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The Potential of Environmental Psychology to Alleviate Climate Change-A Review

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Abstract: Environmental degradation and climate change issues have become inevitable discussions both at national and global levels. The devastating climate change is unequivocal as the world faces heightened rates of temperatures leading to escalated rise in sea levels rendering thousands of people homeless. More than often whenever global warming is mentioned, most ecologist, environmentalist, and conservationists mind are perturbed with the exacerbated loss of biodiversity, daunting rates of deforestation, water scarcity, the loss of soil fertility, increasing soil salinity, loss of habitats, natural catastrophes, air pollution, diminishing fossil reserves, ecosystem imbalances, and disturbances not forgetting the escalated populous pressure on the limited natural resources and conflicts between man and the environment. The threats and shortages cannot be assumed. Calls for man to reconcile with the environment have been voiced extensively but not sufficient enough to restore and preserve the environment. Climate change and environmental obliteration is not an abstract issue. The problem starts and ends with humanity. The need to save and recreate our environment is imminent and requires multidisciplinary collaborative efforts stemming from natural resource management fields to social sciences and far more. Environmental degradation is due to the human activities and the coexistence with their surroundings. Psychologists have an indispensable role in evaluating and addressing the integration and interrelatedness between man and the environmental problems. They have the potential of promoting ecologically sensitive and more sustainable behaviors among people by applying the psychological principles based on the population's attitudes, values, norms, beliefs, cultural history, and heritage. This paper elucidate the potential of environmental psychologists in alleviating the environmental degradation and climate change consequences by evaluating the system thinking theory, human dimensions, and ecological resilience.

Key words: *environmental psychology, environmental degradation, climate change, prevention and protection*

"... Our common home (earth) is like a sister with whom we share our life and a beautiful mother who opens her arms to embrace us. Praise be to you, my Lord, through our Sister, Mother Earth, who sustains and governs us, and who produces various fruit with coloured flowers and herbs," Pope Francis of Assisi.

Introduction

Climate change is debatable from different fronts, whether in denial or not it is unequivocal that it is no

longer an abstract issue (NRDC, 2015). The tide on the global community to mitigate climate change hence restoration of the environment is increasingly being voiced across the globe. At the core of the mitigation and adaptation strategies, sustainable management of natural resources forms a primary component of the mitigation strategies (NRDC, 2015; GoK, 2013). It is of paramount importance to understand the road map for achievement of the projected objectives. This paper revisits the dynamism of the climate change and the road map of achieving the objective through implementation of principles of environment psychology.

Stoett (2016) perceives climate change mitigation and adaptation strategies as a complex and wicked problem requiring dynamic ecological and socio-political approaches. The attempts and efforts endeavored at achieving sustainable environment and alleviation of climate change requires integrations and inputs from various disciplines (Cobe & Nightingale, 2012; Gifford R., 2007; Pope Francis of Assisi, 2015). Issues of climate changes recognizes no boundary, nor religions, no ethnicity, wealth nor economic status, they are cross cutting (NRDC, 2015). Humanity is always at the center of the consequences and the drivers for the escalated degradation of the environment. Basing on this view, this paper also explores the potential of environmental psychologists in alleviating climate change by elucidating the importance and integration of interdisciplinary research in their efforts of saving our common and dearest home.

According to UNEP (2016) it is estimated that over 795 million people across the world suffer from hunger whilst over 1.2 billion shall experience dire water scarcity. By 2030, it is postulated that demand of water will increase by 40%, food by 50%, energy by 40% whereas demand for timber and fiber will increase by 40% (UNEP, 2016). Kenya as many other countries in the world faces considerable environmental management, restoration, preservation and conservation challenges compromising the healthy and wellbeing of her citizens. In 2010, Kenya Forest Service (KFS) released a report indicating that Kenya loses more than 12,000 hectares of forests yearly through deforestation activities, conversion of forests for development of projects with agriculture being at the forefront (KFS, 2010). Consequently, illegal logging, charcoal making, uncontrolled grazing, illegal collection of firewood, forest encroachment and illegal settlement, overexploitation of the forests for medicines and unsustainable utilization of forests have equally exacerbated the destruction of the natural resources (Bishop & Browne, 2007; KFS, 2010). Conversely, Kenya faces



consistent episodes of devastating consequences of drought and floods stemming from loss of livelihoods and lives, destruction of poverty to infrastructure (GoK, 2013). These implications significantly impede the social, economic and environment wellbeing of the Kenya population (GoK, 2013; KFS, 2010). At the epicenter of the destruction and the driving forces to extreme climate variability are the human dimensions driven by the desire to access more land for settlement, practice agriculture, and issues of food insecurity and poverty.

The exacerbated degradation of natural resources more so forests in Kenya resulted into release of approximately 1.6 million tons of carbon into the atmosphere hence increasing the rates of global warming (KFS, 2010). Other than the destruction of forests, Kenya equally faces daunting threats of scarcity of clean water, soil loss and erosion, drying of wetlands and rivers, displacement of communities, habitat and biodiversity loss (GoK, 2013; KFS, 2010). Population pressures, urbanization, industrial and agricultural projects, poverty, ignorance, and unsustainable resource utilization among others aggravate these changes. The challenges are very diverse constituting drivers drawn from multilateral social and cultural backgrounds, beliefs, attitudes, literacy levels, among others; hence, no single approach can be deployed to exclusively address and mitigate the problem of environmental degradation and climate change. It requires cumulative and collaborative efforts from different fields to consolidate and harmonize their expertise to develop feasible and long lasting mitigatory and adaptation measures.

The Kenyan environmental planners, conservationists, and natural resource managers are tasked with the responsibility of addressing the ever-accelerating challenges in natural resource management (GoK, 2013). Walker & Salt (2012) notes that the world we are living in faces a wide array of dire and growing resource issues of which most are human induced. The comprehensive and dynamic nature of the current resources quagmires we face should be at the core of all the strategies and deliberation undertaken by any society. It is because of the complexity of the issues that has led to the development of sensitive and inclusive strategies to address the changes at a national and global level (Williams & Patterson, 1996; Bishop & Browne, 2007). Drawing insights from the new paradigm of resource management, environmental planners, conservationists and managers cannot sufficiently work as independent bodies but require expertise of economists, anthropologists, sociologists and psychologists among others (Reser, 2007). It is critical to have a holistic thinking, as environment is a system consisting of different integrated components argues Stoett (2016). It is more than often difficult to see all the elements of the system; thus, it requires collection and combination of views from different observers at different elevation in order to surmise how the system functions. These can only be achieved by

amalgamation of views from people from diverse professional stands, cultural backgrounds, ideologies as well as the contribution of both the external and internal agents in the proximity of the system (Williams & Patterson, 1996, p. 512; Stoett, 2016, p. 34). The relationship of human beings and the environment shall always be at the core of the holistic thinking.

Climate Change and Environmental Psychology

The world we live in is not indifferent from us, in fact, we are not a part of nature, but we (humanity) are part of nature. Humanity has advanced; the life we live today is exclusive as compared to that lived a decade ago (Pope Francis of Assisi, 2015). We have achieved grave technological advances and economic growth all projected at making the life of man easier and more habitable than before (Pope Francis of Assisi, 2015). We all envisage a world in which every country and person is able to enjoy a sustained economy and ecological amelioration. We anticipate for a society in which production and consumption patterns of our natural resources are sustainable and certain, a world where humanity coexists in harmony with the environment (Stoett, 2016) and in which the technological advancements and other technical endeavors are accompanied by authentic social and moral status (Pope Francis of Assisi, 2015). At least we owe that to our dear Mother Earth notes the sentimental Pope Francis of Assisi.

Environmental psychology is an interdisciplinary field developed in the 19th century with an aim of examining the interplay and the interrelatedness between human and their physical environment (Giesecking, 2014, p. 587). It has a very diverse scope drawn from various social sciences, which include psychology, anthropology, economics, sociology, geography, public policies, education, architecture, among others integrating with natural sciences such as forestry, agriculture, botany, zoology, biochemistry, wildlife management among others (Gifford, 2007, p. 200; Williams & Patterson, 1996). The primary aim of environmental psychologists is projected on having an understanding of the value human accord to the environment and the impacts of their decisions to their surroundings (Giesecking, 2014).

The current millennium is considered an era of Anthropocene in which the impacts of human activities and decisions of natural environmentalist has been recognized by many scientists and researchers from different fields (Stoett, 2016). The current state of natural resource management and climate change ethical questions require a wide range of knowledge and expertise of which ecological principles cannot sufficiently provide cordial resolutions. Because many of the questions are drawn based on the human values and concerns, integration of environmental psychologists in efforts of climate change mitigation and adaptation is critical (Cobe & Nightingale, 2012; Giesecking, 2014).

Environmental psychology takes into account not only the human behaviours, cognition and perceptions but



views the environmental challenges and attributes from an holistic point by integrating with varied schools of thoughts (Gifford, 2007). It helps scientists define how people relate and define their place and space as well as how the surrounding responds to the sense accorded to it. The concerns of environmental psychologists can be categorized into the environmental experiences and perception, socio-political relations, human behavior and the emotional relationship between people, place, and space (Giesecking, 2014).

The environmental perceptions evaluate how people perceive and take their surrounding for instance, the uniqueness on how various people manage a forest. On the other hand, environmental experiences address the interplay between knowledge and cognition a person or community has (Bishop & Browne, 2007; Giesecking, 2014). The experience and magnitude of expertise people have helps them in decision-making process and the approach to the issues differs with a person's experience. The two principles have grave impacts on the notions of both personal space and that of the surrounding. As time passes by, the perceptions and the experiences of people change bringing about different behaviors that shape their decisions, hence when the different environmental approaches and ideas are integrated, they form critical elements of the ecological psychology umbrella (Bishop & Browne, 2007).

Every policy, strategy, or project deployed in pursuit of promoting environmental sanity and sustainability must recognize the relationship between the place and its identity, which gives meaning to the society's environmental sense and experience (Gifford R. , 2007 Moore, et al., 2014). The identity of a place exhibits the emotional and behavioral capacity of the people that plays a vital role in determining their environmental consciousness (Giesecking, 2014). Once the identity of the people and place has been synchronized, it will promote the system thinking, as the various elements in the system shall be factored in the final decisions made. Despite climate change being a common global problem, each country distinctly has varied approaches of implementing the mitigation and adaptation measures denoted in their national commitment strategies (NRDC, 2015). For instance, there is a huge disparity in which Kenya and Nigeria would opt to implement clean energy projects due to the distinctiveness in their social, economic, cultural economic, technological and ecological backgrounds.

Environmental psychology also takes grave acknowledgement of the socio-political concepts and attributes of the people regarding the space and place they occupy. The social and political concerns both at national and global level play an imperative role in the development and implementation of climate change incentives (Bishop & Browne, 2007; Boonstra; Moloney, et al., 2014). The social and political perceptions build our imagination about environment. Therefore, at the formulation stage of policies and laws or at the development stage of a project, it is

prudent to consider the expertise of psychologists who understands the socio-political status of the people in order to capture their concerns in the project. The incorporation of environmental psychology in the fight against global warming and promotions of sustainable development has the potential of stimulating hostile thinking (Folke, et al., 2010; Moloney, et al., 2014). The perception, experiences, attitudes, norms, emotions, economic, socio-political status, and the human behaviors directly implicate the healthiness and wellbeing of the general humanity and the environment. Therefore, environmental planning has an integral and indispensable role to play in addressing the relationship between humans and the wicked problems faced today while elucidating achievable and efficient remedies.

Human Dimensions

The nature of human being is unique due to its cognitive abilities, which help us determine the way we interact and coexists with the ecological systems in a unique and exceptional way (Reser, 2007). Different people accord different values to different aspects of their environment depending on their social, political, and cultural beliefs and values. The culture of the people defines the way the community relates with the environment, for instance the way forest habitat communities living adjacent to the forests and those people far from the forests coexists with their surrounding is different (Boonstra, 2012). Their environment greatly influences their culture and value of the forest hence is expected to behave differently. Therefore, it is essential for environmental programs, projects, policies, and laws to be sensitive to both the social and the ecological concepts of the system also known as socio-ecological system (Stoett, 2016; Pope Francis of Assisi, 2015).

The concept of socio-ecological system was coined in an effort of coupling the human and the natural systems, which have been studied separately (Boonstra, 2012; Cobe & Nightingale, 2012). The systems contain elements that depend on each other hence to maintain the symbiotic relationship and interdependency it is critical to integrate the components from both the systems. It recognizes the two-way relationship, which is critical to environmental psychologists. The coupling has indispensable impacts on both the current and future possibilities in alleviation of climate as it promotes the harmonious coexistence between the social and the ecological components and promoting ecological resilience.

The subsequent topic alludes the system thinking which advocates for the collective integration of all the components in a system and approach to a system from a holistic view rather than from individualistic perceptive (Stoett, 2016; Moore, et al., 2014). The socio-ecological system advances the principle of system thinking. While undertaking socio-ecological approaches, it is critical to recognize the complexity in the social system that is more dynamic than ecological. The complexity of the system is likened to the different interaction and values among individuals,



which implicates on the norms and values of the entire community capable of affecting the behavior of the society (Stoett, 2016). Putting into consideration all the attributes of the each individual is tricky while the norms vary extensively from one community to another. However, this should not be excuse for not factoring the attributes when undertaking socio-ecological projects.

Nevertheless, in most of the societies, the socio-ecosystems are intimately considered to service humanity with wealth and security, which has gravely led to the transformation of the ecosystems into either more or less desirable conditions (Reser, 2007; Walker & Salt, 2012). Despite that fact, the humans obtain considerable services from the ecosystem such as clean water, food, clean air, fuel, cloths, materials for shelter, places of relaxation and raw material for the many industries, their actions significantly jeopardized the ability of the ecosystem to provide such services adequately (Bishop & Browne, 2007; Boonstra, 2012; Moloney, et al., 2014; Williams & Patterson, 1996). The cumulative consequences of the impacts greatly compromise the livelihood and security of humans increasing their susceptibility to adverse environments that claim their lives explains Moloney and his colleagues (2014).

System Thinking and Theory

Our daily activities and expediencies continually squeezes life out of our common home, as much as we strive to make our home a better place, our actions have equally created an opposite force that is destroying environment cries Pope Francis of Assisi (2015). The elderly people are noted to lament of the heightened rate of destruction of the beautiful landscapes, the hunting grounds, and wildlife and plant diversity. The world is becoming more inhabitable, the water levels and global temperatures have risen, climate patterns are becoming unpredictable, water and air quality are not guaranteed, and some flora and fauna are nearly extinct (Pope Francis of Assisi, 2015; NRDC, 2015). Climate changes have proven to be a real wicked problem.

The most pressing issues we face today can prove to be complex, but they have simple solutions. Do not be intrigued by the term simple solutions as the simplicity; most of the solutions of the complex problems and efficacy of the outcomes can be contested (Stoett, 2016). The basic definition of environmental psychology is a multidisciplinary field that has the potential of adopting multi-dimensional approaches to curb the common environmental challenges (Walker & Salt, 2012). Nevertheless, when adopting such strategies it is critical to rethink the design and mode of delivering the solutions. The system theory advocate for the integration of all the elements in a system by embracing complexity of the system in every decision ever-made (Williams & Patterson, 1996).

Basing on the fact that environmental psychology bridges the human perspective and the environment,

they are in position to help ecologists, conservationists, and planner among others to rethink the way they design and adopt to climate change mitigation and adaptation programs (Giesecking, 2014; Reser, 2007). They provide critical insights on the importance of incorporating a complex adaptive system, which recognizes the individual and cumulative behaviors of the system components change in relation to a response from either a single or collection of events over time (Stoett, 2016). Climate change is a complex adaptive system that reflects the cumulative and individual activities undertaken across the world overtime. Therefore, through environmental psychology and the application of the system thinking principles, humanity in general shall be able to understand that decision they make should not be self-centered but must equally put into consideration the other components in the system (Reser, 2007).

The environmental psychologists have an imperative role on determining dynamic and innovative remedies to the wicked problems that comprise the habitability and healthiness of our common home. The potential of environmental planning as a vessel of change and transformation within communities, nations and at a global scale should be harnessed. It embraces transdisciplinary dialogue capable of shaping our collective understanding of the vitality of projecting our development strategies for a sustainable future.

Ecological Resilience

Walker & Salt (2012) defines ecological resilience as the “capacity of a social-ecological system to absorb or withstand perturbations and other stressors such that the system remains within the same regime, essentially maintaining its structure and functions.” It describes the degree of a system to self-organize, learn, and adapt to the changing environment. Humans depend on the environment for survival and we continually influence the ecosystem from both a local and global scale. When the resiliencies capacity of any system is enhance, it increases its ability to tolerate disturbances hence sustainably providing its services to the users. Subsequently, socio-ecological resilience helps humanity to anticipate probable changes and formulate amicable and ambient pathways for the betterment of future life (Folke, et al., 2010).

Reduction of resilience increases the susceptibility of the system to perturbations limiting its capability to provide its services and sustain itself and other components that depend on it. The impacts of climate change postulate a system that is incapable of sustainably absorbing the disturbance (Walker & Salt, 2012). The consequences of the limited resilience is manifested with the change in the adverse climatic patterns, increase in world temperatures and water levels, shortages of quality and clean water and air, escalated shortage of food and food security issues among others. People who entirely depend on the ecosystem for survival gravely shoulder the consequences of the vulnerability. The exacerbated implication of global warming has resulted it calls for restoration measures of the environment (UNEP,



2016). Researchers though argue that restoration of the system to the previous state is a complex and expensive venture nearly impossible while others argue that it can never be restored and therefore advocate for preventive measures (Walker & Salt, 2012; Stoett, 2016).

Resilience is at the heart of environmental psychology principles, the interplay, and coexistence of humans and their natural environment directly implicates on the resilience abilities of the ecosystem and the social well-being of the people (Folke, et al., 2010). Existence of a harmonious relationship between people, space, and place promotes resilience therefore, environmental planning seeks to understand the factors that promote resilience and mechanism in which can be disseminated and shared (Walker & Salt, 2012). Incorporation of environmental psychology principles in management of natural resources and climate change has the capability of reducing the challenges as it promotes adaptive management and embraces system thinking in its projections (Giesecking, 2014; Moore, et al., 2014).

Climate change has a salient focus from both social and ecological perspective as the impacts of the vulnerability of the ecosystems has both socioeconomic and psychosocial impacts to the populace. Human activities equally have dramatically contributed to the aggravating global warming. The changes and their impacts are understood differently from comprehensive social, economic and political perspective, which posts a great challenge in the development and implementation of climate change mitigation and adaptations programs (Reser, 2007). The EP thus has a key role to play more so to problem evaluation, risk and behavior change communication and strategies.

It is crystal clear that the wellbeing and survival of humanity strongly rests on the viability and integrity of the biophysical environment. There should be a balance between the human dimensions and the ecological aspects and integrity for the system to be resilient. The implication of the human activities cuts across not only to the physical spaces and places but also to their own health and survival. Integration of principles and expertise of environmental psychologists is critical in efforts of promoting restoration and salient measures for sustainable utilization of natural resources. The interrelatedness between the human perceptions and values and the environment provides insights of factors for ecological stress reduction and restoration.

Conclusion

Anthropogenic factors are at the core of the climate change induced by the behaviors, cognitions, motivations, values, lifestyles, and attitudes of individuals and societies as well as organizational and institutional policies and contexts. Both developed and third world countries have played substantial contribution to the increased environmental degradation through the exponentially aggravating utilization of non-renewable energy, dilapidated

agricultural productivity, overexploitation of natural resources, conflicts and wars over natural resources and other cumulative and convergent human contributions.

It is subsequently clear that environmental deprivation equally compromises the wellbeing of human life as the laws of nature demand human and the environment to coexists in a synergic manner that both the human and ecological elements benefit from each other. Psychology being a discipline and a practice concerned with how people understand, value and relate with their socio-ecological systems show how the nature of the ecological systems interact with individuals and the society at large. Integration of the expertise therefore bridges the perspectives of the environmental problems and the human dimensions critical for sustainable management of natural resources and climate change. Psychologists play a critical role in many interdisciplinary and collaborative works but their potential in natural resources management has not been sufficiently embraced.

Due to the immense urgency and degree of the environmental issues prevalent at both the national and global level, it is essential to integrate psychological principles and factors to problems and remedies to and for climate change programs. Reser (2007) points out that the integration of psychologists in management of natural resources requires greater attention, visibility, concerted efforts, and collaborations. Its multidimensional nature is relevant in addressing in the environmental concerns and as it provides a better understanding of the factors influencing the behaviors, attitudes and decisions of individuals, communities and organizations basing on both their adverse implications and the efforts for sustainable management of the environment. EP has the potential of effectively promoting awareness and changing the attitudes, behaviors and attitudes of people toward environmental concerns and responsibility.

A critical measure in the management of anthropogenic factors anchors on the ability to monitor the change in human behavior, perceptions, and attitudes as the needs of people change over time. The psychologists are very sensitive in determine and monitoring the change of behavior and attitudes in people hence able to provide ample deliberation of measures that coincides with needs and behavior of the people. By providing a better and multidimensional understanding between the human connections and the environment, the ecological planners, conservationists, private investors and interested parties in natural resource management are able to have a broadened and comprehensive view of the system. This enables them to adopt complex environmental management programs and legislations appreciating the interdependency of every component of the system. Ecosystem management can only be successful thorough understanding the social and natural history of the system, which can be bridged by application of principles of environmental psychology



and system thinking. The current approaches and programs to sustainable managements of natural resources and climate change are failing us. The programs are modeled on limited spectrums and expectations, which more than often overlook the major perturbations and often optimize some

components in the system in preference of others. Through transdisciplinary research and collaborations, every component in environmental psychology shall be considered for the betterment of socio-ecological system.

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