OPEN ACCESS

Journal of
African Studies and Development

February 2018
ISSN: 2141-2189
DOI: 10.5897/JASD
www.academicjournals.org

academicJournals

Academic Journals

ABOUT JASD

The Journal of African Studies and Development (**JASD**) will be published monthly (one volume per year) by Academic Journals.

Journal of African Studies and Development (JASD) is an open access journal that provides rapid publication (Monthly) of articles in all areas of the subject such as African literatures, sociolinguistic topics of cultural Interest, music, oral and written traditions etc.

The Journal welcomes the submission of manuscripts that meet the general criteria of significance and scientific Excellence. Papers will be published shortly after acceptance. All articles published in JASD are peer-reviewed.

Contact Us

Editorial Office: jasd@academicjournals.org

Help Desk: helpdesk@academicjournals.org

Website: http://www.academicjournals.org/journal/JASD

Submit manuscript online http://ms.academicjournals.me/.

Editors

Editorial Board

Journal of African Studies and Development

Table of Contents: Volume 10 Number 2 February 2018

ARTICLES

academicJournals

Vol. 10(2), pp. 8-18, February 2018
DOI: 10.5897/JASD2017.0481
Article Number: 529346656083
ISSN 2141-2189

http://www.academicjournlas.org/JASD

Journal of African Studies and Development

Full Length Research Paper

Combining indigenous wisdom and academic knowledge to build sustainable future: An example from rural Africa

Bardy Roland[1*], Arthur Rubens[1] and Helen Akolgo Azupogo[2]

[1]Florida Gulf Coast University, Lutgert College of Business, Fort Myers, Florida, United States of America.
[2]Regentropfen College of Applied Sciences, Namoo, Upper East, Ghana.

Received 7 November, 2017; Accepted 26 January, 2018

The paper presents the premise that sustainable development in Africa is only possible when it involves a bottom-up approach and brings in a multitude of local endeavors. In order for this to occur, community knowledge bases must be captured and utilized. This is shown here by using the case example of a community in Northern Ghana where a new college has been set up in the midst of a rural environment. The preliminary findings from the case show the economic, social and ecological benefits of using the local community's resources and stakeholders, and their indigenous knowledge, for positioning the new college's mission within its constituency. From a theoretical viewpoint, the paper envisages how a combination of knowledge management and systems thinking can amalgamate into practical approaches for both building new approaches to sustainable development and fostering pertinent projects and programs.

Key words: Indigenous wisdom, sustainable development, community intellectual capital, systems thinking, Africa.

INTRODUCTION

Traditional knowledge and value patterns in relation to ecology and human life have always been intrinsically engrained in the lives of indigenous people. They have, however, not always been met with an open-mind by developed nations (Whiteman 2004; Kowalski, 2014; Kennedy, 2015). One reason is that socio-ecological systems in developing countries are often in marked contrast to those of the developed world where they use advanced technology, employ sophisticated scientific models and are built on a long history of democratic traditions. But it often does not make sense to transfer these modes and tradition to a country or a region which is in a different stage of social and economic development. Moreover, there are many examples which show that this fails (Williamson, 2010), and there is a need to use a different approach for helping societies with low life expectancy, low levels of sustenance, and low standards of living (Suneetha and Balakrishna, 2010;

*Corresponding author. E-mail: rbardy@t-online.de.

Sukhdev et al., 2014). Losing traditional knowledge practices can have asignificant negative impact on the livelihoods, production systems (bio-resource-based markets) and the health of local communities (Fenta, 2000; Turner et al., 2013; Ongugo et al., 2012).

Therefore, development policies in these local communities should preserve their traditional wisdom and knowledge and thus provide opportunities to practically and purposefully apply it.

One way to preserve and apply traditional wisdom and knowledge is to create regional centers where this body of knowledge can be maintained, and its many applications can be made available in the region. An example of this would be the Education for Sustainable Development (ESD) Program at the United Nations University Institute for the Advanced Study of Sustainability (UNU-IAS; https://ias.unu.edu/en/), which has created these types of centers. As of 2016, there is a global network of more than 100 Regional Centers of Expertise (RCEs) on ESD. The RCEs provide a framework for strategic thinking and action on sustainability by creating diverse partnerships among educators, researchers, policy makers, scientists, youth leaders within indigenous communities and throughout the public, private and non-governmental sectors. Many of these sectors are associated with groups of individuals who can provide indigenous sources of knowledge (Wade, 2103).

Another key way to preserve and make available indigenous wisdom is by connecting this knowledge and experiences with academic institutions. The case that is reported in this paper is a prime example of this: Regentropfen College in the Upper East Region of Ghana was built in a rural environment, and surrounded by communities who are guardians of indigenous wisdom. Their wisdom, incorporates traditional views on ecology as well as on social matters. For example, how to get people to participate in decisions (Indaba), how to resolve conflicts (Ubuntu) and how to rebound from a crisis (Kanju). When the socio-ecological wisdom of the communities bordering the campus of Regentropfen and academic perceptions (who are taught and studied in the new college) coalesce, a rich body of knowledge will be created that can help to improve the living standards of the population (not only of the people who live there, but of the larger populace of surrounding rural communities and beyond).

The purpose of this paper is to demonstrate the opportunities that lie in establishing a new college within the environment of a rural community with rich indigenous tradition. The structure of this paper has intentionally been designed in a way that differs from mainstream publications which traditionally present a theory and the relevant literature, and then apply the theory to a practical case. The primary reason that this paper differs in its presentation is that there are wide strands of literature on the concepts of indigenous wisdom, knowledge management, and systemic thinking, and the authors found that instead of listing them in an extensive overview, it would be more beneficial to weave the more important references into the text. In addition, the reader who has gone through the abstract and follows the narrative of Regentropfen founding will better understand how it relates to the three theoretical issues underlying the case, namely: (1) Structural couplings and intra-systemic self-organization, (2) conjoining self-organization and relationality (3) co-creation.

ELEMENTS OF TRADITIONAL WISDOM ON SUSTAINABLE DEVELOPMENT AND ETHICS

Centuries of co-existence with ecosystems has resulted in some of the richest collective memories on patterns and behavior of biological resources and environmental changes. Indigenous peoples in Africa and elsewhere have developed a close and unique connection with the lands and environments in which they live, and they have a wide array of beliefs, as well as a strong sense of ethics and what is right and wrong. In addition, they have been deploying a wide range of different techniques to cope with their intricate relationships with their biodiverse resources which are embedded in their cultures. This biodiversity is much more visible in Africa because of the remoteness of many cultures from each other, and ultimately serves as a self-limiting mechanism to ensure sustainable use of resources (Subramanian, 2010).

The indigenous knowledge that has accumulated within rural African cultures over the years can be deployed for assisting modern approaches to data creation on various aspects of the environment and biodiversity; e.g., forecasting on natural phenomena, and varied methods of managing biotic and abiotic changes brought about due to changes in environmental conditions. In particular, indigenous knowledge provides local farmers with the basis for agricultural decision making (Warren and Rajasekaran, 1993). Furthermore, indigenous soil knowledge and traditional agriculture provide an environmentally sound and culturally acceptable basis for adoption of agricultural innovation. Frequently, these cultures adopt identifiable parameters such as color, texture, depth changes in soil behavior under different conditions, drainage, and parent materials in classifying soils for their own need (Kundiri et al., 1997).

Although there is a broad literature on the various components of African indigenous knowledge on agriculture (for an overview, see Winklerprins, 1999; Subramanian and Pisupati, 2010), only a limited review will be given in this paper to highlight some of these examples. For example, one of the key issues in the continent is soil and water conservation; especially where the technologies are agronomic, vegetative, and where structural and management measures are needed for controlling land degradation and enhancing soil

productivity. Examples of agronomy measures are mixed cropping, contour cultivation, and mulching. Examples of vegetative measures are grass strips, hedge barriers, and wind breaks, whereas structural measures are terraces, banks, bunds, constructions, and palisades. Management measures include such processes as land use change, area closure, and rotational grazing (which involve a fundamental change in land use) (Osunade, 1994 on Swaziland, and Oladele and Braimoh, 2010 on farmers in Oyo State, Nigeria).

Another indigenous practice is rational land-use planning in agroforestry which attempts to find balance in the raising of food crops and forests (Adesina et al., 1999 on applications in in the African Sahel). An example of this would be raising shade tolerant crops in a permanent forest setting. This process can lead to an increase in the amount of organic matter in the soil, thereby improving agricultural productivity and reducing the pressure exerted on forests. Similarly, crop-livestock integration in a farming system is believed to have numerous advantages, such that slack resources from crops could be used as feed for livestock while livestock would provide draft power and manure to replenish the soil (Erkossa and Gezahegn, 2003 on Eastern Ethiopia).

Other traditional methods would be when local farmers have developed various techniques to improve or maintain soil fertility. For example, farmers in Southern Sudan and in Zaire found that the sites of termite mounds are particularly good for growing sorghum and cowpea. In Senegal, the indigenous agro-silvo-pastoral system takes advantage of the benefits provided by an acacia tree which sheds its leaves at the onset of the wet season, thus permitting enough light to penetrate for the growth of sorghum and millet, yet still providing enough shade to reduce the effects of intense heat (Adedipe, 1983). In Ethiopia, several indigenous technologies developed to control soil erosion and conserve soil water include cut-off-drains and drainage furrows, carefully devised to prevent soil loss due to runoff (Erkossa and Gezahegn, 2003). In addition, there are also indigenous early warning systems for the forecast of events regarding weather and climate. In this, farmers have developed intricate systems of gathering and interpretation of data in relation to weather, and frequently base their decisions on cropping patterns and planting dates on local predictions of weather (Ajibade and Shokemi, 2003).

Similar techniques and practices are found in traditional health systems that are based in theories or cosmologies that take into account mental, social, spiritual, physical and ecological dimensions. A fundamental concept found in many of these systems is that of balance – the balance between mind and body, between different dimensions of individual bodily functioning and need, between individual and community, individual community and environment, and individual and the universe (Bodeker, 2010). These practices and beliefs highlight the indigenous populace sense of ethics, where many people have a deep sense of right and wrong. This moral sense has produced observed in each society. Any breach of this code of considered evil, “for it is an injury or destruction to the accepted social order and peace” (Mbiti, 1969: 205). “As in all societies of the world, social order and peace are recognized by African people as essential and sacred; where the sense of life is so deep, it is inevitable that the solidarity (and stability) of the community must be maintained otherwise there is disintegration and destruction” (Mbiti, 1969: 205). Compliance to the rules of social order is requested on all levels. For instance, in Nigeria the traditional Ibo society enforces conformity by Omenala (customs). “Culturally speaking, Omenala is the means by which the social ethos is measured, the values of the society are continued from one generation to another and the process of socialization through education of the young ones is facilitated. Harmony and equilibrium are in this way maintained as every member of the society knows what to expect from his neighbor and what to give to them” (Ilogu, 1974: 23).

The individual level of ethics can best be described by the manner and way the Akan people of Ghana conceive of a person. They see a person consisting of three elements: Okra, which is the inner self, providing the source of energy and vital force to an individual; Sunsum, which is the spiritual actor of the person and the source of moral agency; and Honam, which is the bodily appearance of a person (Gyekye, 1997).

On the more instrumental side of ethics issues, African tradition has long-standing means of bottom-up decision making and formulating common ideas. In Botswana, for example, the ‘Kgotla’ is the central decision-making agency of a village and serves as the village's administrative and judicial center. It is presided over by the local chief, and all adult community members are expected to attend to discuss public affairs (Silitshena, 1992).

The Zulu and Xhosa, as well as the Swazi, use ‘Indaba’ or ‘Indzaba’ to make people get together to sort out the problems that affect them all - where everyone has a voice and where there is an attempt to find a common mind. The word, for this in their languages, means ‘business’ or ‘matter’ (Newenham-Kahindi, 2009). Another concept is Kanju, a term that describes a specific creativity born from African difficulty. Kanju is “the rule-bending ethos that makes it possible to get things done in the face of difficult situations like crumbling infrastructure, corrupt bureaucracy, and tightfisted banks unwilling to make loans to people without political connections” (Olopade, 2015: 20 ff.).

An additional important principle is: Ubuntu in Zimbabwean, and Hunhu/Kuntu/Munhu in other African languages, which is “the ability for overpowering urges in one’s own physical being” (Chivaura, 2007: 232). Its emphasis is on coexistence, built on harmony, peace and justice – the “African way of how to connect with people” (Newenham-Kahindi, 2009: 90).

THE "STRAINED RELATIONS" BETWEEN INDIGENOUS WISDOM AND ACADEMIC RESEARCH

Even though the significance of indigenous knowledgeand its significance on the progress of humankind are becoming widely acknowledged, the links and connections to the academic world would still be characterized by "strained relations" (Battiste, 2010). On the one hand, there are historical reasons: The European settler majority has widely disregarded indigenous knowledge and its teachings as invalid epistemologies. Disrespect for indigenous epistemologies and theft of knowledge and its products have alienated indigenous learners from formal learning and contributed to a legacy of mistrust between institutions of higher learning and indigenous peoples (Stonechild, 2006). Consequently, this has resulted in notable absences in academic works. Additionally, in numerous cases irresponsible scholars have sought to appropriate indigenous knowledge to receive monetary or professional rewards (Smith, 1999). Similarly, there is also the frequent inappropriateness of using the notion of a "developing country" to distinguish from a "developed country". This reference, while it may be upheld and used for the sake of statistical classification, ideally it should not be used for addressing local development issues, as well as global governance challenges of the 21st century (Neuwirth, 2017).

Emphasis by policy makers (be it in Africa or also a country like Canada, where respect for the "First Nations" is commonplace) to make the necessary connections to indigenous learning, however, is gradually emerging (the difficult task of respectful interchange and knowledge translation). Although with this said, indigenous science remains a challenged field of knowledge and enquiry, and the teachings of indigenous science are, at least in some instances, have only recently begun to be applied to what the Western world calls "conventional education" (Battiste, 2010: 32).

Although, we often find the assumption that indigenous ways of knowing have less validity or epistemological sophistication than modern ways of knowing (Mochizuki, 2009), it is only very slowly acknowledged that in a global environment, traditional Western ways of knowing and researching need to be challenged. There have been calls for the "decolonization" of methodologies, and for a new agenda of indigenous research, meaning that "a more critical understanding of the underlying assumptions, motivations and values that inform research practices" is needed (Smith, 1999: 21).

Yet, progress is made, even though we are seeing it sporadically and within isolated projects: Hill et al. (2012) report on an Australian workshop held with Maoris on "Indigenous Co-management and Biodiversity Protection". In addition, we have seen other examples where members of indigenous communities get involved in regional processes by contributing expertise, not by virtue of academic or other degrees, but through the experience of dealing with a particular locally significant problem (Wren and Speranza, 2010; Collins and Evans, 2002). There are also cases that exhibit "meaning-making interaction" around indigenous environmental knowledge in South African school curriculum settings, combined with social interactions around intergenerational ways of knowing in local community and school curriculum settings (O'Donoghue et al., 2009). We are finding that many of these examples have several common elements:

i) Engagements with socio-historical context (who / where),
ii) Emergent local imperatives (why),
iii) Deliberative research / learning activities (what / how),
iv) Reflexive considerations of possible change (for what).

Hence, these elements or ingredients can be employed: to overcome the clash of indigenous wisdom and what remains from former colonial norms; to build new combinations of cognitive competencies and rationalities; and to make use of higher levels of self-reflection (Rist et al., 2009). In addition, if applied on broader terms, and through 'explicitly building "receptacles" (through connecting to academic achievements on sustainable development) this could potentially result in substantial transformations of knowledge that had previously been 'tacit', to knowledge that is 'explicit'.

As a consequence, people will define their identities in terms of active participation in social organization ('defining how to do things' and 'what is good and bad'), with collective processes that co-produce specific blends of practices that can be employed on both local and regional levels.

The aforementioned "Regional Centers of Expertise" of the UN Education for Sustainable Development Program would be suitable centers or 'receptacles' for the new amalgamations of knowledge. But to produce these amalgamations 'bottom-up' and on a 'wider scale', an important dimension of transformation is needed which is the presence of "connectors" between educational institutions and society. In this context, connectors refer to existing networks of people that reach across the boundaries of a college, who tender the shared language that is needed for working with the community environment, and who give incentives for engaging in interactions to the greater society. It should be noted that there is some similarity in this with sustainability transformation across universities in the Western world where we also find a need for these connectors (Ferrer-Balas et al., 2008).

While these schools using existing infrastructure (which have to overcome bureaucratic sluggishness), the environment in the developing world still needs to put up this infrastructure, that is, establish new colleges and other educational institutions. However, the most

important decision is where to locate your university. If carefully selected, the location of the university can make a significant difference in regard to building the necessary bridge to indigenous wisdom.

HOW TO BUILD A BRIDGE: INSERTING A NEW COLLEGE INTO A TRADITIONAL RURAL COMMUNITY

There are various choices when setting up new colleges in Africa. Many regions are underserved with respect to higher education institutions, and the criteria for choosing a location for an educational institution, as noted are very important. In addition to location, an overriding criteria in establishing a new college is that all students, regardless of where they live, should have the opportunity to not only be challenged and to progress in a given profession, but to gain the skills and knowledge to be gainfully employed in the community.

This has been a major aspect of the historic development of community colleges in the United States (Bogue, 1950). In fact, some African politicians have successfully copied this model (Boughey, 2002). However, in order to overcome the educational crisis of low literacy rate in Africa, many scholars agree that more is needed (Rivers, 2013). Very importantly, it will require vast numbers of well trained teachers, especially in rural areas where there are only a few institutes of pedagogy. In particular, one region where this applies the most is Ghana's Upper East Region. Although, this region has schools that train teachers and nurses, and a small satellite of an out-of-the region university, there are no comprehensive institutions of higher education for the area's 1 million plus people. Hence, when a new college was formed in the rural community of Kansoe, near Bolgatanga, the Upper East Region's capital, there were several effects to be expected on the area beyond teaching and providing opportunities for research.

The new school is named "Regentropfen College of Applied Science". "Regentropfen" is the German word for raindrops. This is appropriate since a German foundation raised the funding for the school, and the founder of the project (who now lives in Germany), is originally from Kansoe. In addition, "Regentropfen" also hints to a metaphor: Rain is a scarcity in the area where the college is located - if rain falls or, to extend the metaphor, if irrigation brings water to farming activities, green pastures will develop! Accordingly, irrigation is one major theme for the rural population to achieve self-sufficiency in food supply - through technological support, but even more through capacity building. Thus, the metaphor on what "Regentropfen College of Applied Science will bring to the region.

In pursuit of this, the college deploys various components to manage the delicate balance of teaching, research, and community outreach/economic development. Leading this effort is Regentropfen's Center for Cross-Cultural Ethics and Sustainable Development, which provides the community with increased opportunities to improve their overall social and economic well-being. This is achieved by creating an 'outer circle' of engagement through accessing: government officials, local businesses, community councils, health workers, traditional leaders (tribal chiefs), religious leaders, heads of NGOs, and foreign enterprises. These stakeholders are confronted with topics which are relevant and essential to the populace in their daily work such as: ethics in labor relations, conflict resolution, sustainability management, social responsibility, cultural diversity, and social inclusiveness. In working closely with all these stakeholders, the new school integrates the four missions of higher education – teaching, research, service (school, community, and economic development), and sustainability - at its onset and beginning. The college aims are to create a mindset throughout the area that combines ethics, entrepreneurship, environmental projects, systems thinking, self-awareness and spirituality.

REGENTROPFEN'S CENTER FOR CROSS-CULTURAL ETHICS AND SUSTAINABLE DEVELOPMENT

The Center for Cross-Cultural Ethics and Sustainable Development (CCCESD) began its work in February of 2016, after the curricula for the college's ethics program had been devised and prepared for the academic accreditation process. The CCCESD's primary charge is to integrate a focus on sustainability and ethics into college activities (it was felt that from the onset, both sustainability and ethics must be priorities in the teaching and practice for graduates of the college). This focus is extremely important due to the diversity of people, culture, and language in the region. For example, the cultural background of people from Burkina Faso and Togo (which neighbors Ghana's Upper East Region) is French, with French being the official language in these other two countries. In addition, there is also a large diversity of ethnicities and religious cultures (Catholic, Evangelical and Muslim) in the college service region. Finally, there is a great contrast on how the people live and work. For example, there is an array of local bureaucratic institutions and small businesses in the capital, Bolgatanga. These more urban individuals must interact and integrate with the very large rural population in the surrounding area. A main objective of the College and the CCCESD will be to work to blend these, diverse, multicultural groups. In working with these groups, the CCCESD will provide a comprehensive view on ethics and how it must be part of how you live and work. Specific topics like business ethics, educational ethics, agriculture ethics etc. will be dealt with within the various

curricula of the college's departments. Similarly, this same process will apply to the topic of sustainable development.

One of the initial college/community deliberations (with faculty and community stakeholders) of the CCCESD was to create an environment that would increase sensitivity and judgment and to build knowledge and skills in all areas of sustainable development and ethics. From these deliberations the central points or themes of the CCCESD's mission was created. They are: 1. To create sensitivity, 2. To build knowledge, 3. To provide soft skills, 4. To enhance judgement, 5. To strengthen ability, and 6. To raise will-power. This clearly shows that from the onset, the founding intention and purpose of the CCCESD is to create a 'center of excellence' for teaching, training and research and to produce expertise and experts in this field, in Ghana and in West Africa.

CONJOINING TRADITIONAL AND ACADEMIC WISDOM ON SUSTAINABLE DEVELOPMENT INTO A COMMUNITY BASE OF KNOWLEDGE

One of the key functions of ReCAS is to clarify the role of traditional and indigenous knowledge on how it is related to biodiversity. In addition, it will carefully and prudently "codify" this knowledge. In pursuit of this, it is creating a highly involved, engaged, and active community in order to gather and store all the wisdom on how biodiversity has hitherto been conserved and handled (the information gathering will take into account the many climatic adversities and the ill-fated interventions by wrongly applied, even though often well-meant, development aid) (Baldwin, 1991). This will be followed by combining the indigenous knowledge with appropriate technology. It is important to note, that this is not about integrating the knowledge with the newest and latest "state-of-the art" technology, but with technology which is commensurate with the conditions and environment of the local rural communities (Voeste, 2012). Integration of knowledge and technology could provide potential benefits such as: cut back soil erosion, increase the availability of water, improve the seeding process, enhance cultivation and harvesting, and improve the storage processes. These types of improvements will enhance biodiversity-dependent services such as provision of food and fiber, access and purification of water, improvement of air quality etc. However, it should be noted that ReCAS is not only aware of the technical aspects, but it is also poised to spread and incorporate this as part of the cultural and spiritual values that are key to human well-being and sustainable development.

Moreover, the integration of knowledge, culture and values, which ReCAS supports and controls, concurs precisely with the main assertions in the mission statement of the UNESCO-wide Biodiversity Initiative. The UNESCO report on traditional knowledge contributions for innovation in learning systems for sustainability which states the following:

"Learning about biodiversity, about how traditional and indigenous holders of biodiversity-related knowledge cope with biodiversity, how this knowledge is used to effectively manage biodiversity and to maintain ecosystem services at various scales, as well as which are the most appropriate approaches to promote education and raise further awareness on these issues – all of this has been part and parcel of the mission" (Unnikrishnan and Fadeeva, 2013: 3; Fadeeva and Mochizuki, 2010).

An important catalyst for the college's outreach to local environmental issues and social issues in the community was to set-up programs that can be directly applied and incorporated in the community. The CCCESD (pending final accreditation) prepared an array of short courses that could be offered to the communities of the Upper East Region. Prior to the course development, an initial study was conducted regarding which topics would receive the best and highest interest: general topics proposed ranged from ethics in labor relations and community relations, diversity management, and sustainable development in agriculture and infrastructure. As part of the initial study, interviews were held with a wide array of key stakeholders in the region: business owners, business managers, assembly members, heads of government authorities, civil service personnel, directors of education, school teachers, health service personnel, religious leaders and heads of NGOs. The participants were asked, among others, which (additional) course content they would suggest and for which or whom it should be applied to. From this series of interviews came four interesting outcomes: (1) over-population; (2) codes of conduct for law enforcement, (3) ethical conduct in business, and (4) dealing primarily with small Chinese foreign enterprises (which illegally exploit banks of streams and rivers for mining gold). It should be noted that although there is a culture clash and areas of potential conflict with the Chinese foreign enterprises, it was felt that these issues could be solved through persuasion, dialogue and consensual building of solutions to the problems.

Incidentally, awareness of conflicts is nothing new in the population of Ghana's Upper East, as in many other African regions which have a long history of hostility between tribes, with foreigners, and with migrants from other regions (Miller et al., 2009). However, to overcome conflicts among any of these groups, it is essential that there is a mutual level of respect for each other. Therefore, ReCAS focus on ethics and sustainable development is very important - ethics and sustainable development starts with reflecting on one's own mindset, understanding others and then contributing to organic change of the society one lives in. This spirit creates a

sense of compassion, sensitivity, builds understanding, provides soft skills, enhances judgement and raises the awareness and knowledge of ethical and sustainability concerns as per the six objectives of CCCESD in the mission previously displayed. Creating this mindset is the primary means to combine values, knowledge and competency. These three dimensions have a high potential of systemic intervention among them (Kassel and Rimanoczy, 2016). But achieving a sustainability mindset is a holistic undertaking where multifold linkages need to occur: interconnectedness, oneness with all that is, and biospheric orientation. Although there is some overlap between these linkages, as it is with systemic thinking and ecoliteracy, they are all needed and necessary (Kassel and Rimanoczy, 2016: 29).

EXPOUNDING THE SYSTEMS THINKING APPROACH

The combination of systems thinking and sustainable development has a very prominent representative: Donella Meadows, lead author of the international bestseller “Limits to Growth” - the first book to show the consequences of unchecked growth on a finite planet (Meadows et al., 1972) - also pioneered the systems thinking approach in the context of environmental and social analysis. Her draft book of 1993 “Thinking in Systems: A Primer” was only published after her death (Meadows, 2008). Even though the systems thinking approach has evolved substantially in those fifteen years and up to now, her basic principle of reasoning prevails: Systems thinking is, literally, a system of thinking about systems, that is, applying a collection of theoretical approaches to an object that is something more than a collection of its parts (Arnold and Wade, 2015). Following this way of viewing the subject, it makes sense to use an eclectic attitude on systems thinking when viewing a specific case from the systemic perspective. It is this approach that will be deployed here.

There are four perspectives of a systemic thought which the authors believe to be pertinent for conjoining and integrating indigenous wisdom and academic achievements into a communal base of knowledge for sustainable development. In addition, the processes of generating this knowledge base start from two ends: One is the interaction of an operationally closed system, which is the rural community, with the changing environment that originates through the new college (Schneider, 2009). The other end is the outreach from the college which can be thematized through a Luhmannian interpretation. The effort of enabling that a combined block of knowledge is brought about in the community from both the traditional and the newly acquired skills and knowledge is an undertaking of human beings. Human beings are integral elements of social systems environments. Hence, following the Luhmann (1989) perspective, the rural community in question can be understood as a system affected by the lack of chances to properly maintain sustainability in its societal and natural environments whose members are now seeing an opportunity to gain new chances from interacting with members of another system, which is the new college. Below follow the four perspectives of systems thought that conjoin and integrate indigenous wisdom and academic achievements into a communal base of knowledge for sustainable development

1) Generally, from the Luhmannian perspective, sustainability problems are characteristic of those social systems whose complexity reduction function is conflicting with their critical metabolic dependencies in the outer environment. A possible option for conceptualizing the improvement in the sustainability of such systems is related to the idea of structural couplings, connecting the system and the environment (Maturana and Varela, 1980). Even though structural couplings do not allow the environment to directly govern the intra-systemic operations, they present channels from which the system might develop sensitivity to environmental feedback (Valentinov, 2014). In turn, it can be imagined that new structural couplings emerge as an outcome of the intra-systemic self-organization processes. In the present case these processes are triggered by the installation of a new college. In contrast to the literature highlighting the environmental precariousness of the intra-systemic self-organization (Valentinov, 2015), the example of ReCAS’ outreach to its community environment shows that self-organization, which takes the form of knowledge accumulation, can in principle promote the environmental sustainability of the relevant systems. If the complexity reduction function of social systems tends to make systemic rationalities too limited for coping with their environmental dependencies, then the exogenous triggers, such as the new college, may help to broaden the rationalities and this would bring them in line with the sustainability requirements.

2) Another aspect is that sustainable development is achieved only by transition processes that stimulate societies to undergo a fundamental and systemic change (the result of which is a new and sustainable constellation of the societal system). Since this new constellation is to be used by future generations, sustainable development may also be viewed as an inter-generational communication issue (Paetau, 2004); The principle (as spelled out by the Brundtland Commission; Brundtland, 1987) of not compromising the ability of future generations to satisfy their needs does not solely apply to material goods like natural resources, but it must also include non-material needs like ‘knowledge’. Knowledge as a resource can be stored, retrieved and managed, but it does not suffice, though, to just have this knowledge base available: Knowledge, signage, data, information, and competitiveness (as a result of properly using knowledge) are all interrelated and need to be

interconnected. This is where new combinations are formed from the knowledge provided by human capital, from societal interrelations and from organizational devices that tie knowledge to social and economic purposes (Yapp, 2000). They are all intrinsically linked and include “the hidden values of individuals, enterprises, institutions, communities and regions that are current and potential sources for wealth creation” (Bontis 2004).

3) One more piece of systems thinking that applies to the ReCAS case is conjoining self-organization and relationality. Here, the efforts of the Centre could build on results achieved in innovation deployment projects run within the European Commission’s Framework Programs (Kapsali, 2011). The programs, having studied the effects of implementation instruments upon actors’ behavior, look to the logic of systems thinking as it covers the design of both horizontal interaction and vertical control mechanisms. Transferring this to the new communal blocks of knowledge, we can view it as an open-system, where all of its components (actors, organizations and instruments) are open to each other’s influence because they interact and relate through their boundaries (Rametsteiner and Weiss, 2006). The vertical would be the various layers of knowledge which interact, and the horizontal the relations of the actors that use them. We perceive various constructs of thinking in this: There is a junction of equi-finality (the overall objective of improving well-being), multi-finality (the many goals, e.g., of the SDGs), feedback (between the bodies of knowledge), self-organization (of the actors) and relationality (Jackson, 2003). This creates an atmosphere of both accountability and trust which need to be the primordial facets when combining knowledge from diverse sources.

4) Another stream of systems thinking conceptions that relates to communal knowledge building is co-creation. The term is used mostly with regard to businesses and their customers sharing their knowledge to define which characteristics and qualities are needed for a new product (Espejo and Dominici, 2016). Furthermore, there is also an application of the concept that refers to the integration of different knowledge for research towards global sustainability, partnering actors from science and society. However, integration here is an iterative process that involves reflection among stakeholders, within the three stages of co-design, co-production and co-dissemination (Mauser et al., 2013). It has long been acknowledged that sustainable development and societal change are challenges that can only be achieved bottom-up (Kemp et al., 2007; Fraser et al., 2006). This is to be guided by the principles laid down in the United Nations Agenda for the Post-2015 Sustainable Development Goals and their implementation program on national levels. But first and foremost, the design of institutional, economic and behavioral changes towards sustainability needs to be tailored to local and regional cultural and natural contexts. In this context, the pathway opened by ReCAS will generate new forms of learning and problem-solving action within “society” and “academia” (it is hoped and expected that this inter-relationship of society and academia will prosper because there is a uniquely close contact between these partners in the region).

A tentative endeavor of applying the aforementioned systems thinking concepts to the two clusters of wisdom/ knowledge practices/skills for sustainable development might go along the following lines:

With regard to co-creation, both indigenous wisdom on sustainable development, and the “mainstream mindset” on sustainable development are appertaining clusters of attitudes/knowledge built on diverse organizational and social foundations. The challenge is to initiate dialogues and interchange between them. This will create compelling new relationships, thereby stimulating productive opportunities to change the way of dealing with social and ecological conditions. But the ‘two clusters should remain apart’. They should not be merged because each of them would lose its embeddedness in the specific social foundation and thus forfeit a substantial potential to mature and advance. There is a nexus of co-creation to system dynamics modeling: System dynamics modeling is used to identify policies that change system behavior by influencing the day-by-day decisions of the actors in that system. The actors need to be aware of the feedbacks between their decisions and the environment which condition the choices they will face tomorrow (Senge and Sterman, 1990). Likewise, a school that wishes to apply new knowledge in its environment needs to be aware of the methods which have been employed in this environment prior to its entry. In addition, the changes in how the body of traditional wisdom is updated will only be successful if the actors in the system accept an intervention.

On coalescing equi-finality and multi-finality, a useful way to develop an understanding of the two knowledge clusters’ relations would be to compare how these terms are applied in developmental psychology (Cicchetti and Rogosch, 1996). Equifinality means that in an open system the same end state may be reached from a variety of different initial conditions, and multifinality says that any one component of a system may function differently, depending on the organization of the system in which it operates. There are multiple pathways to similar manifest outcomes, and there are different outcomes of the same pathway, with the actual effects depending on the values attributed to the components and their structural linkages. For the two systems of wisdom/knowledge on sustainable development this indicated that they need to attribute a value to the finality of the skills and practices which they develop. The junction of equi-finality (for example, the quality of farming) and multi-finality (the diverse goals and pathways of applying farming skills) will result in multiple feedback, self-organization (of the actors) and new

relationalities. Again, the two clusters should be kept apart in order to exploit this capability.

Similar to the nexus exhibited above between co-creation and system dynamics modeling, there is a connection between the pattern of coalescing and what Saeed (1992) has suggested for the design of operational policies through the heuristic protocol of system dynamics. He calls for an attempt to adopt a non-interventionist perspective when understanding the mechanisms of change which must take precedence over a precise forecast of events. Observations of a phenomenon at different times and locations and from different viewpoints will then provide insights on various ends that can derive change from one less desirable status to a better one (Acharya and Saeed, 1995). In the case of determining how to combine new knowledge with conventional wisdom any output of what applying the new knowledge might achieve must also reflect the changes that this would cause in the traditional system.

Concerning the connection between self-organization and relationality, the inception would be to adapt to the Luhmann perspective (1995) which postulate that every social system has to assert itself against the overwhelming complexity of its environment into an antithetical course: A system (like the indigenous knowledge and practices) that was originally affected by the lack of chances to properly maintain sustainability in its societal environment will develop an opportunity to gain new chances for survival by interacting with members of another system. When this body of knowledge and the structures which produce it enter into a systemic relation with “academia”, special provisions must be taken: most of the indigenous’ skills are dependent on each other, and visa-versa, most of the modern achievements on sustainable development are dependent on each other. This dependency should be carefully maintained, and when the two clusters properly interact with their elements (developing into a state of self-organization), and when all of its components (actors, organizations and skills) are equally open to each other's influence as they interact and relate through their boundaries they should turn into one open system, although the boundaries should be upheld.

The concept of autopoiesis, as it provides a different view on the relation between a system and its environment, applies even better to the phenomenon of the two bodies of knowledge in question. Autopoietic systems are operatively closed: there are no operations entering the system from outside, nor vice versa (from the inside). They are nevertheless interactionally open as they have contact with their environment (Varela et al., 1974, p. 194). In order to survive, an autopoietic system constantly has to produce further elements (which may be triggered from the outside), but it self-determines its structure. Luhmann has extended this to interactionsbetween social systems (Luhmann, 1986). In our case, the following would apply:

Other than the “mainstream mindset” on sustainable development whose origin is an array of inputs from diverse sources, the indigenous' knowledge and attitudes can be traced to a clearly defined group that “owns” them. Therefore, this specific base for practices and skills must be carefully maintained. The interaction with the “mainstream” will process self-reference and other-reference within that base towards additional determinants of practices and skills creation. In other words, requisite variety is built.

CONCLUSION

Sustainable development is, at its core, a system innovation, changing the functioning of a societal system from one state of apparent social equilibrium to another. However, it will only prevail if it does not impose a radical change. This especially applies to environments that need sensitive and subtle treatment like rural communities in Africa that have lived and coped with natural phenomena for centuries, and whose knowledge needs to be exploited in order to make the societal change a communal accomplishment. If this knowledge is combined with appropriate elements of technical progress, the accomplishment will even be more effective. An ideal example for this combined change is building colleges in rural areas which then can shape and influence its relationships with the society in its surrounding; thereby co-creating new community knowledge reservoirs. The case of ReCAS in Northern Ghana demonstrates how this can work to the benefit of all parties that are involved. A key advantage of ReCAS is that the principal persons to direct operations and activities are locals and thus closely intertwined with the social network of the constituency. Additionally, there are various success factors that should work into this directions: The college’s constituency has a vested interest in, and a strong understanding of, the benefits that will be derived for the community from the college’s activities; indigenous members of the community are the key players in the operation which provides a word-of-mouth network (thus trusted and valued); the region is aware that it needs this type of new knowledge to become more self-sufficient; sustainable development is not a new concept for the rural community in the region, since it has been practiced throughout many generations.

A distinct feature in the endeavor, that is also a decisive success factor like elsewhere in Sub-Saharan African social systems, is what is termed the ‘non-individualistic character’ of this culture, e.g., by Jesse N.K. Mugambi, renowned Kenyan theologian and ethics professor who said: “Community is the cornerstone in African thought and life” (Stückelberger and Mugambi, 2007: vi). This is the perspective that gives the most hope for the establishment of a new communal body of knowledge

on cross cultural ethics and sustainable development.

CONFLICT OF INTERESTS

The author has not declared any conflict of interests.

REFERENCES

Acharya SR, Saeed K (1995). A search for an operational environmental policy based on the ”Limits to Growth" study. Syst. Dynamics Proceed. (1):1-11.

Adedipe NO (1983). Strategies for increasing food production in Nigeria. T. Atinmo and Akinyele, L. (eds), Nutrition and Food Policy in Nigeria, Jos, Plateau State, Nigeria: National Institute for Policy and Strategic Studies 109-116.

Adesina FO, Siyambola WO, Oketola FO, Pelemo DA, Ojo LO, Adegbugbe AO (1999). Potentials of agroforestry for climate change mitigation in Nigeria: Some preliminary estimates. Global Ecolo. Biogeogr. 8:163-173.

Ajibade LT, Shokemi OO (2003). Indigenous approaches to weather forecasting in Asa L.G.A., Kwara State, Nigeria. Indilinga: Afr. J. Indigenous Knowl. Syst. 2(1):37-44.

Arnold RD, Wade JP (2015). A definition of systems thinking: a systems approach. Procedia Comput. Sci. 44:669-678.

Baldwin GB (1991). Non-governmental organizations and African development. An inquiry. The Long-Term Perspective Study of sub-Saharan African. Vol. 3 Institutional and Socio-Political issues. Washington D.C.: World Bank.

Battiste M (2010). Indigenous knowledge and indigenous peoples' education. Subramanian, S.M., and Pisupati, B. (eds.), Traditional knowledge in policy and practice: Approaches to development and human well-being, 31 – 51. Tokyo – New York- Paris: United Nations University Press.

Bodeker G (2010). Traditional knowledge and health. Subramanian, S. M., and Pisupati, B. (eds.), Traditional knowledge in policy and practice: Approaches to development and human well-being. Tokyo-New York-Paris: United Nations University Press. pp. 181-194.

Bogue JP (1950). The community college. New York, NY: McGraw-Hill.

Bontis N (2004). National Intellectual Capital Index. A United Nations Initiative for the Arab Region. J. Intellect. Capita. 5(1):13-39.

Boughey C (2002). From equity to efficiency: Access to higher education in South Africa. Arts Humanit. Higher Educ. 2(1):65-71.

Brundtland GH (1987). Our common future: Report of the 1987 World Commission on Environment and Development. Oslo: United Nations.

Cicchetti D, Rogosch FA (1996). Equifinality and multifinality in developmental psychopathology. Dev. Psychopathol. 8(4):597-600.

Chivaura VG (2007). Hunhu/Ubuntu: A sustainable approach to endogenous development, bio-cultural diversity and protection of the environment in Africa. Haverkort, B. and Rist, S. (eds), Endogenous development and bio-cultural diversity: the interplay between worldviews, globalization and locality, Geneva: Compas Series on Worldviews and Sciences 6:229-240.

Erkossa T, Gezahegn A (2003). Indigenous knowledge and practices for soil and water management in East Wollega, Ethiopia. Conference on International Agricultural Research for Development, Deutscher Tropentag Göttingen, October 8-10.

Espejo R, Dominici G (2016). Cybernetics of Value Cocreation for Product Development. Systems Research and Behavioral Science, online version: 25 January 2016.

Fadeeva Z, Mochizuki Y (2010). Roles of Regional Centres of Expertise on Education for Sustainable Development: Lessons Learnt in the First vHalf of the UNDESD. J. Educat. Sustain. Dev. 4(1):51-59.

Fenta T (2000). Biodiversity conservation and utilization on the basis of farmers traditional knowledge: Ethiopian experience. UNCTAD Expert Meeting on Systems and National Experiences for Protecting Traditional Knowledge, Innovations and Practices, Geneva (Vol. 30).

Ferrer-Balas D, Adachi J, Banas S, Davidson CI, Hoshikoshi A, Mishra A, Ostwald M (2008). An international comparative analysis of sustainability transformation across seven universities. Int. J. Sustain. Higher Educ. 9(3):295-316.

Fraser ED, Dougill AJ, Mabee WE, Reed M, McAlpine, P. (2006). Bottom up and top down: Analysis of participatory processes for sustainability indicator identification as a pathway to community empowerment and sustainable environmental management. J. Environ. Manage. 78(2):114-127.

Gyekye K (1997). Tradition and modernity: Philosophical reflections on the African experience. Oxford: Oxford University Press.

Hill R, Pert PL, Tsatsaros J, Bauman T, Schmider J, Carmody J (2012). Workshop on Indigenous Co-management and Biodiversity Protection. Towards a framework for evaluation in Australia's wet tropics. Cairns (Australia): National Environmental Research Program, Tropical Ecosystems Hub.

Ilogu EC (1974). Christianity and Igbo culture. New York: Nok Publishers.

Jackson MC (2003). Systems Thinking: Creative Holism for Managers. Chichester, West Sussex, England, and Hoboken, NJ.: John Wiley.

Kapsali M (2011). How to implement innovation policies through projects successfully. Technovation, 31(12): 615-626.

Kassel K, Rimanowicz I (2016). The Sustainable Mindset: Connecting Being, Thinking, and Doing in Management Education. Submission #16659 to the 2016 Academy of Management Annual Meeting.

Kemp R, Loorbach D, Rotmans J (2007). Transition management as a model for managing processes of co-evolution towards sustainable development. The Int. J. Sustain. Dev. World Ecolo. 14(1):78-91.

Kennedy V (2015). The Land Is a Way of Life: The Possibilities of Traditional Ecological Knowledge. J. Ethnic Am. Lit. (5):74 – 91.

Kowalski N (2014). Between Relativism and Rocmanitcism. Traditional Ecological Knowledge as Social Critique. Sepsi, E., Nagy, J., and Vassányi, M. (eds). Indigenous Perspectives of North America: A Collection of Studies, Cambridge (UK): Cambridge Scholars Publishing: 2 – 31.

Kundiri AM, Jarvis MG, Bullock P (1997). Traditional soil and land appraisal on fadama lands in northeast Nigeria. Soil Use and Manage. 13:205–208.

Luhmann N (1995). Social Systems (Translated by J. Bednarz, Jr., with D. Baecker). Standford: Standford University Press.

Luhmann N (1986). The autopoiesis of social systems. Geyer F., and van der Zouwen J. (eds.). Sociocybernetic paradoxes, 172-192. London: Sage.

Luhmann N (1989). Ecological Communication. Chicago: The University of Chicago Press.

Maturana HR, Varela FJ (1980). Autopoiesis and Cognition: The Realization of the Living. Dordrecht et al.: Reidel Publishing Company.

Varela F, Maturana H, Uribe R (1974), Autopoiesis: The organization of living systems, its characterization and a model, Biosystems 5 (4):187-196.

Mbiti JS (1969). African religions and philosophy. London: Heinemann.

Meadows DH, Meadows DL, Randers J, Behrens WW (1972). The limits to growth. New York: Universe Books.

Meadows DH (2008). Thinking in systems: A primer. Edited by Diana Wright, Sustainability Institute. White River Junction, Vermont: Chelsea Green Publishing.

Miller FP, Vandome AF, McBrewster J (2009). History of Ghana. Saarbrücken, Germany et al.: Alphascript Publishing.

Mochizuki Y (2009). Partnerships between environmentalists and farmers for sustainable development: a case of Kabukuri-numa and the adjacent rice fields in the town of Tajiri in Northern Japan. Wals, A.E.J. (ed.), Social learning towards a sustainable world, 385 - 404. Wageningen (The Netherlands): Wageningen Academic Publishers.

Neuwirth RJ (2017). Global Law and Sustainable Development: Change and the “Developing–Developed Country” Terminology.The Eur. J. Dev. Res. 29 (4):911-925.

Newenham-Kahindi A (2009). The Transfer of Ubuntu and Indaba Business Models Abroad: A Case of South African Multinational Banks and Telecommunication Services in Tanzania. Int. J. Cross Cult. Manag. 9(1):87-108.

O'Donoghue R, Lotz-Sisitka H, Asafo-Adjei R, Kota L, Hanisi N (2009). Exploring learning interactions arising in school-in-community contexts of socio-ecological risk. Social learning towards a sustainable world Wageningen (The Netherlands): Wageningen Academic Publishers. pp. 435-448.

Oladele OI, Braimoh AK (2010). Traditional land management techniques for climate change mitigation, Subramanian, S. M., and Pisupati, B. (eds.), Traditional knowledge in policy and practice: Approaches to development and human well-being, 171 – 180. Tokyo-New York-Paris: United Nations University Press.

Olopade D (2015). The Bright Continent Breaking Rules and Making Change in Modern Africa. New York: Houghton Mifflin Harcourt.

Ongugo P, Mutta D, Pakia M, Munyi P (2012). Protecting Traditional Health Knowledge in Kenya. London: International Institute for Environment and Development (IIED)

Osunade MA (1994). Indigenous climate knowledge and agricultural practices in Southwestern Nigeria", Malaysian J. Trop. Geogr. 1:21-28.

Paetau M (2004). Sharing Knowledge with Future Generations. Sustainable Development as an Inter-Generational Communication Problem. EnviroInfo 2004, 52 – 64). Geneva: Editions du Tricorne.

Rametsteiner E, Weiss G (2006). Assessing policies from a systems perspective – experiences with applied innovation systems analysis and implications for policy evaluation. Forest Policy and Economics 8:564-576.

Rist S, Delgado F, Wiesmann U (2007). Social learning processes and sustainable development: the emergence and transformation of an indigenous land use system in the Andes of Bolivia. Social learning towards a sustainable world, 229-244.

Rivers JK (2013). Towards the Consideration of the US Community College Model to Address the Need for Higher Education Reforms in Ghana. Doctoral dissertation, University of Denver, Colorado.

Saeed K (1992). Slicing a complex problem for system dynamics modeling. Syst. Dyn. Rev. 8(3):251-261.

Schneider LW (2009). Grundlagen der soziologischen Theorie. Wiesbaden:VS Verlag für Sozialwissenschaften.

Senge PM, Sterman JD (1990). Systems Thinking and Organizational Learning: Acting Locally and Thinking Globally in the Organization of the Future. Paper presented at the Conference on Transforming Organizations, Sloan School of Management, MIT, 29-31 May 1990.

Silitshena RMK, McLeod G (1992). Botswana: a physical, social and economic geography. Gaborone, Botswana: Longman Botswana.

Smith LT (1999) Decolonizing Methodologies: Research and Indigenous Peoples. New York: Zed Books.

Stonechild B (2006) The New Buffalo: The Struggle for Aboriginal Post-Secondary Education in Canada. Winnipeg, MB: University of Manitoba Press.

Stückelberger C, Mugambi JN (2007). Responsible Leadership. Global and Contextual Ethical Perspectives. Geneva: Globethics. Net / World Council of Churches Publications.

Subramanian SM, Pisupati B (2010). Traditional knowledge and biodiversity: Can the co-evolution of natural and social systems continue? Subramanian, S. M., and Pisupati, B. (eds.), Traditional knowledge in policy and practice: Approaches to development and human well-being, 226-239. Tokyo-New York-Paris: United Nations University Press.

Subramanian SM, Pisupati B (2010). Traditional knowledge in policy and practice: Approaches to development and human well-being. Tokyo-New York-Paris: United Nations University Press.

Turner NJ, Berkes F, Stephenson J, Dick J (2013). Blundering intruders: extraneous impacts on two indigenous food systems. Hum. Ecol. 41(4):563-574.

Unnikrishnan PM, Fadeeva Z (2013). Innovation in Local and Global Learning Systems for Sustainability: Traditional Knowledge and Biodiversity–Learning Contributions of the Regional Centres of Expertise on Education for Sustainable Development. Yokohama: United Nations University Institute of Advanced Studies.

Valentinov V (2014). The Complexity–Sustainability Trade-Off in Niklas Luhmann's Social Systems Theory. Syst. Res. Behav. Sci. 31(1):14-22.

Valentinov V (2015). From equilibrium to autopoiesis: a Luhmannian reading of Veblenian evolutionary Economics. Econ. Syst. 39(1):143-155.

Voeste D (2012) Experience on gathering meaningful data for life cycle analyses: BASF'S eco-efficiency tool in Indian agriculture. National Academy of Sciences: A Sustainability Challenge: Food Security for all, Washington, D.C.: National Academies Press. pp. 46-48.

Wade R (2013). Regional Centres of Expertise (RCEs). Sterling, S., Maxey, L., Luna, H. (eds.), The Sustainable University: Progress and Prospects, Abingdon, U.K.: Routledge. pp. 89-109.

Warren DM, Rajasekaran B (1993). Putting local knowledge to good use. Int. Agric. Dev. 13(4):8-21.

Whiteman G (2004). Why are we talking inside? Reflecting on traditional ecological knowledge (TEK) and management research. J. Manage. Inq. 13(3):261-277.

Winklerprins AMGA (1999). Insights and applications of local soil knowledge: A tool for sustainable land management. Soc. Nat. Resourc. 12(2):151-161.

Wren S, Speranza C (2010). The Struggle to Diversify Rural Livelihoods: Bio-enterprise Initiatives and their Impacts on Agro-Pastoralists and Pastoralists Communities in the Drylands of Kenya. The European J. Dev. Res. 22(5):751-769.

Yapp C (2000). The Knowledge Society: The challenge of transition. Bus. Info. Rev. 17(2):59-65.

academicJournals

Vol. 10(2), pp. 19-28, February 2018
DOI: 10.5897/JASD2016.0429
Article Number: 359458556119
ISSN 2141-2189

http://www.academicjournlas.org/JASD

Journal of African Studies and Development

Full Length Research Paper

Appraisal of the impact of the gender of household heads on housing condition in Egbeda-Iragbiji, Osun State, Nigeria

Adebisi Ilelabayo Ismail[1*], Okeyinka Yetunde Ronke[2] and Ayinla Abdulrasaq Kunle[2]

[1]Department of Architectural Technology, Osun State Polytechnic, Iree, Nigeria.
[2]Department of Architecture, Ladoke Akintola University of Technology, Ogbomoso, Nigeria.

Received 16 December, 2016; Accepted 8 May, 2017

Housing is one of the basic needs of man, unarguably the third after food and clothing. It accounts for the social, cultural and economic value of a society; hence, quality housing is desired by all individuals. However, the rural areas have long been battling with challenges associated with condition and quality of housing. It is of note that many researchers have accounted for several factors affecting housing conditions in the rural areas but only few have documented the role that the gender of the household head plays on housing condition. In this study, household head refers to the eldest person in a house who most at times is also the bread winner of the family. This study hence, examines the role of household head gender on housing condition in Egbeda village, Iragbiji, Osun state. There are 94 inhabited houses in the village. Primary data were obtained through direct observation and questionnaire administered to all household heads in the village; the research is a census as 100% sample was done. Secondary data were obtained from the local planning authority. Descriptive and inferential methods were used in analyzing the data. Findings reveal that 58 households are headed by men while 36 are headed by women. Average income of women heads is low compared to their male counterparts. Although housing condition in the village is generally below standard, it was noted that houses headed by men are in better conditions than those headed by women. Data was subjected to chi square analysis and the research concluded that there is a significant relationship between housing condition and the gender of household head in the study area. Appropriate recommendations were made to improve the condition of housing in the study area.

key words: Gender, household head, housing condition, dwellings, rural areas.

INTRODUCTION

Housing is one of the necessities of life and central to man's existence. As indicated by Onibokun (1985), housing reflects the cultural, social and economic values of a society; it is one of the indicators of a person's standard of living, place in the society and is a prime requisite for survival ranking only after food and clothing. This is supported by Fadamiro et al. (2004) who posited that housing is very fundamental to the welfare, survival and health of man.

Despite this, housing is still being faced by a lot of

*Corresponding author. E-mail: ilelabayoadebisi@gmail.com.

problems. These problems according to Fadairo and Olotuah (2013) range from inadequate quantity and quality of housing to the attendant impact on the psychological, social, environmental and cultural aspects of life. Housing problems in Nigeria have been recorded in both rural and urban centers. Ibimilua and Ibimilua (2011) submitted that while housing problems in the urban centers is characterized among several others by inadequate housing, unplanned development, improper maintenance of existing infrastructures, waste management menace, congestion etc., the rural areas in Nigeria which is defined as a settlement with population less than 20,000 with the primary occupation of the dwellers being farming and petty trading is characterized majorly with poor housing condition, poor value and absence of basic social amenities such as potable water, electricity and transportation networks.

A good housing condition is one that provides decent livable dwellings, clean surrounding of minimum acceptable standard of space, good environmental health and providing basic supporting facility (Ogundahunsi and Adejuwon, 2014). Several factors have been highlighted to have contributed significantly to the condition of housing among which is social status, income status, education level of users etc. As stated by the world health organization and cited by Ibimilua and Ibitoye (2015), A good house should have the following:

(1) A good roof to keep out rain and downpour.
(2) Good walls and doors to protect against bad weather condition and to keep out animals.
(3) Sunshades around the house to protect it from direct sunlight in hot weather and retain reasonable heat in cold weather condition.
(4) Wire netting at windows and doors to keep out insects like house flies, mosquitos etc.

It is believed that it is the responsibility of the household head to provide his family with a good housing condition capable of giving his family a good psychological and physiological wellbeing (Asiyanbola, 2011). Going by the African tradition and according to Aweda (1984), men are recognized as household heads and are always expected to provide the basic needs of food, clothing and shelter while women on the other hand are expected to oversee the basic household chores, keep houses, process and cook food and bear and raise children. But several conditions ranging from divorce to death of husband have seen women becoming heads of families on occasions.

While several factors such as role of government policies, neglects, settlement location, peoples' awareness level etc. affecting housing conditions in rural areas have been explored and documented by various authors, there are few literatures, if any on the impacts of household head gender on housing condition; this can be inferred from the findings of Agboola (1990), Woods (1994) and Asiyanbola (1997) who all noted that there has been little contribution of researchers on gender and housing situation, those centered on gender and housing focus more on women and the meaning of houses, weakness of the law relating to family breakdown, women empowerment in housing development etc. and are centered more on the urban centers neglecting the rural areas.

Thus, this study seek to explore the impact of gender of household head on housing condition in the rural areas, using Egbeda village Iragbiji, Osun state as a case study. To achieve this, the study provides a null hypothesis that 'there is no significant relationship between household head gender and housing condition. It is believed that this study will provide adequate information necessary to guide stakeholders, policy makers and non-governmental organisations (NGOs) in the housing industry in the effective design and implementation of various housing development programs in the rural areas.

Study area: Egbeda village, Iragbiji

Egbeda village is a district settlement in Iragbiji town; the administrative headquarter of Boripe local government area in Osun state, Nigeria. Iragbiji town is situated on latitude 7°54'0"N and longitude 4°40'60"E, having a total population of 164, 172 people according to 2006 census. The settlement is located at the southern part of the town and bounded to the west by Osogbo- the capital of Osun state, to the east by Ibokun town and to the south by Ilase-Ijesa.

The seemingly very old settlement has a total population of approximately 600 people and 124 buildings covering residential, commercial, religious and health facilities with residential buildings accounting for the majority. Placement of building in this settlement is chaotic, haphazard and lacking planning regulations resulting in unregulated mixture of land use activities. Majority of these buildings are built of local materials like mud and brick with some edifices plastered with cement and roofed with corrugated iron sheets.

The houses are linked with narrow footpaths and are in need of renovation. The village enjoys the service of a health centre, a market, primary and secondary schools and two filling stations.

MATERIALS AND METHODS

Primary and secondary data were collected for the purpose of the research, the primary data was acquired through reconnaissance survey, direct observation, interviews and structured questionnaires. Secondary data was sourced from local planning authority and internet.

There were 94 residential buildings inhabited in the study area as of the time of the study; this was noted during reconnaissance survey. All buildings were studied and hence the research was a census as 100% sample was done. Interviews were conducted and questionnaires were administered by research assistants who are

in the field of architecture and had earlier been tutored for the exercise. The questionnaire was administered to the household head in each of the houses to acquire data on their personal and socioeconomic attributes and their perception as regards gender and decision making on matters affecting the built environment and essential community service provision.

Qualitative evaluation of housing condition of male headed households and their female counterparts was achieved by physical inspection (direct observation) of the condition of building elements such as floor, wall, ceiling, roof, kitchen, bathroom and toilet and are rated on Likert five point rating scale of quality that is, 1-Very poor quality (Considered unsafe for living), 2- poor (Major deficiency observed, requires major repairs), 3- fair (Significant deficiency evident but considered safe for living), 4- good (Neglectable deficiency noticed that is, requires minor repairs) and 5- very good quality (No deficiency noticed).

This rating was carried out by inspecting the plumbing systems, complete facilities and water supply in their bathrooms, kitchens and toilets and observing the physical deficiencies such as water leaks and rust in roofs, holes and cracks in walls and floors, cracked plasters, falling ceilings and general deteriorating appearance noticed in their buildings. This method was laid down by the Housing Assistance Council (1992), and has previously been used by various scholars.

The data was analyzed using descriptive and inferential statistics (chi-square analysis) to determine whether there is a significant relationship or otherwise between household head gender and housing condition. The proposed null hypothesis to be tested is:

Ho: There is no significant relationship between household head gender and housing condition.

RESULTS AND DISCUSSION

The research data shows that there are a total of 94 inhabited residential houses in Egbeda-Iragbiji, out of which 58(61.7%) are headed by men and 36 (38.3) are headed by women (Table 1 and Figure 1).

The predominant occupation in the rural areas is farming and petty trading, there is no exemptions in Egbeda-Iragbiji as 48 household heads (51.1%) engage in farming, 32 (34%) household heads engage in trading and only 14 (14.8%) household heads neither farm nor trade. Of the 48 heads that engage in farming, 39 (representing 67.2% of the male heads population) are men while 9 (representing 25% of the female heads population) are women. Of the 32 household heads that engage in trading, 24 (representing 66.7% of the female head population) are women while 8 (13.8% of the male heads population) are men (Table 2 and Figure 2).

Although the occupation distribution in the study area is a reflection of the assertion that men are generally stronger than women as farming requires more physical strength than trading, their age distribution is another reason. Findings reveals that 63.9% of the female head population are above 65 years of age (this is far above the retirement age in Nigeria) while only 32.8% of the male head population falls within this bracket (Table 3 and Figure 3). This is an indication that most women heads in the study area are weak and hence must have retired from strenuous farm jobs. This however reflected on their income distribution.

Data gathered revealed that 36.1% of the female head population earn below 10,000 naira per month, 33.3% of their population earn between 10,000 to 18,000 naira. This an indication that 69.4% of the female head population earn below the 18,000 naira minimum wage agreed to the Nigeria federal government in 2011 by the Nigeria Labour Congress (NLC) and the Trades Union Congress (TUC) (Labour Law Review, 2012) hence, they live in abject poverty and only 30.6% of their population live above the minimum wage range (that is, 19.4% earn 19,000- 30,000 naira, 5.6% earn 31,000 to 40,000 naira and 5.6% earn 41,000 to 50,000 naira per month) as against their male counterparts who have 51.7% of their population earning above the minimum wage range (that is, 25.9% earn 19,000 to 30,000 naira per month, 15.5% earn 31,000- to 41,000 a month and 10.3% earn between 41,000 and 50,000 naira per month) while only 48.3% of their population earn below 18,000 naira minimum wage per month (that is, 20.7% earn below 10,000 per month and 27.6% earns between 11,000 and 18,000 naira per month) (Table 4 and Figure 4).

Data analysis shows that 75% of the female heads population inherited their dwellings apparently from their late husbands, 22.2% of them are owners of their dwellings, only 2.8% houses freely, and none lives in a rented apartment. However, 53.4% of the male head population are direct owners of their dwellings, 32.8% inherited their dwellings, most of which are passed down from their late parents, 6.9% of them stays in rented dwellings and 6.9% houses freely (Table 5 and Figure 5).

Housing condition

The condition of each dwelling in the study area was objectively rated after a thorough examination of the conditions of their walls, floors, ceiling, roof, kitchen, bathroom and toilets (Table 9 Figure 9). Findings revealed that, 27.6% of dwellings headed by men and 61.1% of dwellings headed by women are found to be in a very poor state. 36.2% of dwellings headed by men and 22.2% of dwellings headed by women are found to be in a poor state. 15.5% and 20.7% of male headed dwellings are in fair and good conditions respectively, 8.3 and 8.3% of their female counterparts stays in fair and good condition dwellings respectively.

The summary of this is that 63.8% of male heads stays in either very poor or poor condition homes, 36.2% of them stays in either fair or good dwellings while 83.3% of their female counterparts stays in either poor or very poor homes and only 16.6% of them stays in either fair or good condition dwellings (Table 6 Figure 6).

Decision making as regards the built environment

Dwellers opinions were sought as regards participation of each gender heads in taking decisions on matters

Table 1. Household head distribution by gender.

Variable	Male headed households	Female headed households	Total
No	58	36	94
Percentage (%)	61.7	38.3	100

Source: Authors field survey, 2016.

Figure 1. Egbeda Village, Iragbiji, Osun State, Nigeria (Source: Google Earth Map , 2016).

relating to the development of the built environment such as provision of essential facilities, drainage dredging, water channeling, electric pole repairs, market, school, health facility siting etc. Findings show that 87.0% of the male head population and 86.1% of the female head population see this as exclusively the men affairs (Table 7 and Figure 7).

However, majority of the female heads said they are satisfied with it. This is an indication of their total submissiveness to the male authority. A number of reasons can be given to support this result. Firstly, it appears that the result is in support of the findings of Aina (1998) and Asiyanbola (2005) who both noted that the submissive nature of the African women especially Nigeria is as a result of the patriarchy society they find themselves.

The term patriarchy has been used by various authors such as kramarae (1992), Stancy (1993) and Aina (1998) to describe the systematic organization of male supremacy and female subordination or better words, male authority and female oppression. According to them, patriarchy structure has been a major feature of most African society from time immemorial; it is a structure of a set of social relations with material base which enables men to dominate women.

Asiyanbola (2005) explains patriarchy especially in Nigeria as a system of social stratification and differentiation on the basis of sex which provides material advantage to men while placing severe constraints on the role and activities of women. Findings of Aina (1998) revealed that most African countries especially Nigeria out of their patriarchy clearly defined sex roles while various taboos ensure conformity with submissiveness. These taboos however see men taking charge in all decision making and gives women no choice than to accept with submissiveness (Table 7). Oral interviews with some female heads explain this better. A female head was quoted as saying:

"Who are we to go against our men's decisions? If not for old age, it is a taboo for a woman to head the family. As a woman, if your husband dies at a tender age especially when you are still productive, you will be willed to one of his younger siblings indicating that since our bride price

Table 2. Household heads occupation by gender.

Occupation	Male headed households		Female headed households	
	No	Percentage	No	Percentage
Farming	39	67.2	09	25
Trading	08	13.8	24	66.7
Others	11	19	3	8.3
Total	58	100	36	100

Figure 2. A single family apartment (Source: Authors field survey, 2016).

Table 3. Age distribution of household heads by gender.

Age range	Male headed households		Female headed households	
	No	Percentage	No	Percentage
35-45	8	13.8	0	0
46-55	10	17.2	6	16.7
56-65	21	36.2	7	19.4
Above 65	19	32.8	23	63.9
Total	58	100	36	100

Source: Authors field survey, 2016.

Figure 3. Brazilian rooming single family apartment (Source: Authors field survey, 2016).

Table 4. Household heads monthly Income by gender.

Income in naira	Male headed households		Female headed households	
	No	Percentage	No	Percentage
Below 10.000	12	20.7	13	36.1
11.000-18.000	16	27.6	12	33.3
19.000-30.000	15	25.9	07	19.4
31.000-40.000	09	15.5	02	5.6
41.000-50.000	06	10.3	02	5.6
Above 50.000	00	0	0	0
Total	58	100	36	100

Source: Authors field survey, 2016.

Figure 4. Brazilian rooming single family apartment (Source: Authors field survey, 2016).

Table 5. Household heads tenure status by gender.

Age range	Male headed households		Female headed households	
	No	Percentage	No	Percentage
Owner	31	53.4	08	22.2
Inherited	19	32.8	27	75
Rent	04	6.9	0	0
Free Houser	04	6.9	01	2.8
Total	58	100	36	100

Source: Authors field survey, 2016.

Figure 5. Building surrounding condition (Source: Authors Field Survey, 2016).

Table 6. Housing condition by household head gender.

Housing condition	Male headed households		Female headed households	
	Mean (x)	Percentage	No	Percentage
Very poor	16	27.6	22	61.1
Poor	21	36.2	08	22.2
Fair	09	15.5	03	8.3
Good	12	20.7	03	8.3
Very good	00	0	00	0
Total	58	100	36	100

Source: Authors field survey, 2016.

Figure 6. Environment condition in the study area (Source: Authors field survey, 2016).

Table 7. Decision making in built environment development and essential service provision (Household head perception).

Perception of built environment development	Male headed households		Female headed households	
	No	Percentage	No	Percentage
Exclusively male affair	47	81.0	31	86.1
Women Involvement	11	19	05	13.9
Total	58	100	36	100

Source: Authors field survey, 2016.

has been paid, we are one of their properties and whatever they decide, we have to follow".

Another one was quoted as saying:

"Our men are our lords; we belong to them, whatever they decide for us we abide by. Even as a Muslim by fate, my religion supports this".

The second reason that could be given lies in their religious believes. Oral interviews with the various heads indicated that most residents are either Muslim or Christian by fate. The submissiveness of the female heads may not be unconnected with their fate and this may be inferred from the findings of Adamu (2004) and the Holy Bible. Adamu 2004) in a study he conducted on the Nigeria Muslim Hausa community in 2004 inferred that the Muslim and Quran extensively preached that the women should see the men as their lords; they should respect their decision and be submissive to them. The Holy Bible (NKV) on the other hand in 1 Timothy chapter 2 verse 11 to12 and 1corinthians chapter 14 verse 34 to

Figure 7. A single family apartment (Source: Authors field survey, 2016).

Table 8. Chi-square result.

Variable	Chi-square x^2	Degree of freedom df	P value
Household head gender and housing condition	10.62	3	0.014

(α = 0.05) Source: Authors field survey, 2016.

Figure 8. Brazilian rooming multifamily rented apartment (Source: Authors field survey, 2016).

35 preached that women stays silent and enjoin them not to head but rather be submissive to their men.

The third reason can be said to be due to the economic prowess of the men over women (see table 4). According to a press released by the Global Gender Gap report 2015, the very wide gap between men and women across the world is a major factor of the male dominance and women marginalization. Although several attempts has been made to forestall a balance between these gaps and remove discrimination against women.

Among these attempts are the first world conference on women held in Mexico in 1975, the second held in Copenhagen in 1980, the third held in Nairobi in 1985, the fourth world conference on women held in Beiging, China in 1995 and several continental moves all targeted at sensitizing the world to the unwarranted and unacceptable marginalization of women which deprives them of their fundamental human right. However, despite all these, the report of the Global Gender Gap 2015 indicated that even after a decade (2006-2015), the

Table 9. Housing variables condition.

Variable	Male headed households (N=58)					Female headed households (N=36)				
	Very poor	Poor	Fair	Good	Very good	Very poor	Poor	Fair	Good	Very good
Wall	15 (25.9)	21 (36.2)	11 (19.0)	11 (19.0)	0 (0.0)	23 (63.9)	07 (19.4)	04 (11.1)	02 (5.6)	0 (0.0)
Floor	17 (29.3)	22 (37.9)	09(15.5)	10 (17.2)	0 (0.0)	21 (58.3)	08 (22.2)	03 (08.3)	04 (11.1)	0 (0.0)
Ceiling	15 (25.9)	22 (37.9)	09 (15.5)	12 (20.7)	0 (0.0)	22 (61.1)	07 (19.4)	03 (08.3)	04 (11.1)	0 (0.0)
Roof	16 (27.6)	20 (34.5)	08 (13.8)	14 (24.1)	0 (0.0)	21 (58.3)	10 (27.8.)	02 (5.6)	03 (08.3)	0 (0.0)
Kitchen	16 (27.6)	21 (36.2)	08 (13.8)	13 (22.4)	0 (0.0)	22 (61.1)	09 (25.0)	03 (08.3)	02 (5.6)	0 (0.0)
Bathroom	17 (29.3)	20 (34.5)	09 (15.5)	12 (20.7)	0 (0.0)	22 (61.1)	09 (25.0)	03 (08.3)	02 (5.6)	0 (0.0)
Toilet	16 (27.6)	21 (36.2)	09 (15.5)	12 (20.7)	0 (0.0)	23 (63.9)	06 (16.7)	03 (08.3)	04 (11.1)	0 (0.0)
Mean ($\bar{x}$)	16 (27.6)	21 (36.2)	09 (15.5)	12 (20.7)	0 (0.0)	22 (61.1)	08 (22.2)	03 (08.3)	03 (08.3)	0 (0.0)

Figures outside brackets represents frequencies; Figures in brackets represents percentages (Source: Authors field survey, 2016).

Figure 9. Brazilian rooming single family apartment (Source: Authors field survey, 2016).

global gender gap across health and education has only closed by 4% with the economic gap closes by just 3% and hence, suggested that it will take approximately 118 years to close the gap completely. Nigeria however ranked number 125 among countries gender gap ratio according to the report.

Test of hypothesis

In determining the relationship between household head gender and housing condition, the proposed null hypothesis which stated that “There is no significant relationship between household head gender and housing condition” was tested using chi-square analysis. The result of the chi-square test is shown on Table 8 Figure 8.

This result shows that the relationship is significant at 0.05 significant level (p value < 0.05). The proposed null-hypothesis was hence rejected and a new one is formulated that “there is a significant relationship between household head gender and housing condition”.

Conclusion

The outcome of this study has shown that household head gender has an impact on housing condition, although housing condition in the study area is generally below acceptable standard, findings revealed that male headed households still have a better condition compared to their female counterparts and male heads are generally regarded than women heads in decision making on matters related to the built environment, this is because of the economic and political stability of men over their female counterparts, religious beliefs and the patriarch society they find themselves.

This is however in line with the findings of Cater and Trevour (1989) and Asiyanbola (2005), who in their studies observed that men are powerful and women powerless in crucial decisions making about the built environment. Also, women household heads are found to earn very low compared to their male counterparts, most of their earnings are spent on feeding (first basic need ofmen) thus making improvement on the condition of the

dwellings they live in a less priority.

RECOMMENDATIONS

(1) Rural women especially those in their old age and widows should be given special care and assistance by the governments, NGOs, policy makers and stakeholders in the building industry. If possible, special programs and policies should be put in place for them.
(2) Architects and builders should explore more ways, process and techniques of designing and building low cost houses for the poor as this is a better way of relieving the generally poor rural dwellers.
(3) Governments and stakeholders in the housing industry should incorporate gender perspective in rural settlement planning, development and evaluation.
(4) Women should be enlightened on the important role they need to play in decision making on matters relating to the built environment as this is the only way sustainable policies can be ensured.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

ACKNOWLEDGEMENT

The Authors Acknowledge the contributions of Adeosun Adams of the department of Architecture LAUTECH Ogbomoso, Olatunji Sodiq of the department of Architecture, FUTA, Akure and colleagues, Anifowose Mumeen- Anifos Aluminium Osogbo, Ajaja Oluwatosin ex-corps member, LAUTECH, Ogbomoso, Afolabi Latifat of the department of health information management, college of health technology, Ijero-Ekiti, The baale (Village traditional head) and entire dwellers of Egbeda Village, Iragbiji Nigeria.

REFERENCES

Adamu LF (2004). My Wife's Tongue Delivers More Punishing Blows than Muhammed Ali's Fist: Bargaining Power in Nigerian Hausa Society. In Anne, B. and Barnadette, M. (eds) Gender Influx. Issues in the Social Sciences Series P 2.

Agboola T (1990). The Role of Women in Housing Development. Centre for Urban and Regional Planning, Faculty of Social Sciences, University of Ibadan, Ibadan.

Aina IO (1998). Women, Culture and Society. In Amadu S. and Adetanwa O. (eds) Nigerian Women in Society and Development. Dokin Publishing House, Ibadan.

Asiyanbola RA (2011). Gender and Urban Housing Settings in Africa-Nigeria. Proceedings of an International Conference 7th – 9th July, held at Amsterdam.

Asiyanbola RA (2005). Patriarchy, Male Dominance, the Role and Women Empowerment in Nigeria. Paper Submitted for Presentation as Poster at the International Union for the Scientific Study of Population (IUSSP/UIESP) XXV International Population Tours, France, 18-23.

Asiyanbola RA (1997). Housing Studies and Gender Issues: A Review of Literature. In: Bayo Amole (ed). The House in Nigeria History Place, Environment and Development. Proceedings of a National Symposium 23rd- 24th July held at the Conference Centre, Obafemi Awolowo University, Ile Ife pp. 89-92.

Aweda AD (1984). Sex-Role Inequalities in the African Family: Contemporary Implications. Ife Soc. Sci Rev. 7(1&2):188-197.

Cater J, Trevour J (1989). Social Geography, London: Edward Arnold.

Fadairo G, Olotuah OA (2013). Low Cost Housing for the Urban Poor in Akure, Nigeria: Materials and Techniques of construction. J. Environ. Earth Sci. 3:9.

Fadamiro JA, Taiwo AA, Ajayi MO (2004). Sustainable Housing Developments and Public Sector Intervention in a Developing Country: Nigeria. In Ibitoye O.A (ed). Scientific and Environmental Issues in Population, Environment and Sustainable Development. Lagos Graams.

Global Gender Gap Report (2005). World Economic Forum retrieved from reports.weforum.org/global-gender-gap-report-2015/press-released/

Housing Assistance Council (1992). A Primer for Beginning. Rural Housing Developers. Vermont Avenue, N.W, Washington D.C.

Ibimilua AF, Ibimilua FO (2011). Aspects and Tropical Issues in Human Geography. Akure, B.J productions.

Ibimilua AF, Ibitoye OA (2015). Housing Policy in Nigeria: An Overview. Am. Int. J. Contemp. Res. 5:2.

Kramarae C (1992). The Condition of Patriarchy. In Kramarae C. and Spender D. (eds.) The Knowledge Explosion: Generation of Feminist Scholarship. Anthen Series, Teachers College Press, London.

Labour Law Review (2012). Wage Trend in Nigeria. Historical Perspective and Factors. NJIR, 6:3.

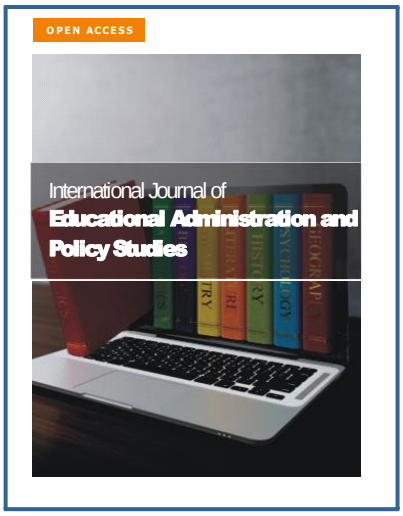
Ogundahunsi DS, Adejuwon SA (2014). Housing Condition and Health Relationships in Ijeda-Ijesa and Iloko-Ijesa, Osun state, Nigeria. Global Journal of Human Geography, Geo-Science, Environ. Disaster Manag. P 14.

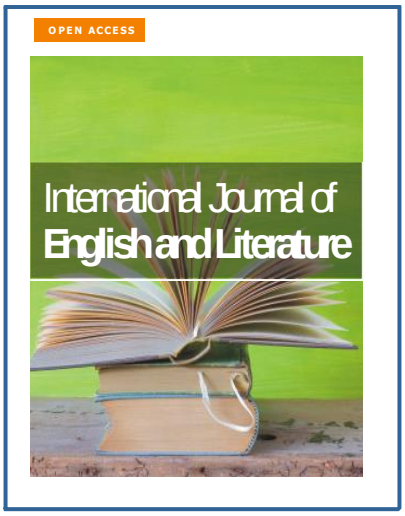
Onibokun P (1985). Socio-cultural Constrains on Urban Renewal Polices in Emerging Nations. The Ibadan Case. In Housing in Nigeria. A Book of Reading (NISER), Ibadan, pp. 393-405.

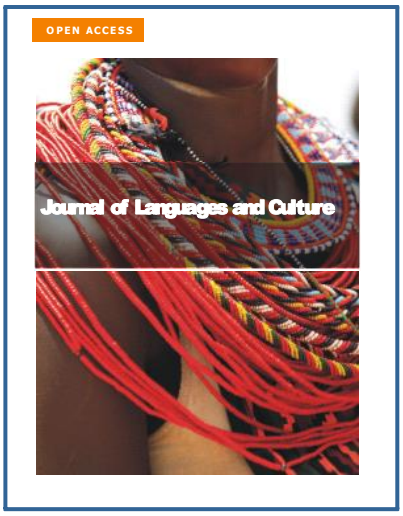
Stancey J (1993). Untangling Feminist Theory. In Richardson D. and Robin V. (eds.) Introduction Women's Studies: Feminist Theory and Practice. Macmillan, London.

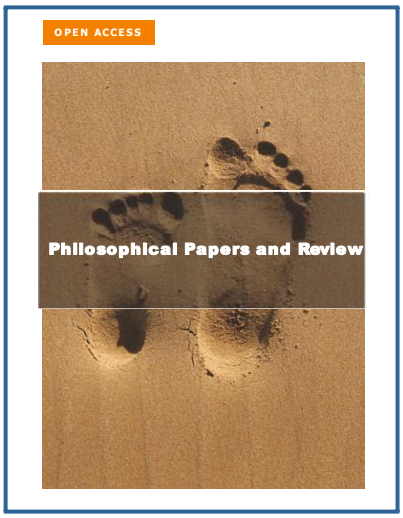
Woods R (1994). Introduction. In Gilroy Rose and Woods Robertsa (eds.) Housing Women, Routledge, London.

Related Journals:









academicJournals

www.academicjournals.org