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# Public enlightenment and participation – A major contribution in mitigating climate change<sup>☆</sup>

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## Abstract

Significant changes in the conventional weather pattern experienced globally have sparked enormous concerns to environmental stakeholders. Having been established that the main driver of change in our Climate is the result of anthropogenic activities which contribute to the global increase in concentration of Green House Gases (GHG), there is therefore need for effective sensitization and public awareness regarding our actions and how they contribute to the issue of Climate Change experienced globally. For this reason an effective framework needs to be designed for this purpose, hence the objective of this research.

As an effective model for Public enlightenment should be one that will: enable all stakeholders gain easy access to each other to achieve efficient dissemination of information; take into consideration the geopolitical and socioeconomic nature of the region in concern; be sustainable; flexible and adaptable, this research adopted the Integrative Literature Based Research Methodology by analysing articles of renowned authors and organizations published between 1995 and 2016 to gain supportive ideas that are vital towards the design of an effective model for public enlightenment and participation in resolving Climate Change. A model fulfilling the afore mentioned qualities was designed and reviewed for its practicability and effectiveness.

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## 1. Introduction

Climate change can be regarded as a change in conventional weather pattern of a region over time resulting from human, biotic and abiotic factors (World Wild, 2016; IPCC, 2001). While human factors refer to activities of humans ranging from deforestation to use of fossil fuels for energy

generation, biotic factors refer to the interaction between living organisms and the environment which could possibly result to imbalance in the ecosystem, for example overpopulation of species and overconsumption of resources. Abiotic factors include the earth's geologic events which range from Solar radiation to Volcanic Eruption.

Climate change is perceived as one of the greatest challenges we are currently facing in our world today. It has been widely established that human activities also referred to as anthropogenic activities are the major contributors to global warming which is the chief cause of the changes in the earth's weather pattern we currently experience

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(IPCC, 2013). This is evidenced in the high rate in which green house gas emissions are generated and released into the atmosphere. The impact of these includes socio-economic and environmental issues such as famine and conflict in certain regions; massive migration and the health issues associated with such occurrences. According to the Environmental Investigation Agency (2016), our planet exceeded a critical carbon dioxide benchmark of 400 ppm in 2013, this has raised tremendous concerns regarding the state of the earth's Ecosystem and Biodiversity. The main drivers of this challenge from social perspective are the fact that we humans are living beyond our means and overexploiting our habitat for resources. According to the World Wild Fund (2016) global citizens are living as if there are more than 1.5 planets, as the rate at which the earth is exploited for natural resources and harmful wastes generated is more than the earth's recovery rate. The consequences of this are devastating, as according to the Intergovernmental Panel on Climate Change (2016) a 1.5 °C rise in the earth's temperature could result in about 20–30% of species at risk of extinction. The earth's water system is also affected by the rise in global temperature. This is felt in droughts experienced in different regions and the rise in sea levels resulting from the melting of ice at the arctic region which is one of the contributory factors to flooding experienced in different regions of the world.

The question this research seeks to answer is: what model can be designed and implemented to enhance public enlightenment and participation in resolving the issue of climate change?

The main objective of this research is to design a framework that can be used to boost public enlightenment and involvement in resolving climate change factoring in ideas, opinions and concerns of renowned authors and organizations regarding this subject (Fig. 1).

## 2. Methodology

The Integrative Literature Based Research Methodology was adopted for this study, with the objective of gathering opinions, discussions and arguments of notable authors and organizations with respect to environmental issues associated with Climate Change in order to generate a new implementable framework for tackling this issue. This method also enabled the identification of the trends and direction of arguments with respect to this subject as well as identification of gaps and ideas that are instrumental with respect to designing an effective framework that will enhance public awareness and participation in resolving the Climate Change issue.

## 3. Review of literatures

### 3.1. Current issues in tackling Climate Change

So far, current strategies proposed by the world's governments in tackling this issue are not considered effective

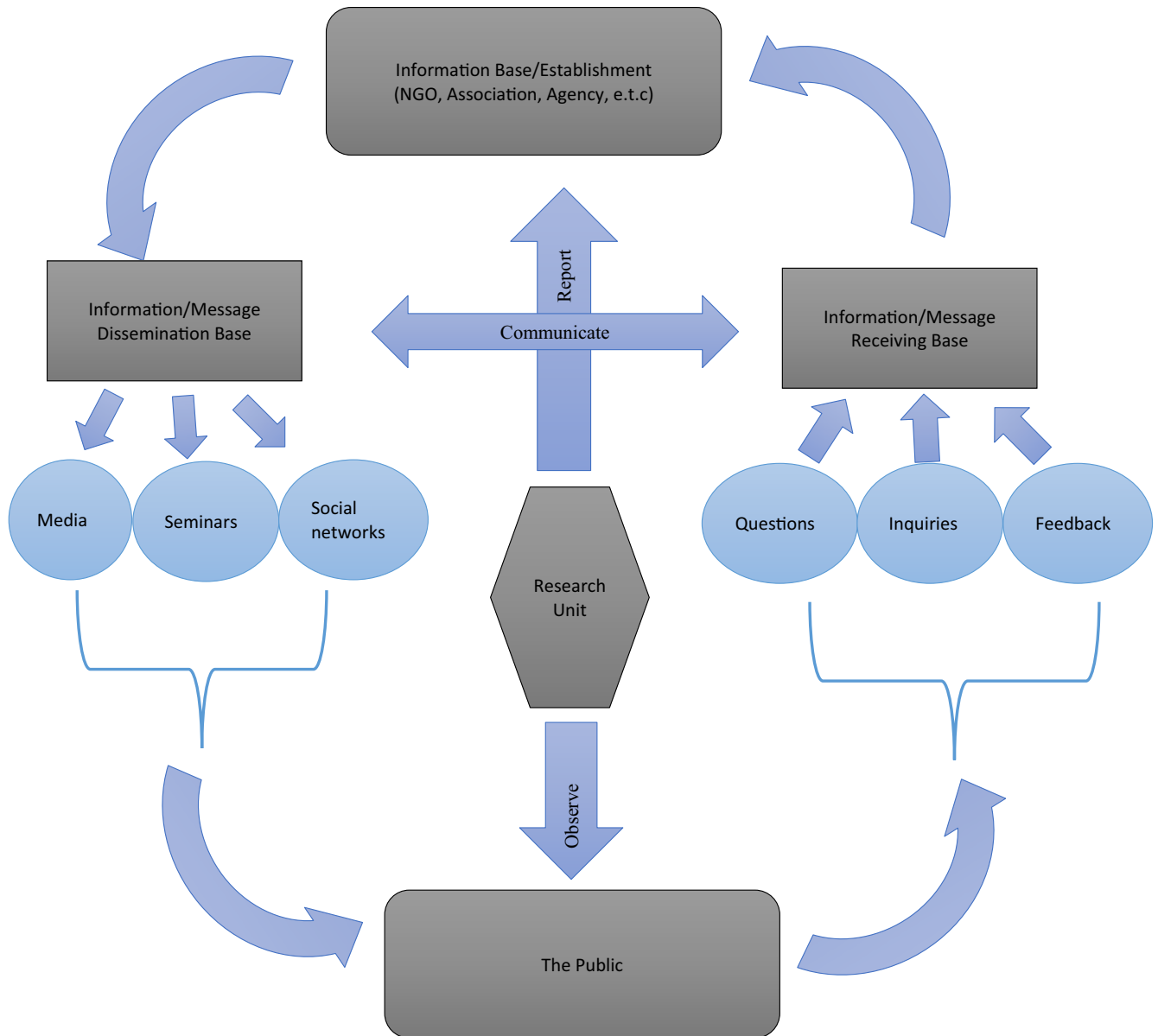
compared with the magnitude of this challenge. Although a breakthrough was realized in 2015 during the COP21 convention where about 190 countries expressed their commitment to keep global temperature rise below 2 °C, but the concern here is that there was no general agreement to an effective international standard and framework with which this could be done in the respective countries. Also, no international regulatory measure was agreed upon. The IUCN, WWF and Climate Advisers in 2015 produced a consultation progress report demonstrating that forest conservation and protection in certain forest regions like Brazil and Indonesia has potential of cutting annual global climate emissions by 3.5 gigatonnes in 2020 (WWF, 2016). But these and other environmental objectives regarding climate change can only be effectively realized if there is a change in attitude of global citizens.

### 3.2. The need for public enlightenment

As stated earlier global consumption of resources and wastes generation are at rates higher than the earth's recovery rate and there is not sufficient public awareness as to the consequences of our behaviour. There are also concerns that governments of several developing countries are not giving the required priority to tackling the problem of climate change. According to Bluc et al. (2015), the demand of citizens influence Government policies and priorities. We have observed this in several EU countries like the United Kingdom, Germany and France where an increase in public concern/interest on a particular subject influences government policy on that subject. Therefore the political will of governments to tackle issues of Climate change will be influenced by broad public support. Hence in this regard, effective public enlightenment and participation are very key to solving the issue of climate change. The public enlightenment in this regard should be one that should appeal to the emotions of people creating awareness of their actions and how the earth suffers as a result of this, prompting them to positively change their behaviours. Public enlightenment should also be homogenous and carefully coordinated to ensure harmonious understanding of the issue and avoid conflict of opinions which could cause confusion in the midst of the public. This is supported by Hang and Jonathon (2016) who also expressed in their report that public support for mitigation policy is key to solving the issue of Climate change.

### 3.3. Factors that affect the effectiveness of public enlightenment

Some factors have been identified that can negatively impact on achieving effective public enlightenment. Some of these factors include: political polarization; unavailability of alternative resources; high cost of alternative resources; unavailability and infancy of alternative technologies (Kuhne and Schemer, 2015; Hang and Jonathon, 2016).



*Diagram produced by author*

Fig. 1. Model for Public Enlightenment on Climate Change.

The Issue of Political polarization has been widely felt during discussions on Climate change with right-wing supporters denying its existence opposing policies aimed at mitigation with economic reasons being the main rationale behind their stand in this regard (Hoffart and Hodson, 2016).

As the recommended measures of dealing with Climate change include Mitigation and Adaptation (IPCC, 2001), the concern regarding these initiatives is the availability and affordability of technologies that would enable us to achieve the objectives of both schemes. Alternative technologies of energy generation popularly in use which include Solar panels and wind mills are presently expensive, difficult to maintain and less effective in energy generation compared

with fossil oriented energy generating sources. Another alternative is the use of Nuclear Energy, but the concern with this option is the devastating consequences experienced when accidents occur just as witnessed in the Chernobyl and Fukushima incidents. Owing to these concerns, countries like Germany and Russia are in the process of phasing out their dependence on Nuclear Energy as an alternative source of energy (The Global, 2014; World-nuclear, 2016).

#### 3.4. Qualities and objectives of an effective public enlightenment scheme on climate change

Understanding the fact that anthropogenic activities contribute hugely to Climate change (IPCC, 2013), it is

important that this awareness is created to every global citizen regarding the need to change our attitude in the way we use our earth's resources and the wastes we generate in the process. It will also be beneficial if we recognize the need to consider the climate and the welfare of our ecosystem while carrying out daily activities ranging from feeding (the [Health Council of the Netherlands \(2011\)](#) published a report advising on the need to embark on healthy dieting from an ecological perspective), entertainment, transportation, shopping and other activities which will incur the use of earthly resources and generation of wastes. This should be regarded as a moral obligation for all global citizens towards contributing to resolving this challenge ([Higgins and Hart, 2012](#); [de Boer et al., 2015](#)). Creating the awareness of these concerns will require effective public education and enlightenment. The public needs to be aware of the production processes involved in producing the goods and services we consume and their impacts on the environment ([Skamp et al., 2013](#); [de Boer et al., 2015](#)). Effective public education and enlightenment could benefit from Ecological Modernization which encourages the development of technologies that will support 'greening' of production and consumption ([Adua et al., 2016](#); [Arthur and Janicke, 2009](#)). Economic factors will also play a role in the process as studies has revealed that affluent people exhibit more concerns about the environment than less affluent people ([Inglehart, 1995](#); [Adua et al., 2016](#)).

Effective public enlightenment on Climate change issues will require planning from the onset in order to ensure homogeneous public understanding regarding the challenge and inspire the public in participating towards resolving this issue. The core objectives of this initiative should at least include the following:

1. Formulation of clear messages backed by scientific evidences geared towards changing the perceptions and attitude of the public towards showing concern for the global ecological system ([Veiga et al., 2016](#)).
2. Inspiring and empowering the public to take positive actions through concrete examples ([Veiga et al., 2016](#)).
3. Design of an effective communication strategy and identification of efficient media for communication ([Hartley et al., 2015](#)).
4. Identification of feedback and data collection measures.
5. Identification of Performance Evaluation Measures and Key Performance Indicators factoring in the need for sustainability of core measures implemented.
6. Other important factors to consider will include the cost and resources (including Information and Communication Technologies) that will be required. Communication strategies might involve the utilization of all or a combination of the following: Seminars, Conferences, Media (videos, audio, text), Posters, Advertisement, Direct Mail (both paper and online), Social Media And Webinars.

Fundamental aspects regarding Climate Change the public should be aware of should include at least the following:

1. Comprehensive definition of Climate Change and its causes.
2. Good understanding of the issues resulting from Climate Change and the scientific evidences.
3. Understanding the need to be ecologically sustainable and aware of ones actions and the resulting consequences to the ecological system.
4. Measures on how the problem of Climate Change can be tackled.
5. Ways in which each individual can effectively participate towards resolving the issue of climate change.

It is recommended that each point presented above should be expatiated and treated in detail to ensure the public receive a holistic understanding of the issue.

#### 4. Model for public enlightenment on climate change

An effective model for the implementation of this initiative should be one that will enable the informing establishments and the public gain easy access to each other to achieve easy dissemination of information by the authorities and collection of feedback and data from the public ([Higgins and Hart, 2012](#); [de Boer et al., 2015](#); [Veiga et al., 2016](#)). The model should also take into consideration the geopolitical and socioeconomic nature of regions with target population in order to determine the effective medium of communication ([Adua et al., 2016](#)). The use of Information and Communication Technology is crucial but will work well in modern developed regions while Seminars/Conferences will be beneficial for developing regions. As research has revealed that individuals from affluent regions are more likely to show concern for the environment than people from developing regions ([Inglehart, 1995](#); [Adua et al., 2016](#)), the latter should be the category of more concern.

The model should be sustainable and should allow for some degree of flexibility and adaptability to cope with issues and changes that might emanate during the process on the long run ([Hartley et al., 2015](#)). The model should also be designed to make prudent and efficient use of resources (human, financial, equipment, time, etc.) with means for evaluation to determine the extent to which the objectives of the initiative are met and lessons to be learnt during the process.

Kolb's learning theory which expresses that people learn best via experience from which they make judgments based on their experience and then experiment ([Kolb, 1981](#)), should be factored into consideration in the design and implementation of the model.

## 5. Discussions

### 5.1. The Information Base

This is the unit that is responsible for building public awareness regarding Climate Change by providing messages, recommendations, information and knowledge for the public. They also serve as the Think Tank regarding issues associated with Climate Change. Their main functions should include:

1. Create public awareness and increase consciousness regarding Climate Change and the issues associated.
2. To enlighten the public on ways they could individually participate in resolving the problem of Climate Change providing practical examples.
3. Motivate the public towards participating in resolving the Climate Change challenge and reward outstanding individuals who have demonstrated excellent commitment towards this scheme.
4. Manage and provide the necessary resources required for the implementation and success of this initiative.
5. React to information gathered by the Research unit.
6. Respond to public inquiries, comments, feedback, questions gathered by the Information/Message Receiving Unit utilizing the Information Disseminating Unit in providing new information.

### 5.2. Information disseminating unit

This is the designated unit charged with disseminating information using effective information disseminating means and developing strategies that will enable them effectively engage with the public. Their main functions should include the following:

1. Identify and evaluate means for mass information dissemination.
2. Identification and evaluation of strategies for public engagement.
3. Deploy preferred options regarding information dissemination and public engagement.
4. Identify ways through which public engagement could be improved (e.g., Gamification)
5. Communicate with the Information/Response Receiving Unit (e.g. notifying them of the type of responses they should expect from the public and possible means through which these will be sent in order for the aforementioned unit to be proactive in their tasks.

### 5.3. Information/response gathering unit

This unit will be responsible for collecting and categorizing responses, inquiries and feedback received after public

engagement by the Information Disseminating Unit. They serve as the eyes and ears of the management board of the Information Base. Their services will include:

1. Collecting responses and feedback from the public via each designated media of communication.
2. Analyse and categorize responses received.
3. Submit responses received to the Information Base.
4. Document and keep records of responses received from the public.
5. Communicate with the Information Disseminating Unit e.g. on trends in public use of each designated communication medium.

### 5.4. Research Unit

This unit will be charged with carrying out periodic research to determine the effect the enlightenment programme has had on the behaviour of the public in terms of changes in attitude towards the climate change concern, public motivation towards collaborating to solve the issue of climate change and public perception on the importance of jointly contributing in solving the issue of climate change. In this light, their function will include the following:

1. Identify the level of awareness.
2. Identify other effective means of engaging with the public.
3. Evaluate options regarding public engagement strategies through data collection and analysis.
4. Provide recommendations to the information board on crucial points in line with the success of the public engagement initiative.
5. Identification and utilization of assessment measures to evaluate the effectiveness of the public enlightenment model through data collection and critical analysis of data obtained.

### 5.5. Review of model for public enlightenment on climate change

Having identified in previous sections of this report, that effective Public Enlightenment and Participation are very key to solving issues of Climate change and that a public enlightenment campaign should be one that could appeal to the emotions of people, making them aware of the effect of their actions on the Earth's ecological system, the model reviewed achieves these measures as it seeks to engage with the public through various media of communication, motivating the public to make positive contributions towards resolving the issues associated with Climate change.

It was also identified that an effective public enlightenment programme should be homogenous and carefully coordinated to ensure harmonious understanding of



aspects associated with climate change and avoid conflict of opinions which could give rise to confusion amongst the public. The model reviewed also satisfies this criteria as it proposes the establishment of an 'Information base' which will be responsible for providing uniform information and building public awareness regarding climate change, they will also be responsible for responding to public inquiry and concerns. The main rationale behind the establishment of this unit, is to ensure that the public is in receipt of uniform and constructive information to avoid conflict of information and confusion in the public domain.

It was highlighted that an effective communication strategy would be required for the enlightenment of the public regarding climate change, this will be sorted by the 'Information Disseminating Unit' whose main responsibility will be to take advantage of effective means of communication and information dissemination to engage with the public. The model is sustainable as it allows for flexibility in terms of the communication medium to be adopted and possible improvement changes that would need to be effected. Collection of feedback/questions/responses from the public will be handled by the 'information/response gathering unit' which will be submitted to the 'Information Base' after analysis and categorization. The need for a performance evaluation measure of the scheme will be addressed by the 'Research Unit' which will periodically conduct research to determine the effectiveness of the scheme. The self evaluation aspect of this scheme which will be carried out by the Research Unit supports the sustainability of this initiative in achieving the objectives its been established for.

### 5.6. Recommendations

As the model designed in the course of this research factored in ideas, opinions and concerns of renowned authors and organizations regarding resolving Climate Change, it is recommended that further research be conducted with respect to the implementation of this model. It will be beneficial if this is implemented focusing on two target regions, the first region being a developing society and the second a developed society. Observations should be made with emphasis on the behavioural patterns of indigenes of both regions. Concerns and lessons should be identified on possible modifications and improvement measures that could be applied to enhance the effectiveness of this model towards achieving its objective.

## 6. Conclusion

Having understood that issues associated with Climate Change are as a result of the anthropogenic activities of the public, it is therefore imperative that global citizens are aware of this, and recognize the need for us to change our behaviours and make individual contributions towards resolving these issues. With the proposed

model for public enlightenment, this objective can be achieved and will provide a sustainable means of communicating, motivating, informing and monitoring the public towards participating in protecting our environment and resolving issues associated with climate change.

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