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The Potential of Environmental Psychology to Alleviate Climate Change

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Abstract: Environmental degradation and climate change issues have become inevitable discussions both at national and global levels. The devastating 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 time global warming is mentioned, most ecologist, environmentalist, and conservationists' mind is 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 the problem, but humanity is. 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. Environmental degradation is due to the human behaviors 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 principle based on the population's attitudes, values, norms, beliefs, cultural history, and heritage. The paper shall 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

Sustainable management of natural resources and strategies projected towards climate change mitigation and adaption are seen increasingly as involving dynamic ecological and socio-political approaches requiring momentous research and development. The attempts and efforts endeavored at achieving sustainable environment and alleviation of climate change requires integrations and inputs from various disciplines. Issues of climate changes recognizes no boundary, nor religions, no ethnicity, wealth nor economic status, they are cross cutting. Humanity is always at the center of the consequences and the derivers for the escalated degradation of the environmental. Basing on this view, this paper explores the potential of environmental psychologists is alleviation of climate change elucidating the importance of interdisciplinary research and integration in the efforts of saving our common and dearest home.

According to UNEP statistics, it is estimated over 795 million people across the world suffer from hunger whilst over 1.2 billion live is areas with water scarcity. By 2030, it is postulated that demand of water will increased by 40%, food by 50%, energy by 40% whereas demand for timber and fiber will increase by 40%. Kenya as many other countries in the world has been faces considerable environmental management, restoration, preservation and conservation challenges compromising the healthy send 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 and agriculture being at the forefront. Consequently, illegal logging, charcoal making, uncontrolled grazing, illegal collection of fuelwood, 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). At the epicenter of the destruction 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 results to loss of an approximate of 1.6 million tons of carbon into the

atmosphere increasing the rates of global warming. Other than the destruction of forests, Kenya equally faces daunting threats of scarcity of clean water, soil loss and erosion, habitat and biodiversity loss. These changes are aggravated by population pressures, urbanization and industrial development, agricultural development, poverty, ignorance among others. The challenges are very diverse hence, no single approach or strategy can be deployed to address the problem of environmental degradation and climate change. It requires cumulative efforts of exerts from different fields to consolidate and harmonize their expertise in developing of feasible and long lasting measures to save and restore the status of Mother Earth.

The Kenyan environmental planners, conservationists, and natural resource managers are tasked with a responsibility to address the increasing challenges in natural resource management. Walker and 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 issues and challenges we face should be at the core of all the strategies and deliberation undertaken by any environmental agency within Kenya and without. It is because of the complexity of the issues that has led to development sensitive and inclusive strategies to address the changes at a national and global level. 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 as well and psychologists among others. It is critical to have a holistic thinking, as environment is a system consisting of different elements argues Stoett (2016). It is more than often difficult to see all the elements of the system hence it requires collection and combination of views from different observers at different elevation in order to surmise how the system functions. These can only achieved by combination views from people from diverse professional stands, cultural backgrounds, and ideologies as well as the contribution of both the external and internal agents in the proximity of the system (Williams & Patterson, 1996; Stoett, 2016). The relationship of human beings and the environmental 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 that lived a decade ago. 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 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, 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 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 (Gieseking, 2014). It has a very diverse scope drawn from various social sciences, which include psychology, anthropology, 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; 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 their decisions they make has to their surroundings (Gieseking, 2014).

The current millennium is considered an era of Anthropocene, an era in which the impacts of human activities and decisions of natural environmental has achieve fundamental recognition by may scientists and researchers from different fields (Stoett, 2016). The current state of natural resource management and climate change ethical questions as stated earlier 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.

Environmental psychology takes into account not only the human behaviours, cognition and perceptions but views the environmental challenges and attributes from a holistic point by integrating with various schools of thoughts from different areas (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 environment and the emotional relationship

between people, place, and space (Gieseking, 2014).

The environmental perceptions evaluate how people perceive and take their surrounding; for instance, it tries to the uniqueness on how various people will handle a diseased tree. Different people will approach the tree with different mentalities and perceptions based on their value to the tree. On the other hand, environmental experiences address the interplay between knowledge and cognition a person or community has (Bishop & Browne, 2007; Gieseking, 2014). The experience and magnitude of expertise people have helps them in decisions making process; approach to 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 a 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; identity gives meaning to the society's environmental sense and experience. The identity of a place exhibits the emotional and behavioral capacity of the people which plays a vital role in the determining their environmental consciousness (Gieseking, 2014). Once the identity of the people and place has been synchronized, it therefore promotes the system thinking, as the various elements in the system shall be factored in the final decisions made.

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 the general humanity and the environment. Therefore, EP have an integral and indispensable role to play in the addressing the relationship between humans and the wicked problems faced today and elucidating achievable and efficient remedies.

Human Dimensions

The nature of human being is unique due to their cognitive abilities, which help us determine the way we interact, and coexists with the ecological systems in a unique and exceptional way. 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 studies separately. 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 witch 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 integration of all the elements approaching the system from a holistic view rather than from individualistic perceptive. 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 the ecological one. The complexity of the system is havened 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 of the attributes of the each individual is tricky, the norms

also vary extensive from one community to another.

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 the fact the humans obtains considerable services from the ecosystem such as clean water, food, clean air, fuel, clothe, materials for shelter, places of relaxation and raw material for the many industries their actions significantly jeopardized the ability of the ecosystem to provides such services adequately. 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 the hospitable and caring home. The elderly people are noted lamenting 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. 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 of the most of the solutions of the complex problems and efficacy of the outcomes can be contested. 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 being 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. The 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 complex adaptive system as it is reflect to 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 EP 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 impact on 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 sustainability absorbing the disturbance. 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. Researchers though argue that restoration of the system to the previous state is a complex and expensive venture nearly impossible while other argue it can never be restore rather be recreated 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. Existence of a harmonious relationship between people, space, and place promotes resilience therefore, the EP seeks to understand the factors that promote resilience and mechanism in which can be disseminated and shared. 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 (Gieseking, 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 the populace. Human activities equally have dramatically contributed to the aggravating global warming. The changes and their impacts are understand differently and from comprehensive social, economic and political perspective, which posits 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. The both developed and third world countries have play substantial contribution to the increased environmental degradation through the exponentially aggravating due to the profligate utilization of non-renewable energy, dilapidation agricultural productivity, overexploitation of natural resources, conflicts and wars over natural resources and other cumulative and convergent human contributions.

It is subsequently clear the environmental deprivation equally compromises the wellbeing of human life as the laws of nature demand human and the environment to coexists in a synergic matter that both the human and ecological elements benefit from each other. Psychology being a discipline and a practice concerned with the how people understand, value and relate with their socio-ecological systems and 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. It 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 the determine and monitoring the change of behavior and attitudes in people hence are able to provide ample deliberation of measures that coincides with that needs and behavior of the people. By providing a better and multidimensional understanding between the human connections and the environment, the ecological planners, conservationists, managers and other government, private investors and interested parties in natural resource management are able to have a broadened and comprehensive view of the system, hence being able to adopt complex adaptive 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, therefore through transdisciplinary research and collaborations every component in this system has shall be considered for the betterment of socio-ecological system.

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