent were in the control group, treatment group 1 and treatment group 2 respectively. The remaining others did not employ any person apart from the owner (85.5 per cent). Further analysis shows that 25.5, 30.8, and 43.6 per cent of paid employment opportunities were created in the Control Group and Treatment Groups 1 and 2, respectively. Moreover, results also show that the sampled businesses are micro in size, with a minimum of one and a maximum of four employees and a mean of 1.25 employees (Table 2).

Table 2. Businesses Employment Creation

F. Comparison Groups

No. of Employees	Control Group	Treatment Group 1	Treatment Group 2	Total
1*	46	46	44	136
2	6	4	3	14
3	0	1	2	2
4	1	2	4	7
Total	53	53	53	159

***** Business owner

G. Univariate Analysis

To determine the contribution of independent factors on the ability of enterprises to create jobs (number of paid employees), and whether there are significant differences between new clients and mature clients in terms of their enterprises' ability to create jobs, the survey data were put through an analysis of covariance (ANCOVA) with multiple covariates. Analysis of covariance (ANCOVA) provides for testing the effects of all variables on the dependent variable while controlling for intercorrelations between them (Field, 2005). In our case, ANCOVA was used to test the main interaction effects of microcredit and other independent variables on the number of persons employed by the enterprise supported by the PRIDE loan, while controlling for the effects of other factors that intercorrelate with the dependent variable. To control for the effects of other factors that intercorrelate with the dependent variable (number of paid employees), two variables (covariates) were proposed for inclusion in the analysis. These are the duration of membership in PRIDE and the business age. Covariates are included in the model if they are likely to improve the analysis, and these should have a linear relationship with the dependent variable.

Table 3. Study Variables and their Measurement

	Variable Name	**Variable Description**	**Operationa-Lization**
1	Employment	Number of paid employees	Continuous
2	Loansize	Amount of last loan	Categorical
3	Pmem	Duration of membership in PRIDE	Continuous
4	Decmaker	Decision maker	Categorical
5	Owneduc	Owner education	Categorical
6	Prebo	Previous business ownership	Categorical
7	Busage	Business age (in months)	Continuous
8	Buskill	Training in business-management skills	Categorical

9	Blocat	Ownership of a fixed business location different from home	Categorical

Results, Hypotheses Testing and Discussion

One of the important impacts of microcredit is to enable the enterprise supported by the loan to generate employment opportunities for the owner, for unemployed others, and for other members of the household. The expectation was that through investment in fixed capital and other operational activities of the business, the loan would fuel enterprise growth, which in turn enhances the ability of the business to create jobs. Given that loan size differs according to duration of membership in PRIDE, it was also expected that mature clients would be more likely to create more jobs in their enterprises than new clients (Control Group clients). Similarly, when business owners have control over loans and enterprise proceeds, they would be more likely to make employment decisions as dictated by the labour requirements of their enterprises. In that regard, the present study examined whether loan size, control over decision making and enterprise proceeds explained job-creation differences between micro enterprises that use PRIDE loans.

Although two covariates were initially considered for inclusion in the analysis, linearity analysis showed that only one variable had a significant linear relationship to the dependent variable; namely, duration of membership in PRIDE ($F(1, 106) = 9.12$, $p < .01$). Business age had no significant linear relationship with the dependent variable ($F(1, 136) = 0.738$, $p = 0.392$). The study results (extracted from various tables) are summarised in the table 4a.

Table 4a. Tests of Between-Subjects Effects: Loan Size by Independent variables

Dependent Variable: Number of Employees

Source	Type III Sum of Squares	Df	F	Sig.	Partial η^2
Corrected Model	1.747†	4	3.582	.008	.085
Intercept	.644	1	5.280	.023	.033
Dmemb	1.13	1	9.270	.003	.057
Loansize	.550	2	2.255	.108	.028
Decmaker	.599	1	4.989	.027	.032
Prebo	.155	1	1.313	.254	.009
Oneduc	.036	2	.1451	.865	.002
Buskills	0.00	1	.001	.978	.000
Blocation	.129	1	1.032	.312	.010
Loansize * Decmaker	.058	2	.244	.784	.003
Loansize * Prebo	.795	2	3.369	.037	.043
Loansize * Oneduc	.116	3	.311	.818	.006
Loansize * Buskills	.364	2	1.495	.228	.019
Loansize * Blocation	.267	2	1.070	.347	.020
Error	18.774	154			
Total	23.321	159			
Corrected Total	20.521	158			

* Computed using α = .05 † R2 = .093 - .132 (Adjusted R2 = .038 - .091)

Table 4b. Estimates

Dependent Variable: Number of Employees				
Loan size (Tshs.)	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
100,000	.276*	.073	.132	.420
150,000–300,000	.083*	.050	-.016	.181
500,000 and above	.040*	.064	-.086	.165

* Covariates appearing in the model are evaluated at the following values: Duration of membership in PRIDE = 2.5978.

As shown in table 4a above, contrary to expectations, results from the analysis have shown that although enterprises that use PRIDE loans are likely to create jobs, loan size did not significantly affect the amount of employment creation independently of other variables included in the analysis ($F(2,154) = 2.25$, $p = 0.108$). This shows that clients in the Control Group do not differ from clients in mature groups in terms of their enterprises' ability to create jobs. In addition, the mean enterprise employment creation shows that there were no statistically significant mean differences among the groups (Table 4b). Specifically, although clients in Treatment Group Two were more likely on average to employ more paid, part-time and full-time employees (25) than clients in the Control Group (16) and Treatment Group One (19) (Table 2), the mean enterprise employment creation adjusted by duration of membership in PRIDE did not show any significant differences between the control group and treatment groups One and Two. This suggests that micro enterprises supported by microcredit do not seem to be significant contributors of employment opportunities.

This study has also established that most women-owned businesses are micro in size, employing only one or two people, with about 86 per cent of businesses employing on average one working person, mainly the owner. This study has also established that 29 per cent of employment opportunities created are family-related, either in terms of paid or unpaid family labour. Further analysis has shown that in the case of an increase in business workload, women entrepreneurs in this study mainly use their daughters (36.9 per cent) as compared to those who use their sons (22.2 per cent) to help with the work. These results support the findings of previous studies (for example, Bali Swain, 2004), who found that in spite of whatever the assumed benefits of microcredit access for women entrepreneurs may be, credit access has had a more pronounced negative effect in terms of increased workload on daughters than on sons. Similarly, Barnes et al. (2001), in a study of the Zambuko microfinance program in Zimbabwe, could not find evidence of a relationship between microcredit and paid employment in the studied clients' enterprises. They contend that this lack of impact is attributable to the use of unpaid family labour and a subsequent decrease in the real value of the net revenue of enterprises supported by a loan. It is also possible that being confronted by the challenges of loan repayment pressures, microcredit clients are less likely to employ paid employees who could increase demands on

the enterprise's cash flow through weekly and monthly wage bills.

Collier et al. (1994), discussed in Mosley and Rock (2004) in a study of microfinance, labour markets, and poverty in Africa, also note the limited job-creation ability of enterprises supported by microcredit. The study finds that micro enterprises supported by microcredit can rarely employ labour. Collier et al. establish that 'there is little doubt that in Africa, the majority of microfinance borrowers do not hire labour at all, and therefore have no capacity to confer this particular type of impact'. In view of this, Mosley and Rock (2004) suggest that as long as micro enterprises supported by microcredit rarely employ paid employees, it is unlikely that microcredit services targeted at the poor will be able to reduce poverty through the labour market. Hulme and Mosley also observe that the 'technical change induced by borrowing was not dramatic, nor . . . the influences on employment outside the family' (1996:102). In other words, while some employment growth was observed among family members of program clients, the employment impact outside the family was negligible. Moreover, Hulme and Mosley noted that the difference between borrowing micro enterprises and the respective control groups is less than one employee.

In addition, there is a concern that micro enterprises supported by microcredit are essentially overrepresented in the informal sector where opportunities for job creation are limited and employment in the informal sector allows those living in extreme poverty to survive, but rarely allows them to move out of poverty(Godinot et al., 2007). Furthermore, people employed in the informal sector are susceptible to a lack of fixed employment, social protection, employment benefits, collective representation, and have very little power to negotiate with their employers. In this regard, Godinot, et al.(2007) suggest that for poor countries to be able to address poverty issues, promoting decent work should be the centre of their poverty-reduction strategies.

Another concern is that when women micro- and small-business owners do employ, they tend to employ more low-paid temporary and lowly skilled or unskilled female workers than men do (CIP/SEP, 1999). Evidence from research also suggests that the need to increase/employ labour depends on the type of a business undertaken. For example, while businesses in the manufacturing sector are likely to employ more labour, service-related businesses, the category that includes most of the clients in this study, are likely to need fewer employees (Lerner et al., 1997).

On the other hand, duration of membership in PRIDE has a significant effect on the ability of an enterprise to create jobs, ($F(1, 154) = 9.27$, $p < 0.01$), with a size effect of 5.7 per cent (Table 4a). Anderson, Locker and Nugent (2002) posit through participation in microfinance programs women are being enabled to develop business networks which make it possible to share vital business information and discuss ideas that enhance growth of their businesses. Research also notes that clients who participate in the program for a longer period are more likely to experience significant improvements in their economic well-being and are able graduate out of poverty (MkNelly & Dunford, 1999). Based on these results, hypothesis H1a**,** that the ability of enterprises to employ labour increases with both loan size and duration of membership in the program, is rejected for the loan size, but accepted for duration of membership in the PRIDE.

Results have also shown that women entrepreneurs who have control over decision making regarding loan use and enterprise proceeds are more likely to create jobs in their enterprises ($F(1, 151) = 4.98$, $p < 0.05$), with a small size effect of 3.2 per cent. The Bonferroni pairwise comparison of the difference in control over decision making shows that there are statistically significant mean differences when decisions are made by the business owner/client as opposed to otherwise ($M = 0.129$, $SE = 0.058$, $p < 0.05$). Nevertheless, the impact of decision making on the ability of their enterprises to create jobs is not mediated by access to PRIDE loan ($F(2, 151) = 0.244$, $p = 0.784$). Based on these results, hypothesis H1b, which states that the ability of enterprises to create jobs is dependent on the owner's control over decision making, loan use, and profits, is partially supported.

This study has further examined other factors that are likely to influence the impact of microcredit on the ability of micro enterprises to create jobs. Firstly, our results have shown that although previous business ownership alone did not predict enterprise employment, with access to PRIDE loan, women who owned a business before joining PRIDE Tanzania are more likely to create jobs than those who used PRIDE loan for business start-ups ($F(2,151) = 3.369$, $p < 0.05$), with an effect of 4.3 per cent. Possibly, women who have operational businesses are likely to apply for loans or join a microfinance institution (MFI) only when they have identified profitable and growth-oriented entrepreneurial opportunities. As the business grows, this in turn increases its prospects for creating jobs. On the other hand, the ability of enterprises to create jobs is not dependent on education level ($F(2, 149) = 0.145$, $p = 0.865$) and possession of business skills jobs ($F(1,151) = 0.000$, $p = 0.978$. Likewise, the relationship between loan size and the ability of enterprises to create jobs is not dependent on education level ($F(3, 151) = 0.311$, $p = 0.818$) and possession of business skills ($F(2,151) = 1.495$, $p = 0.228$). This may be a result of lower levels of education and the lack of business management skills among the majority of respondents. Hence, hypothesis H2, that the ability of enterprises to create jobs is dependent on the owners' stock of human capital, is partially supported for previous business ownership only, but is otherwise rejected.

We also anticipated that that older and more established businesses are likely to create jobs than younger and less established businesses. Nevertheless, as observed above, business age had no significant linear relationship with the dependent variable ($F(1, 136) = 0.738$, $p = 0.392$). Therefore, hypothesis H3, that the number of paid jobs created by a business that uses microcredit is dependent on the age of the business could not be supported. This means that business

growth does not necessarily happen as the business becomes older.

Our results have also demonstrated that ownership of a fixed business location that is different from the owner's residence does not have a significant impact on the ability of enterprises to creates jobs ($F(1, 104) = 1.032$, $p = 0.312$). Likewise, the interaction effect between loan size and ownership of a fixed business location is not significantly predictive of enterprise employment ($F(2, 104) = 1.070$. $p = 0.347$). Hence, hypothesis H4, that the ability of enterprises to create jobs is dependent on the business location being different from the owner's residence, cannot be supported.

H. Limitations of the Study

Although this study has explored the impacts of microcredit on employment creation through micro enterprising, self-selection in the formation of solidarity groups and self-selection in participation in the study could have introduced bias. Moreover, only one microcredit program was studied

VI. Conclusions and Recommendations

The findings of this study suggest that although microcredit access has enabled women to fund their enterprise operations, credit access does not seem to have enabled them to achieve job creation to any substantial level. Possibly, loan ceilings imposed by PRIDE prevent clients from expanding their businesses past the threshold of the micro-enterprise level. Regardless, this study has established that much of the ability of enterprises to create jobs seem to be related to factors other than microcredit itself, such as duration of membership in the loan program and control over decision making, the loan, and other proceeds. This suggests that microcredit alone is not a magic bullet in addressing poverty alleviation among women. However, it must also be noted that the variance in enterprises' ability to create jobs remains unexplained. This implies that some of the relevant factors likely to influence enterprises' ability to create jobs may not have been adequately captured by this study.

And finally, our study suggests that if any microcredit policy is to create meaningful results, it is imperative that a holistic approach be adopted that addresses the various factors influencing women ownership of micro and small business, women entrepreneurship, and women empowerment and poverty reduction.

VII. References

1. Anderson, C., Locker, L., and Nugent, R. (2002). Micro-credit, Social Capital and Common Pool Resources, World Development, Vol. 30 (1), pp. 95–105.
2. Andersson, I., Raihan, A., Rivera, M., Sulaiman, I., Tandon, N., and Welter, F. (2007). Handbook on Women-owned SMEs Challenges and Opportunities in Policies and Programmes, IKED.
3. Bali Swain, B. (2004). Is microfinance a good poverty alleviation strategy? Evidence from Impact Assessment, SIDA Uppsala.
4. Barnes, C., Keogh, E, and Nemarundwe, N. (2001). Microfinance Program Clients and Impact: An Assessment of Zambuko Trust, Zimbabwe, AIMS, Washington, D.C.
5. Barnes, C., and Sebstad, J. (2000). Guidelines for Microfinance Impact Assessments: Discussion Paper for the CGAP 3 Virtual Meeting October 18-29, 1999, AIMS, Washington, D.C.
6. Brau, J. and Woller, G. (2004). Microfinance: A Comprehensive Review of the Existing Literature, Journal of Entrepreneurial Finance and Business Ventures, Vol. 9, Issue 1, pp. 1-26.
7. Caputo, R. and Dolinsky, A. (1998) Women's choice to pursue self-employment: The role of financial and human capital of household members. Journal of Small Business Management, 36(3), 8-17.
8. CIP/SED (1999). The Gender Approach in Small Enterprise Development, Issue Paper 1, Swiss Development Corporation, Bern.
9. Davidsson, P. and B. Honig, (2003). The role of social and human capital among nascent entrepreneurs, Journal of Business Venturing 18, 301-331.
10. Ditcher, T. (2006). Hype and Hope: The Worrisome State of the Micro-Credit Movement. Available at http://www.microfinancegateway.org/content/article/detail/31747, accessed 15th April, 2009.
11. ECA- Economic Commission for Africa (2005). Economic Report on Africa 2005: Meeting the Challenges of Unemployment and Poverty in Africa, ECA, Addis Ababa.
12. Field, A. (2005). Discovering Statistics Using SPSS, 2nd Edition, SAGE Publications London.
13. Godinot, X., Heyberger, C., Heyberger, P., Ugarte, M., and Ugarte, R.(2007). Resisting Extreme Poverty: Learning from Families in Burkina Faso and Peru (p.273-306) in Moving Out of Poverty, Volume I.
14. Hulme, D. (2000). Impact assessment methodologies for microfinance: theory, experience and better practice. World Development 28(1): 79–98.
15. Hulme, D. and Mosley, P. (1998). Microenterprise Finance: Is There a Conflict Between Growth and Poverty Alleviation?, World Development, Vol. 26 (5), pp. 783–790.
16. Hulme, D. and Mosley, P. (1996). Finance Against Poverty. New York: Routledge.
17. Hunt, J., and Kasynathan, N. (2001). Pathways to empowerment? Reflections on Microfinance ad Transformation in Gender Relations in South Asia: Gender and Development, Vol. 9, No. 1, pp. 42-52.
18. IFC- International Finance Corporation (2007). Tanzania Gender and Economic Growth Assessment, the World Bank.

19. ILO (2007). Small Change, Big changes: Women and Microfinance, ILO, Geneva.
20. Khalily, M. (2004). Quantitative Approach to Impact Analysis of Microfinance Programmes In Bangladesh—What Have We Learned? Journal of International Development 16, 331–353.
21. Kumar, B. (2005). Impact of Microfinance through SHG-Bank Linkage in India: A Micro Study, Vilakshan, XIMB Journal of Management, pp 1-22.
22. Ledgerwood, J. (1999). Sustainable banking with the poor: Microfinance handbook. Washington, D.C.: The World Bank.
23. Lerner, M., Brush, C., and Hisrich, R. (1997). Israeli women entrepreneurs: an examination of factors affecting performance. Journal of Business Venturing, 12(4), 315-339.
24. Littlefield, E., Morduch, J. and Hashemi, S. (2003). Is Microfinance an Effective Strategy to Reach the Millennium Development Goals? CGAP Focus Note No. 24. Form http://www.cgap.org/docs/FocusNote_24.html. Accesses 8th January 2008
25. Mayoux, L. (2002). Women's empowerment of feminization of debt?, Towards a new agenda in African microfinance, One World Action,
26. MkNelly, B., and McCord, M. (2001). Credit with Education on Women's Empowerment: Impact Review No. 1, Freedom from Hunger Frontier.
27. Mosley, P. & Rock, J.(2004). Microfinance, Labour Markets And Poverty In Africa: A Study Of Six Institutions, Journal Of International Development 16, 467–500.
28. Orser, B. Riding, A and Manley, K. (2006). Women Entrepreneurs and Financial Capital, Entrepreneurship Theory and Practice (September)
29. Papadaki, E. and Chami, B. (2002). Growth Determinants of Micro-Businesses in Canada, Ottawa: Industry Canada, Small Business Policy Branch (July).
30. Robichaud, Y. and Zinger, T. (2007). Gender differences within early stage and established small enterprises: An exploratory study, International Entrepreneurship Management Journal DOI 10.1007/s11365-007-0039-y.
31. Sebstad, J. and Chen, G. (1996).Overview of Studies on the Impact of Micro enterprise Credit: Assessing Impact of Micro enterprise Services (AIMS). Management Systems International. Washington, D.C.: USAID.
32. Snow, R. and Buss, T. (2001). Development and the role of microcredit, Policy Studies Journal 29, 296-307
33. Stevenson and St-Onge, (2005). Support for Growth-oriented Women Entrepreneurs in Tanzania, ILO, Geneva.
34. Sternberg, R., and Tamásy, C. (1999). Munich as Germany's No. 1 High Technology Region: Empirical Evidence, Theoretical Explanations and the Role of Small Firm/Large Firm Relationships', Regional Studies, 33:4, 367 - 377.
35. UN, (2004).Access to Financing and ICT for Women Entrepreneurs in the UNECE region: Challenges and Good Practices, UN Geneva and New York.
36. URT- United Republic of Tanzania (1991). National informal sector survey (NISS). Planning Commission and Ministry of Labour, Dar es Salaam
37. URT- United Republic of Tanzania (2002). Small and Medium Enterprise Development Policy, 2002, Government Printers Dar es Salaam.

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Response of Basin Morphometric Properties to Deforestation in Upland Watersheds of Volcanic Regions: Example of Mount Cameroon

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Abstract - The paper focuses on the problem of deforestation and resulting degradation of water yields in volcanic upland drainage basins. It argues that most studies have tended to concentrate on the effects of land use changes on the discharge from drainage basins, ignoring the impact of deforestation on drainage basin areal properties. In order to link hydro-geomorphology and environmental concerns, this study investigates the implications of deforestation and forest conversion to crop plantations, rural and urban settlements on the morphometric properties of these upland drainage basins and the consequences on flood peaks. The paper used a combination of primary and secondary data to establish the impact of deforestation from 1970 to 2006 on the number of stream segments, stream lengths, drainage density, stream frequency, drainage intensity and bifurcation ratio. The study concludes that there were marked spatio-temporal variations exhibited by these parameters in response to deforestation and land use change. Between 1970 and 2006 all drainage basin morphometric properties exhibited a drop which was manifested in the drying up of most 1st, 2nd and 3rd order streams and an increase in flood risks. The study also emphasized the role of forests in influencing the regulatory characteristics of drainage basins composed of very permeable, faulted and jointed geological formations such as volcanic rocks.

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***Abstract*-The paper focuses on the problem of deforestation and resulting degradation of water yields in volcanic upland drainage basins. It argues that most studies have tended to concentrate on the effects of land use changes on the discharge from drainage basins, ignoring the impact of deforestation on drainage basin areal properties. In order to link hydro-geomorphology and environmental concerns, this study investigates the implications of deforestation and forest conversion to crop plantations, rural and urban settlements on the morphometric properties of these upland drainage basins and the consequences on flood peaks. The paper used a combination of primary and secondary data to establish the impact of deforestation from 1970 to 2006 on the number of stream segments, stream lengths, drainage density, stream frequency, drainage intensity and bifurcation ratio. The study concludes that there were marked spatio-temporal variations exhibited by these parameters in response to deforestation and land use change. Between 1970 and 2006 all drainage basin morphometric properties exhibited a drop which was manifested in the drying up of most 1st, 2nd and 3rd order streams and an increase in flood risks. The study also emphasized the role of forests in influencing the regulatory characteristics of drainage basins composed of very permeable, faulted and jointed geological formations such as volcanic rocks.**

I. INTRODUCTION

Forests play an important role in conserving soil and water resources. Several researchers have investigated efforts in the study of drainage basins as physical and biological units. The processes of water transfer in drainage basins have been described and quantified by Kori (1976). Ndenecho *et al.,* (1984) assessed the hydrological implications of land use change on discharge and flood peaks. Danjuma (2003) like Amawa (2001) used descriptive statistics to link drops in water yields from drainage basins in the Bamenda Highlands. Acho-chi (1998) on his part related variations in climate, geology and the rate of forest degradation on spatial and seasonal variations in water yields. Bailey *et al.,* (1979) assessed man's impact on the hydrological cycle. McVean and Lockie (1969) focused on the ecology and land use in uplands. Newson and Robinson investigated the effects of agricultural drainage on upland stream flows. Amawa (2001) examined the effects of deforestation on water yields in granitic upland drainage basins.

The above mentioned studies have tended to focus on the impact of land use change on the stream discharge. The consensus is that with increasing land drainage, conversion of forests to pastures and farmlands and general deforestation, water yields in streams will fall while flood risk increase. These studies largely ignore the morphometric parameters of drainage basins. This study therefore focuses on the effects of forest destruction and conversion of farmlands and human settlements on drainage basin morphometric properties such as number of stream segments, stream length, drainage density, stream frequency, drainage intensity and the bifurcation ratio as an aid to the design of drainage basin management strategies for water conservation in upland watersheds found in mountain regions.

II. THE STUDY AREA

The study area is located between latitudes 4015'N and 4040'N and longitudes 9000'E and 9035'E. The drainage basins identified for study constitute the northern and north western slopes of the Mount Cameroon (Figure 1). The basins cover a land surface area of 2048km2. Principal morphological units include volcanic hills, plateaux and sedimentary basins. The climate is equatorial. It is very wet and hot. Rainfall is continues and abundant and ranges from 2000 to 2500mm per year. The drought season lasts less than 3 months. Atmospheric humidity in the wet season is about 85%. Rainfall maxima occur in June, July and August. Mean annual temperatures average 260c with a mean annual range of 2.80c.

The climax vegetation is rain forest. It is situated between 200 and 800m above sea level. This forest over the years has been intensively degraded by timber exploitation, plantations of cocoa, oil palm, Robusta coffee, plantains, food crop fields and urban development. Letouzey (1985) established a quantitative description of the forest.

Primary forests; 39% of the land surface area;Secondary old forest; 50.6% of the land surface area;

Secondary young forest; 0.05% of the land surface area; and Food crop plantations and multi-storey home garden plots; 10.35% of the land surface area.

The forest is fragmented by agro-industrial plantations (rubber and oil palm), food crop farms, rural settlements, urban centres, and commercial exploiters of timber and non-timber forest products. It is a landscape of steep slopes in the middle slope segments with a series of valleys and

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streams, mountains ridges of volcanic origin and deeply dissected slopes with gradients more than 25%. At 30 to 300m elevation above sea level the gradients range from 5 to 8%. These slopes

constitute important watersheds. They are source regions for several streams, rivers and springs which support villages and towns. The major river basins are: Yoke, Mandese, Mbo, Meme and Iloani.

The study investigated these watersheds in terms of changes in drainage basin morphometry in response to land use changes from 1970 to 2006. Documented data reveals a progressive degradation of the climax vegetation of rainforest by anthropogenic activities over the years. Figure 2 and Figure 3 present the extent of rainforest degradation between 1970 and 2006. The destruction of the forest is alarming (Courade, 1973; Etuge 1979; Kamanda, 1994; Balgah, 2001; Effange 2006; and Ewane, 2006).

III. Research Methodology

Data on relief and drainage, vegetation and land use were established for 1970 and 2006 based on topographical and land use maps at scales of 1/200.000 (Douala / Buea NB – 32 – IV: 1970) established by the National Geographic Institute in Yaounde and the Mount Cameroon Project. The 2006 maps were updated by field observations and the work of Nkemasong (2006). The quantitative investigations of morphometric parameters involved the use of aerial photographs and topographical maps of the area from the National Geographic Institute. These were equally complemented by field observations and the use of the Global Positioning System. The main parameters investigated were:

- Stream frequency (Fs): According to Horton (1945);

$$F_s = \frac{Total\ number\ of\ stream\ segments}{Basin\ area}$$

- Drainage density (D_d): According to Horton (1945):

$$D_d = \frac{Sum\ of\ stream\ lengths}{Basin\ area}$$

- Drainage Intensity (I_d): It is the combined textural effect of the drainage density and stream frequency of the basin. According to Faniran (1975): $I_d = D_d \times F_s$. This index gives a more comprehensive assessment of the extent to which the surface has been dissected by agents of denudation.
- The study also examined some linear properties of drainage basins. These are stream orders and the bifurcation ratio (B_f). Stream ordering or ranking was done after Strahler (1964).

$$B_f = \frac{N}{N+1}$$

Where: N is the number of stream segments of one order, and N + 1 those of the next higher order. This is a measure of the branching within a drainage network.

The above investigated parameters are related to three of the four Hortonian Laws of fluvial morphometry: the law of basin areas, the law of stream length and the law of stream numbers (Whittow, 1984). The unit of data collection is the drainage basin. Ten 5th order drainage basins were studied. The above data were generated for two dates, that is, 1970 and 2006 respectively. The analysis of the data employed descriptive and inferential statistical techniques in order to establish the implications of land use changes on drainage basin aerial properties.

The investigations faced some limitations. Among these were the rough terrain and the largely inaccessible nature of the study area.

IV. Data Presentation and Discussion

Table 1: The response of stream numbers and stream length to deforestation

S/N	Name of Basin	Surface Area (Km^2)	*Average Elevation (m)	Number of streams			Total stream length (km)		
				1970	2006	% change	1970	2006	% change
1	Yoke	484	530	262	63	-76	216	180	-16.7
2	Mandese	52	65	44	13	-70.5	44.8	25	-44.2
3	Mbekeke	38	65	21	4	-81	32	16	-50.0
4	Kendongue	96	180	59	16	-72.9	83	50	-39.8
5	Kumba	104	236	54	9	-83.3	90	42.6	-52.7
6	Mambanda	68	121	32	5	-84.4	70	24	-65.7
7	Malende	40	109	46	6	-87	38	10.6	-72.1
8	Mbo	140	305	78	17	-78.2	80	51	-36.3
9	Meme	976	628	376	137	-63.3	406	323	-20.4
10	Iloani	50	10	17	14	-17.6	42	36	-14.3

Average elevation above sea level

Table 1 presents data on the response of stream numbers and stream length to deforestation. The drainage basins experienced a marked drop in the number of streams between 1970 and 2006. From the table, 705 streams or 71.3% of the streams have dried out. From planimetric estimates, 75% of primary forest was degraded during the period. The disappearance of the streams can therefore be attributed to deforestation. The drying up of streams varies with drainage basin. Most streams in the Malende basin (87%), Mambanda basin (84.4%), Kumba basin (83.2%), Mbekeke basin (81%), Mbo basin (78.2%), Yoke basin (76% and Kendonge (72.9%) dried up. These basins have emerging towns such as Kumba, Muyuka, Mbalangi and Ekondo-Titi. The primary forest in these basins has also been reduced by extensive agro-industrial tree-crop plantations. The basins that experienced relatively lower rates of stream disappearance include Iloani (17.6%), Meme (63.3%) and Mandese (70.5%). These basins harbour large areas of protected forests and are mostly occupied by rural settlements practising multi-storey agroforestry farming systems. The visible evidence of the disappearance of streams is the increasing number of dry valleys and abandoned potable water collection points in the Bakundu, Mbonge and Bafaw settlements. The drying up of streams has affected the total length of streams (table 1). Total stream length dropped from 1101.8km in 1970 to 748km in 2006. In 36 years 533.6km of stream length disappeared.

Table 2: The response of drainage density and stream frequency to deforestation.

S/N	Name of Basin	Surface Area (Km^2)	*Average Elevation (m)	Drainage Density (D_d in km/km^2)			Stream Frequency (F_s)		
				1970	2006	% change	1970	2006	% change
1	Yoke	484	530	0.5	0.4	-20	0.5	0.1	-80.0
2	Mandese	52	65	0.9	0.5	-44.4	0.9	0.3	-66.7
3	Mbekeke	38	65	0.8	0.4	-50	0.6	0.1	-83.3
4	Kendongue	96	180	0.9	0.5	-44.4	0.6	0.2	-66.7
5	Kumba	104	236	0.9	0.4	-55.6	0.5	0.1	-80.0
6	Mambanda	68	121	1.03	0.4	-61.2	0.5	0.1	-80.0
7	Malende	40	109	0.95	0.3	68.4	1.2	0.2	-83.3
8	Mbo	140	305	0.6	0.4	-33.3	0.6	0.1	-83.3
9	Meme	976	628	0.4	0.3	-25	0.4	0.1	-75.0
10	Iloani	50	10	0.8	0.7	-12.5	0.34	0.28	-06.7

**Average elevation above sea level*

Table 2 presents data on the response of the drainage density and of stream frequency to land use changes. For all drainage basins the density of streams dropped as most streams dried up. The stream frequency or the average number of streams per unit area of drainage basin dropped by 45.6%, that is, from 0.8km2/km to 0.4km/km2. These changes can largely be attributed to the desiccation of the basins following deforestation. The drop is highest in the Malende basin (68.4%), Mambanda (61.2%), Kumba (65.6%) and Mbekeke (50%), but lower for Iloani (12.5%), Yoke (20%), Meme (25%) and Mbo (33.3%). The high drop in stream density is largely as a result of the high rate of drying up of stream

Table 3: The response of drainage intensity and bifurcation ratio to deforestation

S/N	Name of Basin	Surface Area (Km^2)	*Average Elevation (m)	Drainage Density (I_d) = (D_d x F_s)			Bifurcation Ratio		
				1970	2006	% change	1970	2006	% change
1	Yoke	484	530	0.25	0.04	-84.0	2.7	2.7	0
2	Mandese	52	65	0.81	0.15	-81.5	3.6	1.6	-55.6
3	Mbekeke	38	65	0.48	0.04	-91.7	1.7	3.0	+76.5
4	Kendongue	96	180	0.54	0.10	-81.5	4.0	4.1	+2.5
5	Kumba	104	236	0.45	0.02	-95.6	2.7	1.6	-40.7
6	Mambanda	68	121	0.50	0.04	-92.0	3.0	4.0	+33.3
7	Malende	40	109	1.14	0.06	-94.7	2.2	2.0	-9.1
8	Mbo	140	305	0.36	0.04	-88.9	2.3	2.4	+4.3
9	Meme	976	628	0.16	0.03	-81.3	2.3	2.1	-8.7
10	Iloani	50	10	0.24	0.19	-18.3	2.4	1.8	-25

**Average elevation above sea level*

Table 3 presents the changes in the drainage density and bifurcation ratio between 1970 and 2006. The drainage density dropped in all basins. The drop was generally above 80% for all drainage basins except for Iloani where it was as low as 18.3%. This is because this basin experienced the lowest drop in drainage density (12.5%) and stream frequency (6.7%). The high drop in values of the other basins can be explained in terms of their high drops in stream frequency as a result of the destruction of primary forest and urbanization. Field observations point to low water discharges during the short dry season and floods during the rainy season in the highly degraded drainage basins. Deforestation results in an increase in storm runoff, with a consequent liability to increase storm flow peaks downstream. This affects the volume of rainfall received in drainage basins and available as throughflow, soil moisture storage, groundwater storage and base flow necessary for recharging the streams. Lower order streams are most affected. Table shows high space-time variations in stream orders and therefore the bifurcation ratio. From the table, the number of streams per rank and highest rank per drainage basin changed between 1970 and 2006

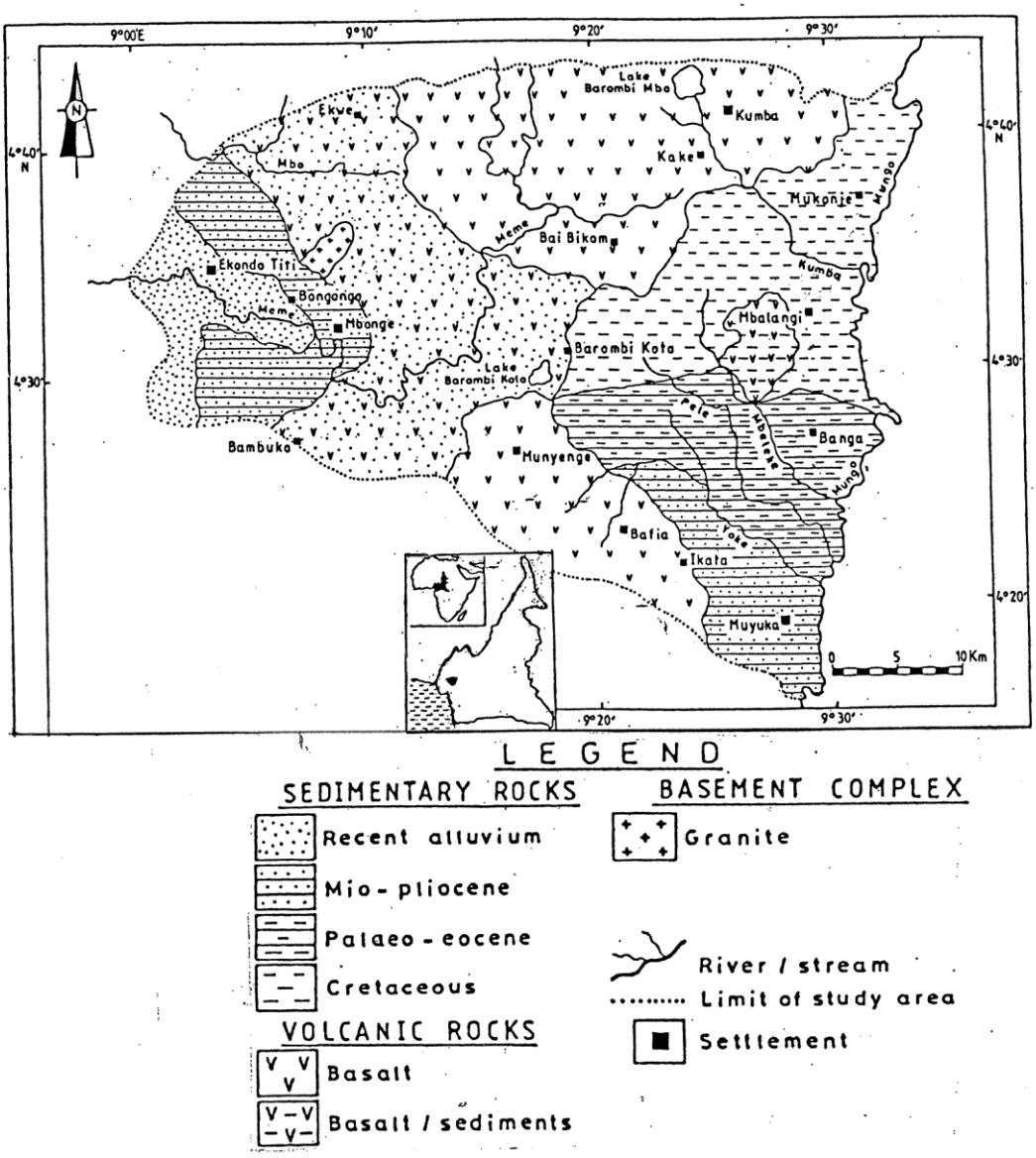

Figure 1: The location and geology of the Northern slopes of Mount Cameroon (Dumort,1968)

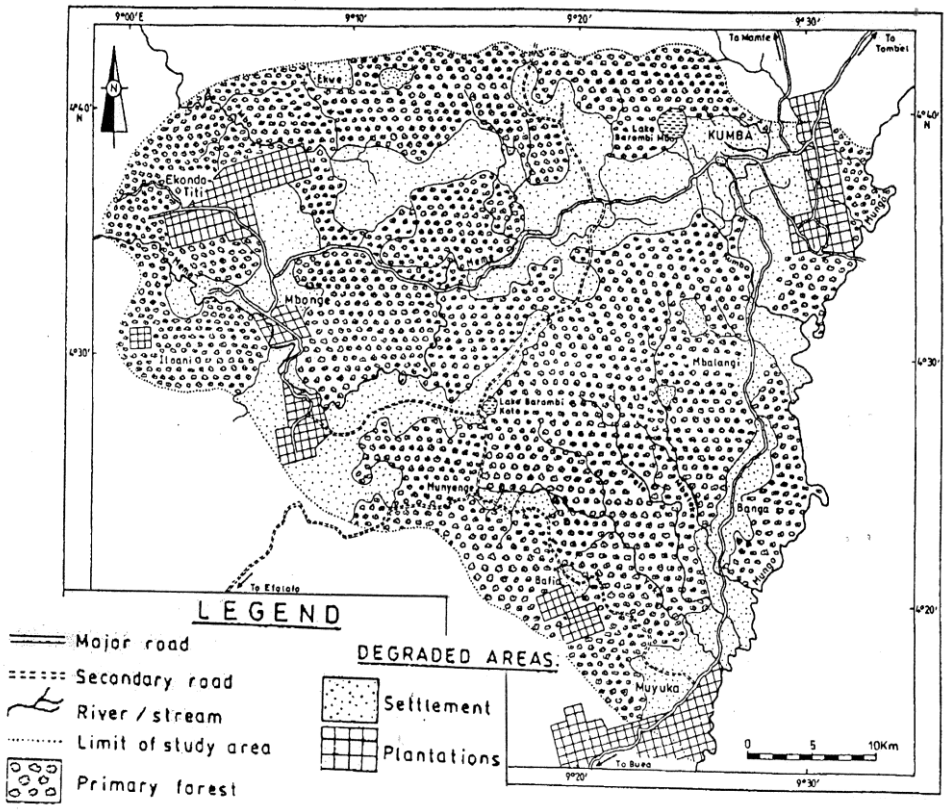

Figure 2: The 1970 land use pattern of the northern slopes of Mount Cameroon Source: National Geographic Institute, Yaounde.

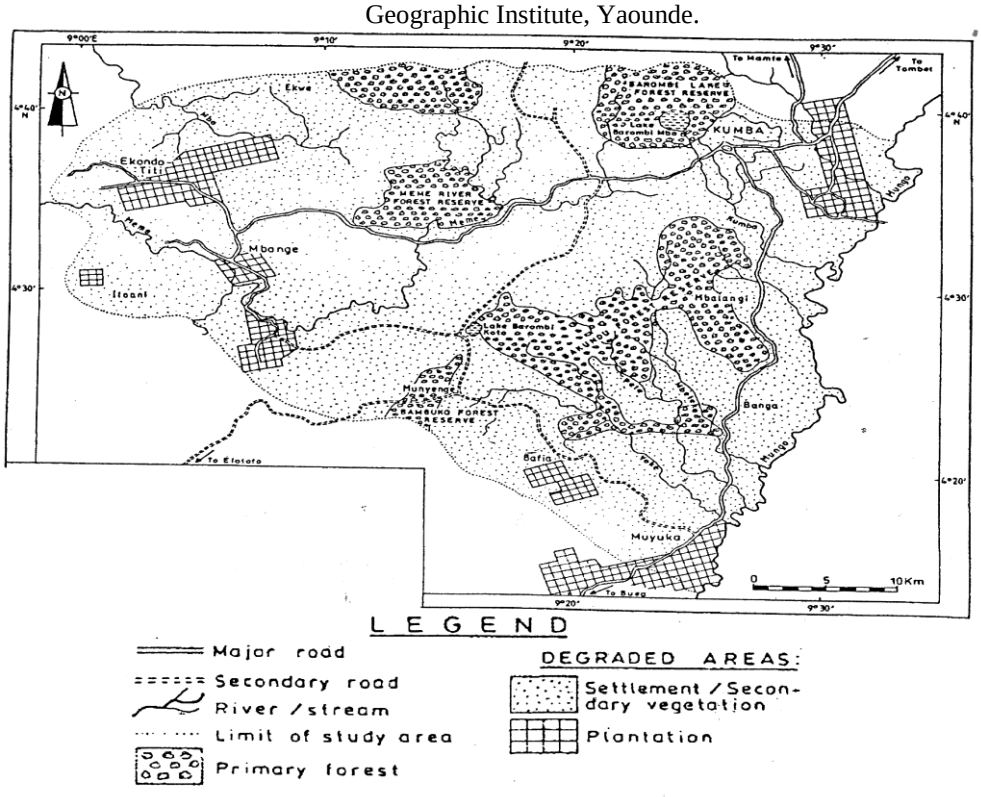

Figure 3: The 2006 Land use pattern of the Northern Slopes of Mount Cameroon (Nkemasong, 2006)

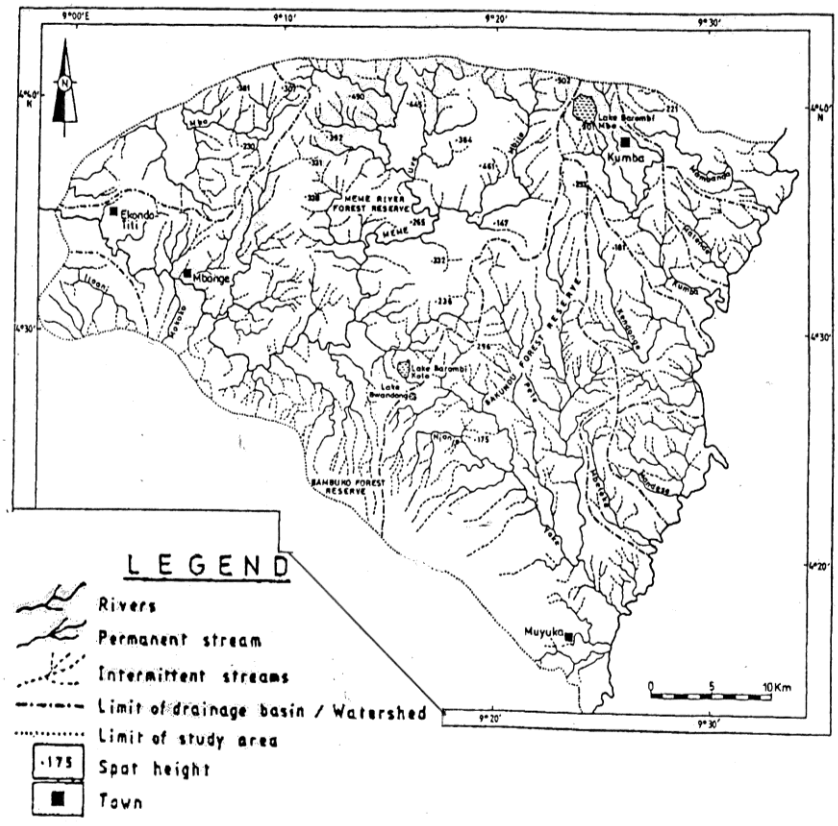

Figure 4: The 1970 drainage network of the northern slopes of Mount Cameroon Source: National Geographic Institute, Yaounde.

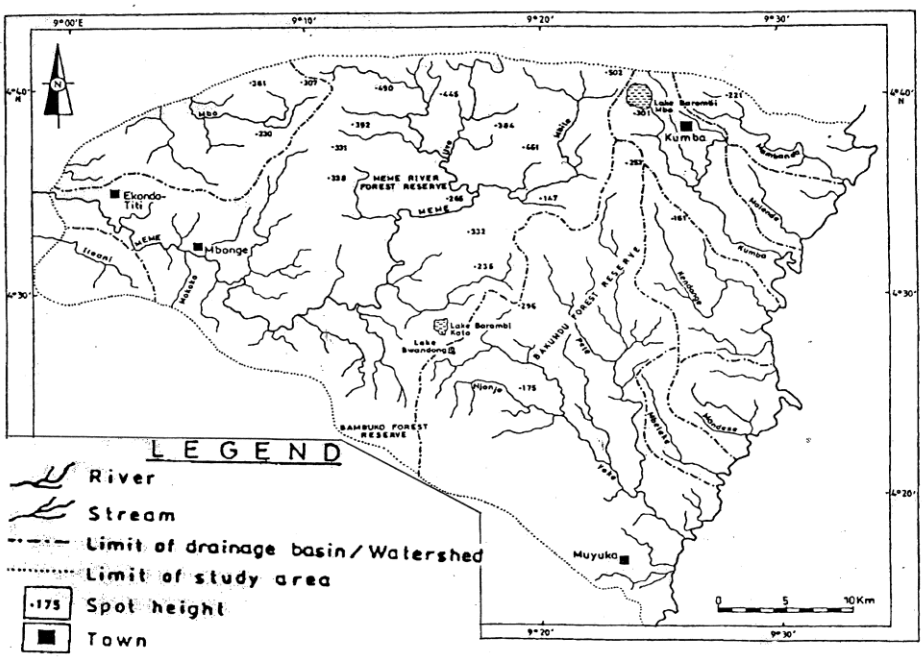

Figure 5: The 2006 drainage network of the Northern slopes of Mount Cameroon Source: Nkemasong, 2006.

Table 4: Changes in stream ordering in response to deforestation

S/N	Basin Name	Basin size (Km^2)	Number of streams / Order									
			Year: 1970					Year: 2006				
			1	2	3	4	5	1	2	3	4	5
1	Yoke	484	142	75	24	17	4	35	18	8	17	4
2	Mandese	52	25	11	7	1	-	8	5	-	1	-
3	Mbekeke	38	11	6	4	-	-	3	1	-	-	-
4	Kendongue	96	35	19	3	2	-	8	7	1	2	-
5	Kumba	104	34	15	5	-	-	5	3	1	-	-
6	Mambanda	68	21	4	7	-	-	4	1	-	-	-
7	Malende	40	28	12	6	-	-	4	2	-	-	-
8	Mbo	140	43	19	6	4	-	11	4	2	4	-
9	Meme	976	262	112	61	27	14	69	35	24	27	14
10	Iloani	50	11	3	3	-	-	9	5	-	-	-
	Total	**2048**	**612**	**276**	**126**	**51**	**18**	**156**	**81**	**36**	**51**	**18**

From table 4, between 1970 and 2006 the number of 1st order streams dropped from 612 to 156 streams (74.5%), 2nd order streams dropped from 276 to 81 streams (70.6%); the number of 3rd order streams changed from 125 to 36 streams (83.2%). Many 1st, 2nd and 3rd order streams have disappeared. The changes in drainage network are presented in figures 4 and 5. Amawa (2001) studied the response of water yield to deforestation in granitic, upland watersheds in the Mbum Plateau of Nkambe. The process of drying up of streams in a drainage basin, he concluded, starts with 1st order streams, followed by 2nd and 3rd order streams.

One of the most important functions of the forests is their effect on regulating the distribution of precipitation reaching a watershed. This effect is the major factor in managing watersheds for stream flow regulation. If the forest cover is destroyed, the multiple benefits of soil and water conservation, flood and land slide prevention are jeopardized. The benefits from a forest are the functional inter-relationships of many natural variables operating within the forest-functions, yet unquantified by science, but generally understood from the results of empirical research and experience. The study made a statistical analysis of changes in morphometric parameters in response to deforestation.

Table 5: Quantitative analysis of changes in morphometric parameters in response to deforestation

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PARAMETER	RANGE		MEAN		VARIANCE		STANDARD DEVIATION		C.V. %	
	1970	2006	1970	2006	1970	2006	1970	2006	1970	2006
Number of Streams	359	12	98.9	28.4	144499.4	1749.9	120.4	41.8	121.8	147.2
Stream Length	374.0	312.4	110.2	75.8	1364.9	9891.5	116.7	99.5	105.9	131.3
Drainage Density	0.6	0.4	0.8	0.4	4.3	1.3	2.2	1.2	275	289.8
Stream Frequency	0.9	0.2	0.6	0.2	6.5`	8.1	2.6	2.8	433.3	1400
Drainage Intensity	1.0	0.2	0.5	0.7	0.7	0.3	2.9	0.6	580	85.7
Bifurcation Ratio	2.3	2.5	2.7	2.5	0.5	0.8	0.7	0.9	25.9	36.0

Table 5 summarizes the results of the quantitative analysis of the changes in morphometric parameters between 1970and 2006. The coefficient of variability for stream numbers changed from 121.8% in 1970 to 147.2% in 2006. Stream lengths equally showed a high coefficient of variability. The direct relationship between stream length and basin size as predicted by Horton's law on basin area and stream length shows that spatial variations in basin sizes and the geology remain the most important factors in explaining the variation of stream length between basins. However changes over the years show that within 36years 353.6km of stream segments disappeared. All the other parameters investigated showed high coefficients of variability. The drainage intensity showed the greatest drop

between 1970 and 2006, both in terms of the mean (86%) and the C.V. (58%to 85.7%). The bifurcation ratio did not show marked variations. The range of 2.5 and C.V. of 36% attest to this.

The low drainage density in 2006 indicates that the lag times in stream discharge peaks are subdued. This fact is also proven by bifurcation ratios of 2.5 for 50% of the drainage basins. Apart from Yoke, Mbeteke, Kendongue, Mambanda and Mbo basins, the other basins have experienced marked drops in bifurcation values (generally below 2.5). The implication is a reducing lag time and increasing flash flood peaks (Collard, 1988). The Kumba basin suffers from severe floods while floods in the Mandese and Iloani are a common occurrence.

V. Conclusions

The study showed that there are marked space-time variations exhibited by morphometric properties of drainage basins in volcanic areas. In response to the deforestation or conversion of primary forests to farmlands and human settlements. Moreover, volcanic mountain watersheds in the area exhibit volcanic "karst" drainage characteristics (Underground drainage and high seasonal fluctuations in water yields). This can be attributed to the high permeability of basalts and the presence of faults and joints in rocks. Between 1970 and 2006, all the drainage basin aerial properties experienced a drop in all
parts of the study area. Greatest changes were recorded in stream numbers and bifurcation ratios. These changes resulted in a fall in water yields and increased flood risks. The study demonstrates that forests can significantly influence the regulatory characteristics of drainage basins in volcanic areas. However, their influences are complex and inter-related. For example, trees have a function of intercepting part of precipitation. Fallen leaves and the branches retain water which gradually infiltrates the soil. Forest, therefore, create deep storage for soil water. A forest cover and its litter detain surface runoff and allow more time for infiltration. Forest shed reduces surface evaporation and delays runoff. In some instances forest can increase the water available to the watershed by condensing atmospheric moisture. Deforestation does not only cause a reduction in drainage basin discharge as illustrated by previous studies, but also provokes a drop in drainage basin morphometric parameters. The study, apart from linking hydro-geomorphology with anthropogenic processes, also demonstrates that deforestation is one of the causes of desertification. The management of upland watersheds in volcanic regions must therefore strongly consider the maintenance of the indigenous forest cover and its rehabilitation where it has been degraded.

VI. References

1. Acho-Chi, C. (1998) Improved water management systems in the Kano close- settled zone: problems and possibilities. Journal of Applied Social Sciences, Vol. 1, No.1 University of Buea p. 71-80.
2. Amawa, G. (2001) Variations in spring discharge on the Mbum Plateau of the North West Province of Cameroon In: C.M Lambi and E.B. Eze (eds) Readings in Geography. Unique Printers, Bamenda p. 127-141.
3. 3.Bailey, F. et al. (1981) Effect of improved land drainage on river flood flows. In: Flood Studies Report, Institute of Civil Engineers, U. K.
4. Balgah, S. N. (2001) Exploitation and conservation of biological resources in the Mount Cameroon Region, Cameroon, In: C.M. Lambi and E.B. Eze (eds) Readings in Geography. Unique Printers, Bamenda p. 310 - 324.
5. Collard, R. (1988) The physical geography of landscape. Unwin-Hyman. U.K.
6. Courade, G. (1973) Regional Atlas West 1: Commentary and Explanatory notes. ORSTOM, Paris.
7. Danjuma, I. S. (2003) An analysis of watershed degradation in Bamendjim Catchments area and its impact on the landscape. Unpublished Msc. Thesis, Department of Geography, University of Buea.
8. 8.Effange, E. G. (2006) The involvement of local population in protected area management in Cameroon: the case of Bamboko Forest and Bayang-Mbo Wildlife Sanctuary in the South West Province of Cameroon. Unpublished Msc. Thesis, Department of Geography, University of Buea.
9. Etuge, N. J. (1979) The development of Agriculture in Kumba Division: 1910 to 1960 a socio-economic appraisal. Unpublished postgraduate diploma thesis. Department of Geography, University of Yaounde.
10. Ewane, B. E. (2006) Optimizing the management of dynamic ecosystems: The case of the Southern Bakundu Forest Reserve in the South West Province of Cameroon. Unpublished Msc. Thesis, Department of Geography, University of Buea.
11. Faniran, A. (1975) Rural water supply in Nigeria's basement complex: A study in South Western Nigeria. The Nigerian Geographical Journal Vol. 25, No. 1-2, p. 205-209.
12. Hollis, G.E. (1979) Man's impact on hydrological cycle in the United Kingdom Geo. Abstract Ltd. Norwich.
13. Horton, R.E (1945) Erosional development of streams and their drainage basins: hydrophysical approach to quantitative morphology. Bulletin of the Geological Society of America, No. 56 p. 275-370
14. Kamanda, B. (1994) The Southern Bakundu Forest Reserve Project: The rural economic survey, preliminary Draft. ITTO/ONADEF, Yaounde.

15. Kori, K. (1976) Managing forests for water supplies and resource conservation. In: Hydrological techniques for Upstream conservation. F.A.O. Rome p. 1- 12
16. Letouzey, R. (1985) Notice de la carte phytogeographie du Cameroun. Vol. 2 - 5. Institut de la carte International du Toulouse, Toulouse.
17. Mevean, D. N. and Lockie, J. P. (1969) Ecology and land use in upland Scotland, Edingurgh University Press, Edinburgh.
18. Ndenecho, E. N; Barnes, I; Hundy, P, et al (1984) land use changes in the Afon Garno catchment area and their hydrological implications. Unpublished Msc. Field Project. Silsoe College, Cranfield Institute of Technology, Bedford.
19. Newson, M.D. and Robinson, M. (1983) Effects of Agricultural drainage on upland stream flow: case studies in Mid Wales. Journal of Environmental Management, Vol. 17 p. 333-348.
20. Nkemasong, N.A. (2006) Hydro-climatic variations and impacts on the population of adjoining Northern Slopes of Mount Cameroon. Unpublished Msc. Thesis, Department of Geography, University of Buea.
21. Strahler, A.N. (1964) Quantitative geomorphology of drainage basins and channel networks. In: V.T Chow (ed). Handbook of applied hydrology, section 4. 11. McGraw-Hill, New York.
22. Whittow, J. B. (1984) The Penguin Dictionary of physical geography. Penguin Books, Britain.

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Triggers and Processes of Desertification in the Dry Lands of North Cameroon

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Abstract - Desertification is officially defined as: "land degradation in arid, semi-arid and dry sub-humid areas resulting from various factors including climatic variations and human activities (Seely, 2002). The definition clearly supports the basis for a vigorous research programme to combat desertification which now affects many developing countries. This paper seeks to enhance an understanding of the triggers and processes of desertification as a link between research on the one hand and implementation of programmes to combat desertification on the other hand. It uses a combination of primary and secondary data to distinguish between the impacts of rainfall variability and desertification on reduced biomass productivity. The study posits that anthropic factors have had an overwhelming role to play in the desertification of the region even though the climatic factor remains the important trigger. Finally, it concludes that in combating desertification, the interplay of the various environmental aspects must be considered side-by-side: that is, the effects of climate change, the destruction of biodiversity and the mounting scarcity of water resources. Synergies need to be developed to produce more integrated and holistic approaches which will lend the measures being implemented additional success and breadth of effect.

Keywords : *desertification, trigger factors, dry lands, sustainable development, appropriate measures.*

GJHSS Classification : *FOR Code : 160805,160808,169901*

Strictly as per the compliance and regulations of:

Triggers and Processes Of Desertification In The Dry Lands Of North Cameroon

Ndenecho Emmanuel Neba

GJHSS Classification – C (FOR)
040306,040314,040601

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I. INTRODUCTION

Desertification – meaning land degradation and resource destruction is a worldwide problem. Arid regions constitute 40 percent of the Earth's land surface. Currently, an area three times the size of Europe is affected (Ingrid-Gabriela, 2002). Many developing countries are suffering from advancing desertification, in particular the least developed countries. According to Ingrid-Gabriela (2002) the survival of around one billion people is at substantial risk from processes of soil erosion. The economic losses in the form of forfeited incomes in the affected areas are extremely high. For example, in Cameroon the droughts of 1972, 1984, and 2005 in North Cameroon caused livestock to die and grain crop failure. On a global scale annual losses resulting from desertification are put at some USD 42 billion. It is the poorest and most vulnerable members of the society who bear the costs: poverty, poor health, malnutritional status and lack of secure food supplies. These initiate migration flows of the population, and environmental refugees. The central role of research should revolve around enhanced understanding of the processes of desertification and its reversal. The paper therefore seeks to And desertification on reduced productivity. enhance an understanding of these processes by distinguishing betweenthe impacts of rainfall variability and desertification on reduced productivity.

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II. THE STUDY AREA

From a broad perspective, the areas which can be considered as Cameroon's arid lands in transition are situated between latitudes 10o and 11o30'N and longitudes 13o45' and 15o5E in the savannah-steppe or sudano-sahelian climate. It lies to the south of the Sahel zones which is the southern ecological zone bordering the Sahara Desert. The region has three broad morphological units, namely, the Alluvial Flood Plains (Years), the Diamare Plain and Mandara Highlands. The vegetation is dry savannah type.

The climate of Cameroon like that of Africa is affected by two air masses emanating from anticyclones situated on both sides of the equator. These winds are generally easterly: northeast and southeast trade winds due to the earth's rotation. The variations in African climate result from the north-south shift of these zones as the earth revolves around the sun. During the northern winter, when the zones shift south, all of Cameroon and Africa north of the equator is under the influence of the northeast trade winds. Cameroon and most of West Africa is subjected during this period to the harmattan, a dry wind coming from the Sahara Desert. The dry harmattan invades and the dry season is experienced. The zones shift north in northern summer, since the convergence zone lies generally north of the equator the system moves northwards causing an inflow of moist air over the whole country and this is the wet season. The amount and duration of rainfall decreases northwards.

Most of the areas rainfall comes from monsoons with line squalls occurring mainly at the beginning and end of the wet season. By analysing daily rainfall amounts for areas exceeding 200 mm of rain in the Sudano-Sahelian zone, Ledger (1964) has found that the increase in rainfall southwards from the Lake Chad shores to the Diamare Plain is due to an increase in the number rather than the size of storms. Extreme variability of annual rainfall amounts is also typical. Dresch (1973) reports that the "Shorter the rainy season, the more irregular the rainfall is in space, in time over the year and from one year to another. The rains may start earlier or later, and may last longer or a shorter time.

The population density on the average is about 56 inhabitants/km2 with an annual population growth rate of

3.6%. Considering the low returns per hectare of cultivated sorghum in order to increase harvests, there is certainly population pressure on land, water and biological resources. Graigner (1986) estimates that every additional person in dry lands requires one more hectare of land to supply him or her with 250kg of grain per year needed for basic subsistence. Subsistence farming involves rain-fed cultivation of sorghum and millet and nomadic and semi-nomadic raising of cows, goats, and sheep. With low biomass productivity a cattle stock rate of 2 heads/hectare exceeds the carrying capacity of natural rangelands in the Diamare Plain. Growing human and animal populations continue to cause biological stresses on the environment and greater poverty, resulting in ever increasing degradation of soil, water and biological resources of the region.

III. Materials and Methods

The study was carried out in the Diamare and Chad Plains. Rainfall data for some meteorological stations was collected for the period 1934 to 1984. For each station the years with the highest and lowest rainfall amounts were noted and the percentage changes calculated as indicators of variability for the period in time and in space. The average annual distribution of rainfall for selected meteorological stations was obtained from the Regional Meteorological Service in Maroua. In order to obtain an indicator of the interaction of climatic effects on vegetation, the potential evapo-transpiration for Maroua station was obtained using the Piché Evaporimeter. Together with rainfall data and an assumed soil moisture reserve of 300mm within the root zone, the climatic and soil moisture balance was estimated and their effects on vegetation productivity established. Different natural plant community sites in the area were identified and the percentage concentration of rainfall per month per site calculated as an indicator of the vegetation period or the period of biological activity. Based on the work of Fulton et al. (1974) and 1987 aerial photographs produced by National Geographic Institute (IGN) for the area, the degree of vegetation degradation per plant community site was established. Fulton et al. (1974) established the potential biomass productivity of each range site. The planimetric analysis of actual land uses and vegetation maps of the area assisted in the establishment of degree of vegetation degradation and the actual vegetation productivity per morphologic unit. The estimated land necessitating extensive cultivation of millet and vegetation yields per site were obtained from previous studies in the area. The interpretation of the data so obtained was assisted by field observations and relevant documented data.

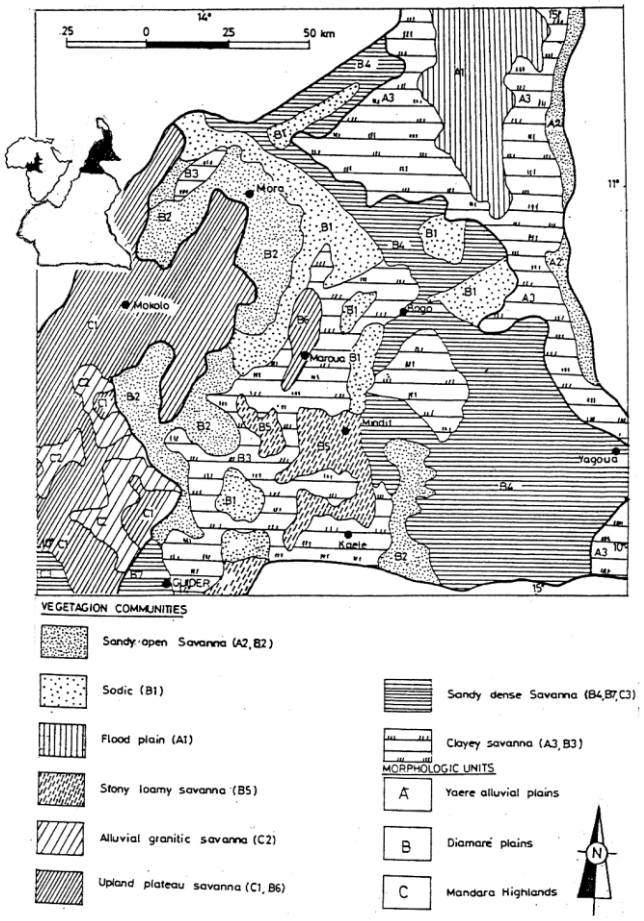

Figure 1: Location of Study Area and Floristic Communities (See table 3 and 4) (after Fulton *et al.*, 1974)

IV. Results

Table 1: Frequency of Variability of Annual Rainfall (1970 – 1988) and mean annual total number of rainy days (1940 – 2060)

Probability of rainfall greater than the threshold indicated	Threshold rainfall (mm)			
	Kaele	Maroua	Garoua	Toubouro
0.8	622	631	820	987
0.5	655	675	883	1054
0.2	781	780	1014	1247
Average for the period	666	752	951	1180

Mean total number of rainy days computed from trend lines						
Stations	1940	1960	1980	1995	2030	2060
Maroua	72.8	71.8	70.8	70.1	68.4	66.9
Garoua	82.1	79.7	77.2	75.4	71.1	67.4

Table 1 presents the frequency of rainfall variability for the period 1970 to 1988 and the mean number of rainy days computed from trend lines (Ayonghe, 2001) for the period 1940 to 2060. According to Ayonghe (2001) high rainfall was evident from 1951 to 1967, 1977 to 1980, and 1989 to 1995, while low rainfall was observed from 1930 to 1950, 1968 to 1976 and 1981 to 1988. In general the mean total number of rainy days for the period 1940 to 2060 is on the decline. The rainy season lasts three to six months depending on the location and it is characterized by inter-annual variability of rainfall. Figure 3 presents the frequency of the total annual rainfall with a probability of 8 out of 10 years for the period 1952 to 1969 and 1970 to 1989. It again depicts inter-annual variability.

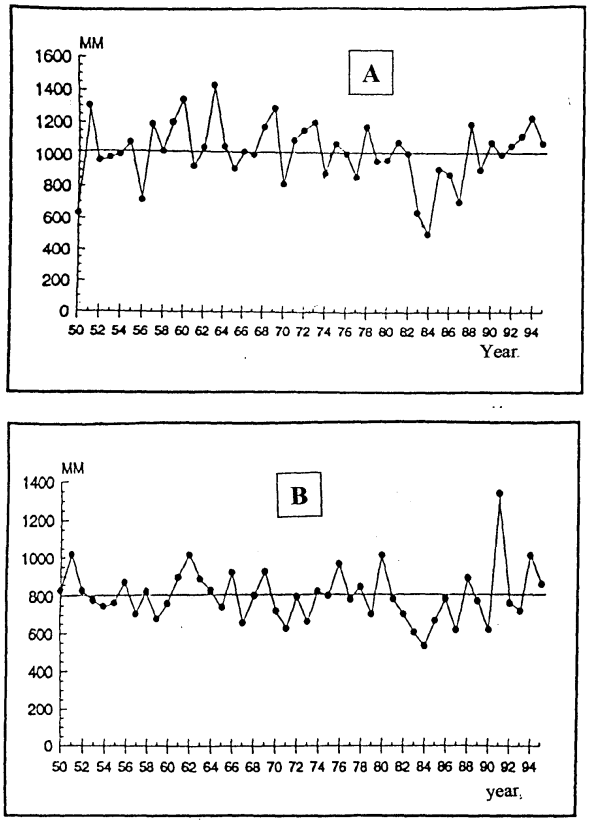

Figure 2: Evolution of annual rainfall in some stations: A = Garoua from 1950 to 1995 and B = Maroua from 1950 to 1995 (after Donfack, Boukar and M'Biandoun, 1996)

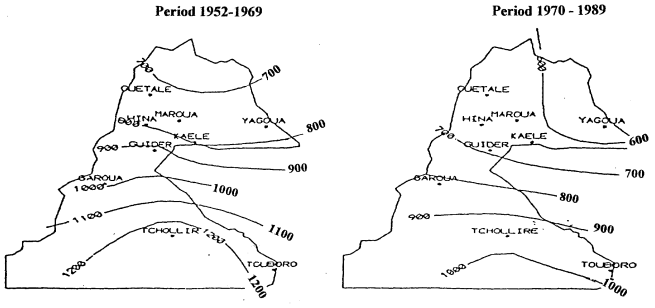

Figure 3: Frequency of total annual rainfall (mm): 8/10 (after Donfack, Boukar and M'Biandoun, 1996)

Station	Evaporation (mm/month)												
	J	F	M	A	M	J	J	A	S	O	N	D	**Total**
Poli	236	279	323	225	127	66	55	56	51	81	149	202	**1850**
Maroua	228	296	365	304	203	199	81	60	83	143	229	213	**2396**
Kousseri	345	389	506	451	362	265	149	74	96	206	353	341	**3519**

Source: Maroua: Provincial Meteorological Station

Figure 2 presents the inter-annual variability of rainfall in Maroua and Garoua. Table 2 presents the evaporation rates for some stations in the area. Evaporation rates are high and large water deficits occur (Figure 4). The moisture available to plants is related to the capacity of the soil to absorb and retain water. Data from the Maroua weather station was used to estimate the moisture balance in well drained upland soils (Figure 4). In figure 4 the average monthly rainfall (R), potential evapotranspiration (PE) and actual evapotranspiration (AE) were estimated using the Piche Evaporimeter. The annual values of PE, AE and rainfall are 1744mm, 969mm and 968mm respectively.

zThe moisture in the soil at the end of each month was calculated by adding the amount of available moisture at the end of the previous month. For example, at the end of June about 25mm of moisture available to plants was stored in the soil. During July rainfall was about 250mm and plants utilized about 140mm of moisture. At the end of July approximately 135mm of moisture were stored in the soil [(25mm + 250) – 140mm]. This then was the amount of available moisture for use by plants in August. The shaded part shows the amount of moisture in the soil that is available in plants. For about 110days from July through October, the available moisture in the soil exceeds PE, and plant growth is rapid. The unshaded part below the PE graph shows that growth is restricted by lack of moisture until the next period of high rainfall. For soils that retain less than the maximum available moisture for plants (about 260mm at Maroua) this period is shorter because excess water moves through the soil to replenish the ground water. The rainfall is concentrated in a very short time of the year. Evaporation rates are equally very high: Maroua has 2396 mm/year while its rainfall is only 804mm. within this climatic context the possibilities of reconstituting ground water reserves and the availability of water to plants are very limited. The area experiences deficits between evapotranspiration and rainfall, which is practically concentrated in 3 to 4 months of the year.

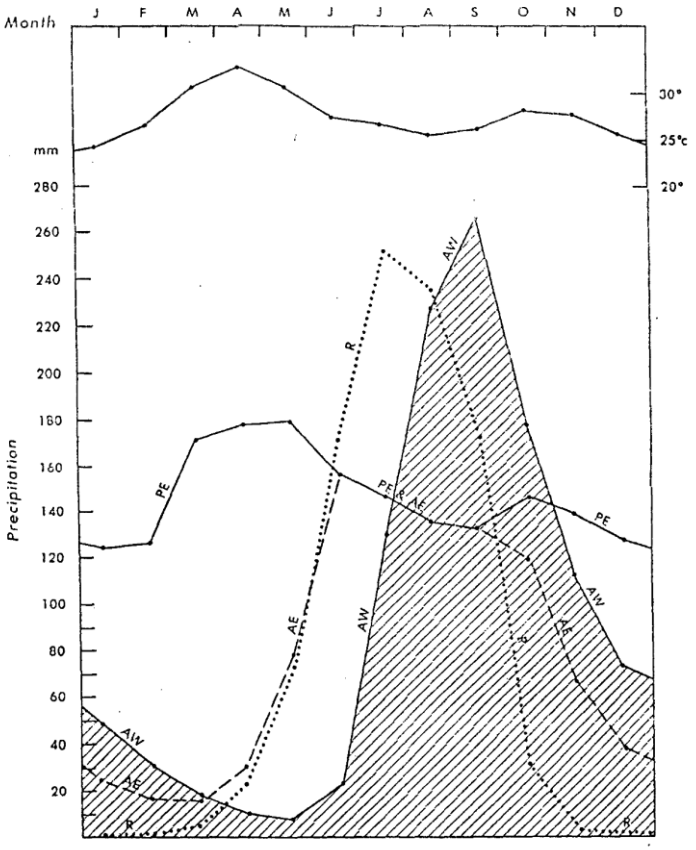

Figure 4: Climatic balance and soil moisture balance in Maroua for the dry lands of Cameroon. (Elevation: 421m)

The consequences of this climatic situation are a biological rhythm with two phases:

- An active vegetative phase of very intense growth of about 5 months. The reconstitution of ground water reserves is essentially achieved from July to August when rainfall exceeds evapotranspiration. This reserve is rapidly depleted as soon as the dry season sets in (November to May)
- The wet season is followed by a dry and hot season during which ground water reserves are exhausted by high rates of evaporation. The physiological activities of plants are very restricted and much of the vegetation dries out.

Streams and rivers are characterized by irregular flow rates. The plains consists of numerous small elongated, sub-water sheds that are parallel to the broad alluvial plain of the Logone River. These discharge runoff water and deposit sediments in a network of outwash splays. flood plain pastures during the dry season degrades the two-transhumance sites. Livestock raisers tend to follow rainfall events in space as a result of spatial variations of rainfall. They practice opportunistic grazing – following rainfall and floods events in space and time. Surface streams dry up during the dry season. The growing season

The limited growing seasons imposes extensive agricultural land use systems which degrade the vegetation. Land clearance for agriculture interrupts this fragile ecology. Overgrazing of upland pastures during the wet season and is limited and the risk of famine high, especially when a drought offsets the fragile balance (Beauvilain, 1981). Sustaining man, plants and animals becomes difficult. Under these circumstances low vegetation productivity is typical.

Natural plant communities in the area were studied with respect to the rainfall distribution in time, soil characteristics, the vegetation period and anthropogenic impacts. These natural plant communities are presented in Figure 1. For each plant community the rainfall concentration during the wet season is as follows:

Sandy open savannah: 85% of total rainfall occurs in July and August.

- *Sodic zones:* 75% of rainfall occurs in July, August and September.
- *Flood plain:* 90% of rainfall occurs in the period from June to September.
- *Stony loamy savannah:* 85% of the rainfall occurs in June to September.
- *Alluvial granitic savannah:* 85% of annual rainfall occurs in July to September.
- *Upland plateau:* 85% rain occurs in June to September.
- *Sandy dense savannah:* 80% of rain occurs in June to September.
- *Clayey savannah:* 80% of rain occurs in July and August.
- The vegetative period is therefore very restricted. Consequently, the vegetation is restricted to ephemerals. These are herbs, forbs and grasses. Perennial trees must be drought resistant. These are fragile environments that degrade rapidly once the natural ecological balance has been disturbed by farming, grazing and deforestation

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Table 3: Degree of Vegetation Degradation (See Figure 1

Community site	Map code	Degree of Degradation of the Potential Vegetation
Sodic	B1	75 to 100 percent of the potential plant community has been degraded and replaced by annuals.
Sandy open savannah	A2, B2	50 to 75 percent of the potential plant community has been degraded and replaced by annuals or other species
Alluvial/granitic savannah	C2	
Clayey savannah	A3, B3	25 to 50 percent of the potential plant community has been degraded and replaced by annuals and other species
Stony loamy savannah	A5	
Sandy dense savannah	B4, B7, C3	
Flood plain	A1	The present plant community is almost the same as the potential plant community. Degradation has been minimal. This because of remoteness from man.
Upland plateau	C1, C6	

Source: Established after potential plant communities and vegetation productivity by Fulton et al. (1974).

Table 3 presents the degree of vegetation degradation for each of the plant community sites. The anthropogenic impacts on the plant communities were assessed. The results are (Table 4):

Table 4: Vegetation Productivity on Plant Community Sites (See Figure 1)

Site	Vegetation composition	Estimated yield (kg/ha)
Sodic. (Strongly alkaline, eroded clay) (B1)	*Acacia species* *Hyperrhenia rufa* *Artistida species* *Annual grasses*	100 – 500 (0.1 – 0.5t/ha)
Sandy open savannah (A2, B2)	*Hyperrhenia rufa* *Pennisetum species* *Ctenium species* *Aristida species* *Eragrostic tremula* *Combretum glutinasa* *Annual grasses*	500 – 1000 (0.5 – 1.0t/ha)
Alluvial/granitic savannah (colluvial foot slopes and outwash plains) (C2)	*Hyperrhenia rufa* *Pennisetum species* *Eragrotis robusta* *Annual grasses* *Ficus species* *Balanites acgyptica* *Ctenium canesiens* *Acacia albida* *Acacia seyal* *Acacia Senegal* *Acacia tortilis* *Combretum glutinosum* *Commiphora africana* *Seleracarva bierre*	600 – 1200 (0.6 – 1.2t/ha)
Stony, loamy savannah (A5)	*Hyperrhenia rufa* *Pennisetum species* *Acacia species* *Aristida species* *Eragrostis species* *Balanites acgytica* *Andropogon gayanus*	2000 – 3000 (2 – 3t/ha)
Flood plain (nearly level, clay soils) flooded 4 – 5 months yearly (A1)	*Hyperrhenia rufa* *Sporobolus pyramidalis* *Seteria palidifusa* *Rottobellia exaltata* *Annual sorghums* *Oryza barthii*	6000 – 8000 (6 – 8t/ha)
Upland plateau (shallow gravely – loamy soils) (C1, C6)	*Hyperrhenia rufa* *Seteria palidifusca* *Pennisetum species* *Aristida species* *Andropogon gayanus*	1500 – 2500 (1.5 – 2.5t/ha)
Clayey savannah (clayey soils on alluvial flood plain) (A3, B3)	*Aristida species* *Hyperrhenia rufa* *Annual seterias* *Acacia species* *Combretum glutinosa* *Andropogon gayanus* *Other annual grasses*	800 – 1500 0.8 – 1.5t/ha)

Source: *Calculated after established potential vegetation productivity by Fulton et al, (1974).*

- **Sodic Zone (B1):** It has a low tree population and thus has a low potential as a source of fuelwood and poles for building. Overgrazing by domestic livestock has altered the plant community. Herds from the neighbouring countries also use this area while in transit. Much of the area requires reseeding. See Tables 3 and 4.
- **Sandy Open Savannah (A2, B2):** Because the soils are droughty, excessive grazing alters the plant community. Annual grasses replace the perennial species, shortening the period during which green grass grows thus reducing vegetation production on the site. The site has a low potential as a source of fuelwood and poles for small dwellings. Trees are intensely degraded.
- **Alluvial Granitic Savannah (C2):** The site has a moderate potential as a source of firewood and poles for small dwellings. Excessive grazing by domestic livestock is common on these alluvial granitic savannas. Droughty soils and a high population density prevent rapid vegetation productivity and recovery.
- **Clayey Savannah (A3, B3):** These are seasonally grazed by cattle. It is predominantly grazed by sheep and goats for most of the year. Trees are degraded for fuelwood and building. This Sahel zone has few trees thus presenting a park savannah landscape.
- **Stony Loamy Savannah (A5):** The site has a moderate potential as a source of fuelwood and poles for small buildings. It has not been seriously degraded.
- **Flood Plain Zone (A1):** Flooding and repeated burning by hunters and herders have prevented woody vegetation from growing on the site (dry season grazing lands). Isolated patches of trees and shrubs grow on humps or raised hillocks on the plain.
- **Upland Plateau (C1, C6):** The upland plateau site remains in grassland. Most trees are in clusters and near streams where the soils are deeper. The potential of the site as a source of firewood and poles for small dwellings is high. Due to the low availability of water for livestock, this site has not been seriously grazed and degraded. Most of the settled zone is a domesticated landscape, due to a high human population density (Park Savannah landscape).

The consequences of the climatic and anthropic factors on the quantity and quality of the environment include:

- A decline in annual production of pasture vegetation;
- A decline in the palatable grass species, particularly perennials which are also good at holding the soil together (soil aggregation);
- An increase in ephemeral plants, which spring up with the onset of the rains rather than having a permanent presence, thus decreasing the durability of pastures;
- Soil compaction as a result of sealing and trampling by stock near water holes and overgrazing of wet-season pastures;
- Damage to vegetation on crests and stable sand dunes resulting in erosion. These provoke a desertification process; and

These processes result in high soil erosion rates (Figure 3). Drought triggers a crisis, but does not cause it. One effect of extremely variable climate is that during wet periods marginal areas are cultivated and herds expand. Then, when a major drought occurs, these marginal areas are unfit for cultivation, and over-expanded herds are critically affected. As there is no vegetation to hold the soil, non-marginal cultivated areas also deteriorate, and erosion occurs. Another climatic problem is that the sudden line squalls occurring north of 11° north cause a great deal of soil erosion. While the adjacent land is depleted, organic and mineral nutrients are deposited in depressions, where they become so excessive that they are inimical to flora growth. Cultivation leads to environmental problems which include:

- Declining soil fertility and falling crop yields;
- Crusting of exposed topsoil by rain and sun. Rainfall intensities in Maroua are averaged at 81mm/hr and the hours of sunshine are long throughout the year;
- Increased surface runoff, sheet erosion and gullying; and
- General desertification of the land.

V. Discussions

A combination of climatic and anthropic factors cause desertification. Desertification is a man-induced process. Climate variability is simply the trigger factor. In these dry lands precipitation is low and losses via evapotranspiration are high, to the point that soil moisture limits production. Current land use is involved in the transformation of rangelands to croplands and investments in water resources for the development of irrigation infrastructure. This presents the risk of soil and ground water salanization. The degradation of vegetal resources has reached a crisis situation. In combating desertification the interplay of various environmental aspects must be considered side-by-side, that is, the effects of climate change, the destruction of biodiversity and the mounting scarcity of water resources. Synergies must be developed to produce more integrated and holistic approaches which lend the measures taken additional successes and breadth of effect. Sustainable development of dry lands implies a development that has no associated desertification risk. This requires the following strategic recommendations (Safriel, 2002):

- Identify those dry land attributes that can be harnessed to provide local people with an economic competitive advantage, compared to inhabitants in non-dry land regions. For example, the curses of intense solar radiation and high temperatures, low quality water and the desolation and wilderness can be converted into the blessings of solar energy production, precious aquaculture and tourism industry assets.
- Match specific aspects of development with dry land attributes and assess the feasibility of their sustainability.
- Maintain the natural integrity of dry lands. Do not convert drylands in order to make them function as non-drylands. The risk here is that this strategy will diversify the dry land ecosystems and perpetuate the poverty of dryland inhabitants and collapse of fragile ecological niches.
- Research should seek to enhance an understanding of the processes of desertification and mitigation measures. Indigenous knowledge and local practices should be researched and further elaborated and developed, such that they can be improved and exchanged between regions.

Exploit the global concern of the detrimental effects of global climate change and biodiversity degradation by implementing and demonstrating appropriate technologies for combating desertification and the sustainable development of agro-pastoral enterprises in a holistic manner, that is, technologies that also mitigate climate change, and conserve biodiversity, and hence benefit local populations as well as regional and global interests

VI. Conclusions

Some decades ago, some scholars took the 1968 – 1972 drought in the Sahel as an indication of a long-term trend towards greater aridity in the arid and semi-arid zones of West Africa. The Sahara, it was said, was spreading southwards because the various rainfall belts were moving south. The drought problem did not come to the forefront because it did not produce the same human suffering as in 1972 – 1973 and 1982 – 1984 period. Drought triggers a crisis, but does not cause it. Over-cultivation and overgrazing weaken the land, allowing no margin when drought arrives. When rainfall returns to more "normal" levels as it did in 1974 and in 1986, there is a natural tendency to intensify farming again. Afforestation, agro-silvopastoral programmes, agroforestry and water harvesting technologies are urgently required to combat the desertification process and to sustain rural livelihoods in the region. In 1977 United Nation's Conference on Desertification (UNCOD) adopted a detailed plan for national, regional and international action. Transnational projects were to revolutionalise stock rearing in the Sahel, establish green belts north and south of the Sahara and manage regional aquifers. Little of that plan called for has yet been accomplished. There are few visible signs of progress against desertification. The fourth session of the conference of the parties to the United Nations Convention to combat desertification (UNCCD), held in Bonn, Germany in 2000. Despite the known conflicts of interest between industrialized and developing countries was able to give new impetus to the necessary intensification of cooperation between the countries of the North and South. Financing issues have been a difficult compromise between North and South. The implementation of the convention must be more strongly dovetailed with other areas of national policy such as the issues of poverty reduction and climate change.

VII. References

1. Ayonghe, S. (2001) A quantitative evaluation of global warning and precipitation in Cameroon from 1930 to 1995 and projections to 2060: Effects on environment and water resources. In: C.M. Lambi and E.B. Eze (eds.) *Readings in Geography.* Unique Printers, Bamenda p. 142-155.
2. Beauvilain, A. (1985) Remarques Sur la situation pluviométrique actuelle au Nord Cameroun. In ; *Cameroon Geographical Review*, Vol. 5, No. 1 Yaounde University. p. 47 – 62.
3. Beauvilain, (1981) Elevage et eleveurs dans le Grand Yaeré – Nord Cameroun. In : *Cameroon Geographical Review Vol. 2, No.2*, p. 163 - 176
4. Donfack, P; Boukar, S. and M'Biandoun, M (1996) Les grandes caractéristiques du milieu physique In: Agricultures des savannes du Nord Cameroun. Boukar et al (eds), *Actes de l'atelier d'échange.* CIRAD/CA p. 29 – 40
5. Dresch, J. (1973) : Drought Over Africa. The United Nations Economic, Social and Cultural Courier, U.N. New York.
6. Fulton, D ; Brower, j ; Boulet, J. *et al* (1974) Resources inventory of North Cameroon – Africa. USAIS-FAC (France) p. 64 -67
7. Grainger, A. (1986) Desertification. Earthscan Publication, International Institute for Environment and Development, Washington D. C. p. 25 26.
8. Ingrid – Gabriela, H. (2002) The convention to combat desertification – aims and implementation. *Agriculture and Development Vol. 9, No. 1*, GTZ, DSE, CTA, DLG, p. 49 – 53
9. Ledger, M. (1964) Some hydrological characteristics of West African rivers. *Transactions of the Institute of British Geographers*.
10. Mahamat, S. (1983) : L'Exploitation des resources végétales dans le logone-Chari. In : Cameroun, Geographical Review Vol. 4, No. 2, p. 16-24
11. Mahe, G. and Olivry, J. (1991) Changements climatiques et variations des écoulements en Afrique Occidentale et Central, du mensuel a l'international. In: *Proceedings of Vienna Symposium*. IASH No. 201.

12. Molinier, M; Sighomnou, D. and Sigha, K. (2000) Pertubation du milieu naturel du Yaere dan le Nord Cameroun: changement climatiques ou action anthropiques? In: F. Kengne and G. Courade (eds) *Societés et environnement au Cameroun.* NGCC, The University of Yaounde I. p 155 -170.
13. Naah, E. (1990) Hydrologie du grand Yaere du Nord Cameroun. Unpublished Doctorate Thesis. Faculty of Science, University of Yaounde.
14. Olivry, J.C. (1978) Supended solid transport load in Cameroon. In: *ONAREST scientific papers*, vol. No. 1. Yaounde. p. 47 -60.
15. Olivry, J.C. (1986) Fleuves et rivières du Cameroun MESRES – Yaounde / ORSTOM. *Coll. Monographies hydrologiques*, No. 9. 733p.
16. Olivry, J.C. (1993) Vers un appauvrissement durable des resource actuelle sur l'écoulement du fleuve sénégal et l'hypersalinité de la Basse-Casamance. In: *Proceedings of the Vancouver Symposium*, August 1987, IAHS, publication No. 168.
17. Olivry J.C.; Briquet, J. and Mahe, G. (1994) De l'evolution de la puissance des
18. crues des grands cours d'eau intertropicaux d'Afrique depuis
19. Safriel, U. N. (2002) Options for sustainable development of dry lands.
20. *Agriculture and Development Vol. 9, No. 1*, GTZ, DSE, CTA, DLG, p. 54 – 56
21. Seely, M. (2002) Research Competence in combating desertification.
22. *Agriculture and Development, Vol. 9, No. 1*, GTZ, DSE, CTA, DLG, p. 57 – 61 décennies. *Dossier de la Revue Geographie Alpine*, No. 12.
23. Sighomnou, D. (1996) Restauration hydrotechnique de plaine de Logone dans Extreme-Nord du Cameroun. *Prévision des Inondation*, Yaounde.
24. Roupsard, M. (1985) la riziculture irrigué dans les plaines de l'Extreme-Nord du Cameroun: La SEMRY. *Cameroon Geographical Review*. University of Yaounde I.

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Theatre and Environmental Protection: An Ecocritical Study of the Selected Plays of Wole Soyinka

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Abstract - Never has mankind been threatened as he is now. This threat is from global warming which has resulted from continuous environmental degradation. Man"s endeavours to improve his life in the universe have paradoxically become a threat to his very existence. Although the creative and the critical arts may seem remote from the arenas of scientific investigation and public policy, clearly they are exercising, however unconsciously, an influence upon the emerging culture of environmental concern, just as they have played a part in shaping as well as merely expressing every other aspect of human culture. This means that literature is both a cultural barometer and an agent of change. In this light, Wole Soyinka"s dramaturgy is nature-sensitive and focuses on environmentalism and global culture. Most of Soyinka"s works are enactments of African folk theatre with ritual as an indispensable element in human life. In his view, man exists within a cosmic totality, and possesses a consciousness in which his earth being is inseparable from the entire cosmic phenomenon. Forests, rivers, and peculiar land formations-the abode of spiritual forces, are very important in ensuring continuous communication between man and the supernatural. In fact, the basic concept or world view behind African tribal societies is that the prime reality is a spiritual one. Every tree, river or land formation has its dwelling spirit which can be invoked for particular purposes and when a plant has the power of healing a wound, it is not chemical acing on flesh but spirit acting upon spirit. Consequently, it is incumbent on man to protect his natural environment for his own survival.

Keywords : *environment, degradation, culture, ecocriticism, disaster.*

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***Abstract*-Never has mankind been threatened as he is now. This threat is from global warming which has resulted from continuous environmental degradation. Man's endeavours to improve his life in the universe have paradoxically become a threat to his very existence. Although the creative and the critical arts may seem remote from the arenas of scientific investigation and public policy, clearly they are exercising, however unconsciously, an influence upon the emerging culture of environmental concern, just as they have played a part in shaping as well as merely expressing every other aspect of human culture. This means that literature is both a cultural barometer and an agent of change. In this light, Wole Soyinka's dramaturgy is nature-sensitive and focuses on environmentalism and global culture. Most of Soyinka's works are enactments of African folk theatre with ritual as an indispensable element in human life. In his view, man exists within a cosmic totality, and possesses a consciousness in which his earth being is inseparable from the entire cosmic phenomenon. Forests, rivers, and peculiar land formations- the abode of spiritual forces, are very important in ensuring continuous communication between man and the supernatural. In fact, the basic concept or world view behind African tribal societies is that the prime reality is a spiritual one. Every tree, river or land formation has its dwelling spirit which can be invoked for particular purposes and when a plant has the power of healing a wound, it is not chemical acing on flesh but spirit acting upon spirit. Consequently, it is incumbent on man to protect his natural environment for his own survival. Using Ecocrticism as theoretical frame, I contend that Soyinka's theatre focuses on environmental protection or the preservation of the ecosystem. I argue that the Yoruba culture (and by implication the African culture), unlike other cultures, is nature-sensitive, nature-friendly and nature-protective. Finally, I conclude that Soyinka's theatre is very important especially at this moment of an almost impending global environmental disaster given that many aspects of African culture which he dramatises can be used as instruments for environmental awareness and nature protection.**

Keywords-Environment, Degradation, Culture, Ecocriticism, Disaster

I. Introduction

Wole Soyinka is one of the truly great dramatists Africa can boast of. His plays are both the vehicle for his genius and the praxis of his revolutionary commitment (Etherton, 1987). A close reading of his plays reveals that, amongst other things, they are concerned with nature protection or the preservation of the ecosystem. This is true of plays like A Dance of the Forests, The Lion and the Jewel, The Swamp Dwellers and The Road. In these plays, Wole Soyinka shows the bond between man and the spiritual forces of his environment. There is a clear inter-dependence of the one on the other so that the absence of one also indicates the end of the other. His plays also reveal that man's encroachment on the environment has brought him in perpetual conflict with spiritual forces. Finally, his plays demonstrate that the Yoruba culture and by implication the African culture is by itself nature-protective and nature-sensitive. This offers some hope in a rather desperate and bellicose world.

II. The Bond Between Man and Spiritual Forces

In A Dance of the Forests Wole Soyinka shows the intricate bond between man and the spiritual forces of the land in which he lives. In the world of the play, there must be reconciliation between man and these forces before progress is possible. Man gets into direct contact with supernatural forces through ritual and sacrifice. One of the abodes of these forces is the forest. No wonder that A Dance of the Forests has two settings. The main event which is the 'Gathering of the Tribes'- a metaphor for Nigerian Independence celebrations- takes place in two arenas. The secular events take place in town while the spiritual concerns which involve introspection, repentance and reconciliation take place in the forest. On Forest Head's (the supreme deity) order, the Crier summons all forest dwellers to the 'Dance of Welcome' which in effect is a kind of tribunal to judge humans for their destructive activities including the destruction of the environment:

To all such as dwell in these Forests, Rock devils,
Earth imps, Tree demons, ghommids, dewilds genie
Incubi, succubi, windhorls, bit and halves and such
Sons and subjects of Forest Father, and all
That dwell in his domain, take note, this night
Is the welcome of the dead… (45)

The above tableau indicates that the forest is home to gods and spirits alike including the spirits of the ancestors. The opening scene of the play is particularly revealing: 'An empty clearing in the forest. Suddenly the soil appears to be breaking and the head of the Dead Woman pushes itself up. Some distance from her, another head begins to appear, that of a man' (8). These are the spirits of Warrior and his wife, both victims of man's cruelty and destructiveness. They

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have been summoned by *Aroni*[1] to be witnesses at the Dance of Welcome.

Pierre Verger (1954) also emphasises the importance of the forest as the abode of the gods and the source of spiritual renewal in his description and photographic record of Ogun ceremonies regularly performed in Yoruba villages of Ishede and Ilodo:

The whole population of Ilodo waits breathlessly as the flickering flame, carried by the one-legged imp Aroni, comes out of the darkness of the forest to kindle their extinguished hearths and to renew the divine contact which guarantees the activities of hunter, warrior and smith. (78)

Verger's description above unmistakably suggests the importance of the African forest first of all as a source of life for fauna, flora, and human beings and of course the spiritual forces- who jealously guard and protect this rich habitat against foreign transgression. This is demonstrated in *A Dance of the Forests* by *Eshuoro*[3] described as a wayward cult-spirit and enemy of man for his destructive activities in the forest. As part of activities for the celebration of the 'Gathering of the Tribes' the human characters decide to carve a totem as a monument or symbol of the great reunion. Demoke is chosen to carve it but Demoke chooses unwisely to carve *Oro's*[2] sacred tree, *araba.* Eshuoro is obsessed with this desecration and considers it an insult to his dignity:

The totem, my final insult. The taunt from the human pigs. The tree that is marked down for Oro, the tree from which my follower fell to his death…But my body was stripped by the impious hands of Demoke, Ogun's favoured slave of the forge. My head was hacked off by his axe. Trampled on, bled on my body's shame pointed at the sky by the edge of Demoke, will I let this day pass without vengeance claimed blood for sap? (43)

To Eldred Jones (1973), Eshuoro's declaration above is the voice of pique. Eshuoro's anger seems to spread over all humanity-'the human pigs'- and transcends the single act of Demoke (43). Eshuoro therefore appears as something of a protector of the forest. He quite resents the indiscriminate deforestation and pollution which has taken place: 'Have you seen how much of the forest has been torn down by their petty decorations? …The forest stings. Stings of human obscenities' (41). In fact Eshuoro is not only concerned about the destruction of the forest but the destruction of the environment as a whole. He laments on the fact that four hundred million ants have been callously smoked to death by humans and wonders aloud why Forest Head does not allow them to carry out vengeance but *Murete*[4] reminds him: 'We have claimed our own victims - for every tree that is felled or for every beast that is slaughtered, there is recompense, given or forced' (42). Murete's words indicate that man; the author of environmental degradation is also the first victim of his destructive activities. That global warming is now a serious threat is no longer a speculation but a truism as evidenced by rising world temperatures, floods, droughts etc around the world. Xue Sun and Xiangwu Meng (2006) have noted that 'we are (or should be aware) of the imminent doom of our planetary ecosystem, owing to an array of human-caused environmental catastrophes that have no precedent in the entire history of the earth' (Xue, 2006, 68). Jonathan Bate has outlined some of these problems that confront the earth when he states that:

Carbon dioxide produced by the burning of fossil fuels is trapping the
heat of the sun, causing the planet to become warmer. Glacier and
permafrost are melting…forests shrinking, fresh water becoming scarcer.
The diversity of species upon the planet is diminishing. (Bate, 2000: 24)

The above comments by Xue and Bate suggest that the future is bleak for mankind. It is this bleak future that Wole Soyinka dramatises in A Dance of the Forests especially in the section where the three human characters are masked and in a state of possession they speak for the
future in the voices of different spirits. As Eldred Jones (1973) intimates, the spirits together symbolise the total environment of Africa - all its resources and all its potentialities (45). The question is, to what purpose will they all be used? The suggestions are that they will be used unwisely, even destructively. The Spirit of the Palm whose sap is ordinarily life giving - it 'suckles'- will turn to blood, because of the evil in man's nature- 'blackened hearts:'

White skeins wove me, I, Spirit of the Palm
No curse I red
I who suckle blackened hearts, know
Heads will fall down
Crimson in their bed! (64)

According to Jones, the imagery above indicates a violation of the process of life; a contamination of the sources of nourishment for life (45). The various spirits speak in a similar vein, showing man doomed through a perverse exploitation of his resources. The pollution of the sources of life so that they become the sources of death is clearly imaged in the Chorus of the Waters:

Let no man then lave his feet
In any stream, in any lake
In rapids or in cataracts
He'll think his eyes deceives
Who treads the ripples where I run
Let no woman think to bake
Her cornmeal wrapped in leaves
With water gathered of the rain
In shallows. (66)

The Chorus of the Waters suggests that water; a life-giving element will become a source of death to whoever will use it. Water pollution is a reality today in many parts of the world. Furthermore, the 'Chimney of Ereko' which the human characters have brought into the forest to smoke away forests spirits (especially the spirits of the dead pair) may symbolise man's dubious inventions dubbed technology which emit carbornic gases that are very destructive to the ozone layer5. The Spirit of the Sun alludes to a complete destruction of this layer as suggested by images of the 'eye that pierces with thorn' and the sun

that 'cries' (67). According to environmental historian Donald Worster, 'not since the industrial revolution have the ambitions of modernisation encountered such widespread resistance' (22). This means that, increasingly, there has been unprecedented discussion on a global scale about the need to set limits to techno-economic growth so much so that if such a thing as global culture ever comes into being, environmentalism will surely be one of the catalysts. The greatest challenge mankind faces now is to progress but with technologies that are nature-friendly. It is for this reason that Laurence Buell (1995) has made the pointed remark that environmental crisis involves a crisis of imagination the amelioration of which depends on finding better ways of imaging nature and humanity's relation to it (2). There is no better way of doing this than showing the intricate bond between man and nature in which the one depends on the other. This is exactly what Wole Soyinka has done in A Dance of the Forests.

III. The Conflict Between Man and Spirits

As earlier stated, man's infringement on the environment has resulted to a battle between him and spiritual forces. This is because by trying to improve his life through forest exploitation, digging of roads, agriculture, construction of houses and bridges etc, man destroys the natural habitat of these supernatural forces. In The Road for example, Say Tokyo Kid (a truck-driver and timber transporter) in his racy language dramatises the destruction of trees by logging companies who go in only for the biggest and the strongest species:

SAY T: ---So when I carry a guy of timber, its gorra be the biggest. One or two. If it's one, its gorra fill the whole lorry, no room even for the wedge. And high class timber kid. High class. Golden walnut. Obeche. Ironwood. Black Afara. Iroko. Ebony. Cam wood. And the heartwood's gorra be sound. (Thumps his chest) It's gorra have a solid beat like that. Like Mahogany.

THUG: No dirty timber!

SAY T: Timber is my line. You show the wood and I tell you whar kinda insects gonna attack it, and I'll tell you how to take the skin off. And I'll tell you whar kinda spirit is gonna be chasing you when you cut it down. If you ain't gorra strong head kid, you can't drive no guy of timber. (172)

Say Tokyo emphasises the fact that trees, especially the biggest ones are the habitat of spirits and that when such trees are felled; spirits are trapped inside the logs. The trapped spirits seek revenge for the destruction of their homes just like Eshuoro in A Dance of the Forests wants Demoke's life for destroying araba - Oro's sacred tree. In their quest for revenge as Say Tokyo tells us, the spirits seize drivers who in turn cause fatal accidents on the highways:

SAY T: Dead! You think a guy of timber is dead load. What you talking kid? You reckon you can handle a timber lorry like you drive passenger truck. You wanna sit down and feel that dead load trying to take the steering from your hand. You kidding? There is a hundred spirits in every guy of timer trying to do you down cause you've trapped them in, see? There is a spirit in hell for every guy of timber. (Feels around his neck and brings out a talisman on a string.) You reckon a guy just goes and cuts a guy of timber. You gorra do it proper man or you won't live to cut another log. Dead men tell no tales kid. Until that guy is sawn up and turned to a bench or table, the spirit guy is still struggling inside it, and I don't fool around with him see, cause if your home was cut down you sure gonna be crazy with the guy who's done it. (172)

The spirits' search for revenge confirms Murete's assertion that for every tree that is felled there is recompense given or forced. Therefore by preserving the ecosystem man also preserves his own life and by destroying it he too is destroyed in the process

IV. Hope for the Future?

Although in *A Dance of the Forests* man is presented as the author of environmental degradation, it is however not a totally bleak landscape that is depicted. There is Demoke, the artist. As an artist, he is the sensitive point of his community. He represents the creative spark in man which produces works of insight that characterise society. If we agree with Eldred Jones (1974) that the artist in traditional Africa employs a variety of forms, then Demoke stands for musician, dancer, singer, spokesman, critic and conscience in addition to his role of consummate sculptor. He indeed possesses qualities the absence of which Soyinka deprecates in the modern African writer who should be no less versatile an artist and critic of contemporary society than his traditional counterpart or forbear. As an artist, Demoke has created an imposing work of art. He has however sacrificed the life of his apprentice, Oremole, in order to summon the demiurge necessary for the creation of the outstanding work of genius. Demoke's conscience pricks him because he knows that he is the cause of his bondsman's death. Unprovoked, he later confesses his guilt. In like manner, Western industrialised nations must recognise the fact that in an attempt to improve human life in the planet through technological advancement, they have in turn caused environmental degradation which has become a threat to the very life they sought to improve.

According to Jonathan Peters (1978), Demoke acts as the rarely stricken conscience of society. A guilty man himself, however venial his crime, the artist can assist his people, by percept and example, to open a pathway towards sanity and salvation (175). It is in this respect that Demoke is invited by the council to carve a totem out of one tree in the forest. He sees no problem in this. But after his work, he discovers that a modern motor road has been built to the carving in the forest. The digging of the motor road involves the destruction of many more trees. This infuriates him and he rejects the work and flees from it:

DEMOKE: For one thing, I did not know what it was all about. The council met and decided that they wanted it done. In secret. The tree was in the grove of Oro, so it was possible to keep it hidden. Later I learnt that it was meant for the gathering of the tribes. When I finished it, the grove was cleared of all the other trees, the bush was razed and a

motor road built right up to it. It looked different. It was no longer my work. I fled from it. (11)

Demoke's rejection of his work which involves the destruction of the environment may be a subtle appeal to all artists for a collective sensitisation of logging companies and humanity as a whole for a sustainable use of forest resources and the preservation of the environment.

Wole Soyinka's concern for the environment had been disclosed even in his much earlier plays, *The Lion and the Jewel* and *The Swamp Dwellers*. In *The Lion and the Jewel*, Baroka the Bale is conservative, resists the building of roads and railways, and tries to keep his village insulated from progress. In Eldred Jones' opinion, the Bale fears progress, and in this he can be credited with the foresight of anticipating some of the disasters of progress which 'civilised' societies have only discovered by hindsight (28). The Bale's statement on progress is quite telling:

I do not fear progress, only its nature
Which makes all roofs and faces look the same.
And the wish of one old man is
That here and there,
Among the bridges and the murderous roads
Below the humming birds which
Smoke the face of Sango, dispenser of
The snake-tongue lightening; between this moment
And the reckless broom that will be wielded
In these years to come, we must leave
Virgin plots of lives, rich decay
And the tang of vapours rising from
Forgotten heaps of compost, lying
Undisturbed--- (47)

Looking at the Bale's statements above, Jones concludes that there is wisdom in the speech given that the Bale sees the reverse side of the coin of progress especially its effects on the environment. The Bale is in reality a conservative under whom the village is likely to remain exactly as it has always been if he has his way. In this light the Bale can be considered as an advocate for environmental protection.

Wet lands and their rich potentials are also Soyinka's cause for concern. In The Swamp Dwellers, Makuri tells the Blind Beggar that they cannot till the land beyond a certain limit because the rest of it belongs to the serpent of the swamps. Consequently, this portion of the land is preserved as opposed to other areas that are under the weight of timber exploitation by logging companies. We are told that Awuchike is a successful timber merchant in the city. He reaps the benefits of this environmental hazard and uses his position to ruin his own twin brother. His ruining of his twin brother is synonymous with the devastation that his activity causes to the environment. We also hear of city traders who come to the village to buy crocodile skins. This activity encourages the killing of this wild life species which is becoming an endangered species in many parts of the world

V. Conclusion

By incorporating the above aspects in his plays, Wole Soyinka could not have been pricked by anything else than the need to preserve the environment or the ecosystem. His work therefore falls in line with the views of Cheryl Glotfelty and Harold Fromm (1996) that human nature is connected to the physical world, affecting it and affected by it and that there are interconnections between nature and culture (156). Harold Fromm (2004) again captures the bond between man and nature in his review of Glen Love' *Practical Ecocriticism* when he opines that:

A man and a woman eat food from the Earth that becomes their bodies and sperm cells and eggs. A fertilised egg, fed by more plants and animals, keeps dividing, turning into specialised body parts, including a brain, that
are wholly derived from the plants and animals (and earth, sunlight, water, air etc., that generate them). The environment is coursing through the foetus,
who is made of substances ingested by the mother. The foetus becomes a baby who becomes a person who is comprised of the plants and animals eaten by his parents and now eaten by himself. His cells, nails, hair, skin, etc. are regularly sloughed off and replaced by newly made substances derived from earth-generated plants and animals to feed new parents, sperm, eggs, and foetuses.
There is no environment, only an ensemble of elements recycled through every existing thing. The environment does not wrap itself around a person for his regal contemplation: the person is the environment and
the environment the person. (Fromm, 2004:2) Fromm's comment indicates that there is a give-and-take relationship between all the different constitutive elements of the environment.

Drawing from Barry Commoner's first law of ecology which states that 'everything is connected to everything else'(1996:108) we can conclude with Glotfelty and Fromm that literature does not float above the material world in some aesthetic ether, but rather, plays a part in an immensely complex global system, in which energy, matter, and ideas interact (74). This means that literature can play an important part in environmental protection by creating awareness on some of man's destructive activities to the environment while at the same time encouraging sustainable nature-friendly activities for as Laurence Buell says, if the critical problem of the twentieth century was that of racial discrimination, then the most urgent thing of the twenty- first century is ecological problems and no discipline can give a deaf ear to this problem. In this light, Wole Soyinka emerges as an advocate for environmental protection, presenting Yoruba or African culture in his creative works as nature sensitive, nature-protective and nature-friendly in contrast with other cultures as Joseph Meeker tells us in *The Comedy of Survival* (1974) that environmental crisis is caused primarily by a cultural tradition in the West which separates culture from nature. Albert Gore (1992) has rightly pointed out that 'we must make the rescue of the environment the central organising principle for civilisation' (269). Evidently, Gore is talking about a civilisation that takes into account concerns about the environment. If this appeal is intended for all humanity,

it is first of all addressed to Western industrialised countries.

Laurence Buell (1996) has proposed four evaluation criteria for a writer to be considered environmentalist. Firstly, nature must be a character in his texts, secondly, human interest must be mixed with environmental interest, thirdly, man must be accountable for the environment and finally, there must be some human progress which in turn causes environmental degradation and which the writer decries. If Buell's suggestions are anything to go by, then Wole Soyinka can be considered an environmentalist since his works incorporate all the above factors and his literary corpus as a whole underlines green writing, green reading and green thinking.

VI. NOTES

1-*Aroni*: A lame spirit and servant to Forest Head
2-*Oro*: A god of terror in the Yoruba pantheon who is always invoked to punish criminals.
3-*Eshuoro*: Wayward flesh of Oro.
4-*Murete:* A tree imp.
5-*Ozone layer*: This is a thin layer of air high above the Earth, which contains a lot of ozone, and which prevents harmful ultraviolet light from reaching the Earth.

VII. REFERENCES

1) Buell, Lawrence. The Environmental Imagination: Thoreau, Nature Writing, and the Formation of American Culture. London: Harvard University Press, 1995.
2) Letter' New England Literary Culture: From Revolution through Renaissance. Cambridge: CUP, 1986.
3) Commoner, Barry. The Closing Circle: Nature, Man and Technology. New York: Knopf, 1979.
4) Etherton, Michael. Before Our Very Eyes: Tribute to Wole Soyinka, ed. Dapo Adelugba. Ibadan: Spectrum Books Ltd, 1987.
5) Fromm, Harold. 'Ecocrticism Big Bang: A Review of Practical Ecocriticism:' Literature, Biology and the Environment by Glen A. Love. Logos Journal, 2007, Issue 3, No 3.
6) Glotfelty, Cheryll and Harold Fromm Eds. The Ecocrticism Reader: Landmarks in Literary Ecology. Athens and London: University of Georgia, 1996.
7) Gore, Albert. Earth in the Balance: Ecology and the Human Spirit. Boston: Houghton Mifflin, 1992.
8) Hutchings, Kevin. 'Ecocriticism in British Romantic Studies' Literature Compass, Vol. 4, No 1, 2007, pp 172-202.
9) Jonathan Bate. The Song of the Earth. Cambridge: Havard University Press, 2000.
10) Jones, Eldred. The Writing of Wole Soyinka. London: Heinemann, 1973.
11) Moore, Gerald. Wole Soyinka. New York: African Publishing Corp., 1971.
12) Peters, Jonathan. A Dance of Masks: Senghor, Achebe, Soyinka. Washington DC: Three continents Press, 1978.
13) Philips, Dana. The Truth of Ecology, Nature, culture and Literature in America. Oxford: Oxford University Press, 2003.
14) Raglon, Rebecca. 'The Post Natural Wilderness and Its Writers.' Journal of Eco-criticism, Vol. No 1, 2008, pp.1-7.
15) Soyinka, Wole. A Dance of the Forests. Collected Plays 1. Oxford: Oxford University Press, 1973.
16) ……The Swamp Dwellers. Collected Plays 1. Oxford: Oxford University Press, 1973.
17) ……The Road. Collected Plays 1. Oxford: Oxford University Press, 1973.
18) ……The Lion and the Jewel. Collected Plays 2. Oxford: Oxford University Press, 1974.
19) Sun, Xue and Xiangwu Meng. 'The Ascendant Green Literary Study of Ecocriticism' Sino-US English Teaching, Vol.3, No 3 (serial no.27), 2006, pp 68-71.

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Informal Guidelines of Research Paper Writing

Key points to remember:

- Submit all work in its final form.
- Write your paper in the form, which is presented in the guidelines using the template.
- Please note the criterion for grading the final paper by peer-reviewers.

Final Points:

A purpose of organizing a research paper is to let people to interpret your effort selectively. The journal requires the following sections, submitted in the order listed, each section to start on a new page.

The introduction will be compiled from reference matter and will reflect the design processes or outline of basis that direct you to make study. As you will carry out the process of study, the method and process section will be constructed as like that. The result segment will show related statistics in nearly sequential order and will direct the reviewers next to the similar intellectual paths throughout the data that you took to carry out your study. The discussion section will provide understanding of the data and projections as to the implication of the results. The use of good quality references all through the paper will give the effort trustworthiness by representing an alertness of prior workings.

Writing a research paper is not an easy job no matter how trouble-free the actual research or concept. Practice, excellent preparation, and controlled record keeping are the only means to make straightforward the progression.

General style:

Specific editorial column necessities for compliance of a manuscript will always take over from directions in these general guidelines.

To make a paper clear
· Adhere to recommended page limits

Mistakes to evade

- Insertion a title at the foot of a page with the subsequent text on the next page
- Separating a table/chart or figure - impound each figure/table to a single page
- Submitting a manuscript with pages out of sequence

In every sections of your document

· Use standard writing style including articles ("a", "the," etc.)

· Keep on paying attention on the research topic of the paper

· Use paragraphs to split each significant point (excluding for the abstract)

· Align the primary line of each section

· Present your points in sound order

· Use present tense to report well accepted

· Use past tense to describe specific results

· Shun familiar wording, don't address the reviewer directly, and don't use slang, slang language, or superlatives

· Shun use of extra pictures - include only those figures essential to presenting results

Title Page:

Choose a revealing title. It should be short. It should not have non-standard acronyms or abbreviations. It should not exceed two printed lines. It should include the name(s) and address (es) of all authors.

Abstract:

The summary should be two hundred words or less. It should briefly and clearly explain the key findings reported in the manuscript--must have precise statistics. It should not have abnormal acronyms or abbreviations. It should be logical in itself. Shun citing references at this point.

An abstract is a brief distinct paragraph summary of finished work or work in development. In a minute or less a reviewer can be taught the foundation behind the study, common approach to the problem, relevant results, and significant conclusions or new questions.

Write your summary when your paper is completed because how can you write the summary of anything which is not yet written? Wealth of terminology is very essential in abstract. Yet, use comprehensive sentences and do not let go readability for briefness. You can maintain it succinct by phrasing sentences so that they provide more than lone rationale. The author can at this moment go straight to shortening the outcome. Sum up the study, with the subsequent elements in any summary. Try to maintain the initial two items to no more than one ruling each.

- Reason of the study - theory, overall issue, purpose
- Fundamental goal
- To the point depiction of the research
- Consequences, including definite statistics - if the consequences are quantitative in nature, account quantitative data; results of any numerical analysis should be reported
- Significant conclusions or questions that track from the research(es)

Approach:

- Single section, and succinct
- As a outline of job done, it is always written in past tense
- A conceptual should situate on its own, and not submit to any other part of the paper such as a form or table
- Center on shortening results - bound background information to a verdict or two, if completely necessary
- What you account in an conceptual must be regular with what you reported in the manuscript
- Exact spelling, clearness of sentences and phrases, and appropriate reporting of quantities (proper units, important statistics) are just as significant in an abstract as they are anywhere else

Introduction:

The **Introduction** should "introduce" the manuscript. The reviewer should be presented with sufficient background information to be capable to comprehend and calculate the purpose of your study without having to submit to other works. The basis for the study should be offered. Give most important references but shun difficult to make a comprehensive appraisal of the topic. In the introduction, describe the problem visibly. If the problem is not acknowledged in a logical, reasonable way, the reviewer will have no attention in your result. Speak in common terms about techniques used to explain the problem, if needed, but do not present any particulars about the protocols here. Following approach can create a valuable beginning:

- Explain the value (significance) of the study
- Shield the model - why did you employ this particular system or method? What is its compensation? You strength remark on its appropriateness from a abstract point of vision as well as point out sensible reasons for using it.
- Present a justification. Status your particular theory (es) or aim(s), and describe the logic that led you to choose them.
- Very for a short time explain the tentative propose and how it skilled the declared objectives.

Approach:

- Use past tense except for when referring to recognized facts. After all, the manuscript will be submitted after the entire job is done.
- Sort out your thoughts; manufacture one key point with every section. If you make the four points listed above, you will need a least of four paragraphs.
- Present surroundings information only as desirable in order hold up a situation. The reviewer does not desire to read the whole thing you know about a topic.
- Shape the theory/purpose specifically - do not take a broad view.
- As always, give awareness to spelling, simplicity and correctness of sentences and phrases.

Procedures (Methods and Materials):

This part is supposed to be the easiest to carve if you have good skills. A sound written Procedures segment allows a capable scientist to replacement your results. Present precise information about your supplies. The suppliers and clarity of reagents can be helpful bits of information. Present methods in sequential order but linked methodologies can be grouped as a segment. Be concise when relating the protocols. Attempt for the least amount of information that would permit another capable scientist to spare your outcome but be cautious that vital information is integrated. The use of subheadings is suggested and ought to be synchronized with the results section. When a technique is used that has been well described in another object, mention the specific item describing a way but draw the basic principle while stating the situation. The purpose is to text all particular resources and broad procedures, so that another person may use some or all of the methods in one more study or referee the scientific value of your work. It is not to be a step by step report of the whole thing you did, nor is a methods section a set of orders.

Materials:

- Explain materials individually only if the study is so complex that it saves liberty this way.
- Embrace particular materials, and any tools or provisions that are not frequently found in laboratories.
- Do not take in frequently found.
- If use of a definite type of tools.
- Materials may be reported in a part section or else they may be recognized along with your measures.

Methods:

- Report the method (not particulars of each process that engaged the same methodology)
- Describe the method entirely
- To be succinct, present methods under headings dedicated to specific dealings or groups of measures
- Simplify - details how procedures were completed not how they were exclusively performed on a particular day.
- If well known procedures were used, account the procedure by name, possibly with reference, and that's all.

Approach:

- It is embarrassed or not possible to use vigorous voice when documenting methods with no using first person, which would focus the reviewer's interest on the researcher rather than the job. As a result when script up the methods most authors use third person passive voice.
- Use standard style in this and in every other part of the paper - avoid familiar lists, and use full sentences.

What to keep away from

- Resources and methods are not a set of information.
- Skip all descriptive information and surroundings - save it for the argument.
- Leave out information that is immaterial to a third party.

Results:

The principle of a results segment is to present and demonstrate your conclusion. Create this part a entirely objective details of the outcome, and save all understanding for the discussion.

The page length of this segment is set by the sum and types of data to be reported. Carry on to be to the point, by means of statistics and

tables, if suitable, to present consequences most efficiently.

You must obviously differentiate material that would usually be incorporated in a study editorial from any unprocessed data or additional appendix matter that would not be available. In fact, such matter should not be submitted at all except requested by the instructor.

Content

- Sum up your conclusion in text and demonstrate them, if suitable, with figures and tables.
- In manuscript, explain each of your consequences, point the reader to remarks that are most appropriate.
- Present a background, such as by describing the question that was addressed by creation an exacting study.
- Explain results of control experiments and comprise remarks that are not accessible in a prescribed figure or table, if appropriate.
- Examine your data, then prepare the analyzed (transformed) data in the form of a figure (graph), table, or in manuscript form.

What to stay away from

- Do not discuss or infer your outcome, report surroundings information, or try to explain anything.
- Not at all take in raw data or intermediate calculations in a research manuscript.
- Do not present the similar data more than once.
- Manuscript should complement any figures or tables, not duplicate the identical information.
- Never confuse figures with tables - there is a difference.

Approach

- As forever, use past tense when you submit to your results, and put the whole thing in a reasonable order.
- Put figures and tables, appropriately numbered, in order at the end of the report
- If you desire, you may place your figures and tables properly within the text of your results part.

Figures and tables

- If you put figures and tables at the end of the details, make certain that they are visibly distinguished from any attach appendix materials, such as raw facts
- Despite of position, each figure must be numbered one after the other and complete with subtitle
- In spite of position, each table must be titled, numbered one after the other and complete with heading
- All figure and table must be adequately complete that it could situate on its own, divide from text

Discussion:

The Discussion is expected the trickiest segment to write and describe. A lot of papers submitted for journal are discarded based on problems with the Discussion. There is no head of state for how long a argument should be. Position your understanding of the outcome visibly to lead the reviewer through your conclusions, and then finish the paper with a summing up of the implication of the study. The purpose here is to offer an understanding of your results and hold up for all of your conclusions, using facts from your research and generally accepted information, if suitable. The implication of result should be visibly described.
Infer your data in the conversation in suitable depth. This means that when you clarify an observable fact you must explain mechanisms that may account for the observation. If your results vary from your prospect, make clear why that may have happened. If your results agree, then explain the theory that the proof supported. It is never suitable to just state that the data approved with prospect, and let it drop at that.

- Make a decision if each premise is supported, discarded, or if you cannot make a conclusion with assurance. Do not just dismiss a study or part of a study as "uncertain."
- Research papers are not acknowledged if the work is imperfect. Draw what conclusions you can based upon the results that you have, and take care of the study as a finished work
- You may propose future guidelines, such as how the experiment might be personalized to accomplish a new idea.
- Give details all of your remarks as much as possible, focus on mechanisms.
- Make a decision if the tentative design sufficiently addressed the theory, and whether or not it was correctly restricted.
- Try to present substitute explanations if sensible alternatives be present.

- One research will not counter an overall question, so maintain the large picture in mind, where do you go next? The best studies unlock new avenues of study. What questions remain?
- Recommendations for detailed papers will offer supplementary suggestions.

Approach:

- When you refer to information, differentiate data generated by your own studies from available information
- Submit to work done by specific persons (including you) in past tense.
- Submit to generally acknowledged facts and main beliefs in present tense.

Administration Rules Listed Before Submitting Your Research Paper to Global Journals

Please carefully note down following rules and regulation before submitting your Research Paper to Global Journals:

Segment Draft and Final Research Paper: You have to strictly follow the template of research paper. If it is not done your paper may get rejected.

- The **major constraint** is that you must independently make all content, tables, graphs, and facts that are offered in the paper. You must write each part of the paper wholly on your own. The Peer-reviewers need to identify your own perceptive of the concepts in your own terms. NEVER extract straight from any foundation, and never rephrase someone else's analysis.
- Do not give permission to anyone else to "PROOFREAD" your manuscript.

Written Material: You may discuss with your guides and key sources.

- Do not copy or imitate anyone else paper. (Various Methods to avoid Plagiarism is applied by us on every paper, if found guilty, you will be blacklisted by all of our collaborated research groups, your institution will be informed for this and strict legal actions will be taken immediately.)
- To guard yourself and others from possible illegal use please do not permit anyone right to use to your paper and files.

CRITERION FOR GRADING A RESEARCH PAPER *(COMPILATION)* BY GLOBAL JOURNALS

Please note that following table is only a Grading of "Paper Compilation" and not on "Performed/Stated Research" whose grading solely depends on Individual Assigned Peer Reviewer and Editorial Board Member. These can be available only on request and after decision of Paper. This report will be the property of Global Journals.

Topics	Grades		
	A-B	**C-D**	**E-F**
Abstract	Clear and concise with appropriate content, Correct format. 200 words or below	Unclear summary and no specific data, Incorrect form Above 200 words	No specific data with ambiguous information Above 250 words
Introduction	Containing all background details with clear goal and appropriate details, flow specification, no grammar and spelling mistake, well organized sentence and paragraph, reference cited	Unclear and confusing data, appropriate format, grammar and spelling errors with unorganized matter	Out of place depth and content, hazy format
Methods and Procedures	Clear and to the point with well arranged paragraph, precision and accuracy of facts and figures, well organized subheads	Difficult to comprehend with embarrassed text, too much explanation but completed	Incorrect and unorganized structure with hazy meaning
Result	Well organized, Clear and specific, Correct units with precision, correct data, well structuring of paragraph, no grammar and spelling mistake	Complete and embarrassed text, difficult to comprehend	Irregular format with wrong facts and figures
Discussion	Well organized, meaningful specification, sound conclusion, logical and concise explanation, highly structured paragraph reference cited	Wordy, unclear conclusion, spurious	Conclusion is not cited, unorganized, difficult to comprehend
References	Complete and correct format, well organized	Beside the point, Incomplete	Wrong format and structuring

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