Urban Versus Rural Perspectives of Climate Change: A Case Study of Egypt

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Abstract

This research reports on urban versus rural people's beliefs and understandings about climate change in the Egyptian society. Results suggest that although most rural respondents have not heard about the scientific concept of climate change, they have noticed some changes in the climate. They appear to hold divergent understandings about climate change and have different priorities for causes and solutions. Most of the respondents appear to base their understandings of climate change upon a combination of ideas gathered from various sources and rely on different kinds of reasoning in relation to both causes of and solutions to climate change to those used by scientists. Environmental conditions were found to influence individuals' understanding of climate change; yet demographic factors were not. This research paper used the knowledge gap theory which states that information is more accessible to rich people as they are exposed to various media channels than poorer people and this leads to a "knowledge gap". The results suggest a need to learn more about climate change and a need to include

climate literacy in communication media and the educational system.

Keywords: Climate change, Egypt, knowledge gap, rural and urban communities.

الملخص :

تتناول هذه الدراسة الفروق بين سكان المناطق الحضرية والريفية في مصر فيما يتعلق بفهمهم وإدراكهم لتغير المناخ. أظهرت النتائج أن معظم سكان الريف لم يسمعوا بالمفهوم العلمي لتغير المناخ، إلا أنهم لاحظوا تغيرات مناخية تؤثر على محاصيلهم وبيئتهم المحلية. في المقابل، أظهر سكان المدن وخصوصًا الفئات الأعلى تعليمًا وذوي الحالة الاجتماعية-الاقتصادية الأفضل معرفة أكبر بالمفهوم العلمي لتغير المناخ وأسبابه وتأثيراته.

اعتمد البحث على نظرية فجوة المعرفة التي تفترض أن الأفراد من الطبقات الاجتماعية ذات الدخل والتعليم المرتفع يكتسبون المعلومات بشكل أسرع وأعمق من الفئات الأقل حظًا، مما يزيد من اتساع الفجوة المعرفية. تم استخدام المنهج الكيفي عبر أربع مجموعات نقاشية، شملت عينات من الحضر والريف ومن فئات عمرية مختلفة.

توصلت الدراسة إلى أن التعرض للمعلومات والتعليم الجيد هما العاملان الأساسيان في تحديد مستوى المعرفة بتغير المناخ وليس العمر أو العوامل الديموغرافية الأخرى. وأوصت الدراسة بضرورة إدماج موضوعات التغير المناخي في المناهج الدراسية، وتنظيم جلسات توعية مجتمعية، وسن قوانين للحد من الانبعاثات الكربونية، مع تعزيز الوعي الأخلاقي والمسؤولية المجتمعية تجاه البيئة لتحقيق القدرة على التكيف مع التغير المناخي وبناء مجتمع أكثر مرونة.

الكلمات المفتاحية: التغير المناخي، فجوة المعرفة، مصر، المجتمع الريفي، المجتمع الحضري، الوعي البيئي.

I. Introduction

During the last decade, Egypt has recognized itself as one of the countries' most vulnerable to climate change. Egypt has been tackling climate change concept drastically in various media channels and policies due to increase in sea level rise, high temperature and change in rainfall distribution and concentration. Accordingly, these changes influence Egypt's economy, communities and ecosystem (Froehlich & Al-Saidi, 2018).

According to the Central Agency for Public Mobilization and Statistics (CAPMAS), Egypt's population has increased to almost reach 110 million inhabitants by the end of 2022. Most of the population is between the age group of zero to four years old, around 14 million children, while the elderly age group from 75 years and older are almost one million individuals (CAPMAS, 2022).

In addition, the rural areas have more inhabitants with 63 million individuals versus 47 million individuals who live in urban areas according to the CAPMAS publication in 2022. Most of the urban communities have proper environmental conditions specifically when talking about the water quality. Yet, some rural areas lack access to clean drinking water and proper sanitation services, which is Goal six in the Sustainable Development Goals (SDGs) developed by the United Nations, and this reflects an impact on the citizens' health and economy according to an article written by Mostafa Kashef published by the World Bank in 2018.

During the current decade (2021- 2030), the implementation of the SDGs and to attain the approach of "Build Back Better" post COVID-19, high awareness level among the public and capacity development among specialists are essentially required to adapt to climate change and build resilience. In developing countries, like Egypt, enhanced economic conditions and education quality and health issues are more prioritized than climate action as climate change issues are perceived as an unaffordable luxury (Eissa & Khalil, 2021).

According to the Intergovernmental Panel on Climate Change (IPCC) in 2008, climate change is defined as "any change in climate over time whether due to natural variability or as a result of human activity". Besides, climate change may lead to losses in biodiversity because of environmental conditions changes, which affect the ecosystem (El-Ramady, El-Marsafawy & Lewis cited in Book published by Eric Lichtfouse in 2013).

Moreover, regarding the awareness level of climate change among Egyptians, witnessing changes in rainfall concentration and distribution, increasing temperatures and sea level rise made some of the Egyptian become aware about climate change, while others knew about climate change from media coverage. Yet, although the media in recent years have covered this topic drastically, recent studies showed that there are misunderstandings regarding the causes and sequences of climate change and the actions to be

considered by citizens (Leiserowitz et al., 2010; Lorenzoni and Pidgeon, 2006; Reynolds et al., 2010).

The main objective of this paper is to access and evaluate Egyptians' understanding of climate change among rural versus urban communities and how this understanding is consistent or inconsistent with scientific views on this topic.

Earlier studies regarding public awareness with regards to climate change in Egypt have concluded that Egyptians suffer from poor knowledge regarding climate change as it is not comprehensively mainstreamed across media channels. Another main reason is the lack of holistic sustainable approaches among the key stakeholders for environmental initiatives and plans that consider the environmental, economic, cultural and political factors (Eissa & Khalil, 2021).

II. Theoretical Framework

This research paper used the "knowledge gap" theory which states that information is more accessible to rich people as they are exposed to various media channels than poor people and this leads to a "knowledge gap". Knowledge, like other kinds of wealth, is not distributed equally throughout the Egyptian society though huge efforts are being exerted to achieve quality education since 2018 by introducing the new education system. Individuals who are struggling with financial poverty are also often information poor. There are haves and haves-not regarding

information just as there are haves and have-nots with regard to material wealth (Gaziano, 2016).

The knowledge gap hypothesis was first introduced by Phillip J. Tichenor, George A. Donohue and Clarice N. Olien, in 1970 were they stated that as the "infusion of mass media information into a social system increase, segments of the population with higher socio-economic status tend to acquire this information at a faster rate than the lower status segments so that the gap in knowledge between these segments tends to increase rather than decrease."

The knowledge gap hypothesis assumes that people of both high and low socio-economic status will gain in knowledge as they are receiving additional information. However, the individuals of higher socio-economic status will gain more, which would indicate that the relative gap in knowledge between the well-to-do and the less well-off would increase.

According to a study published by Prof. Dina Armanious in 2018 titled "Accelerating global actions for a world without poverty: Egypt Experiences", urban Egyptians have higher socioeconomic status than rural Egyptians. Hence, when linking this outcome with this paper's theory, it is found out that individuals with higher socio-economic status living in urban communities might have more relevant social contact associates with individuals who are exposed to public affairs and science news.

In addition, the mechanisms of selective exposure, acceptance and retention to messages related to climate change might occurs. For instance, rural people who have low socio-economic status might not be interested in the kind of information, such as public affairs and science news. Besides, the nature of the mass media system itself is that it is geared toward individuals of higher socioeconomic status (Gaziano, 2016).

III. Methodology

A qualitative research method was used in this paper by conducting four focus groups to collect data. Each focus group consisted of a range of 11 to 12 participants. The study is based on the following two research hypotheses:

RH1: Urban people are more literate about climate change than rural people living in Egypt.

RH2: The older the generation, the more knowledge they have about climate change.

A total of 45 convenient sample participants were engaged in the research with the following criteria:

- Focus group one: urban people; age group 16-24 years old.
- Focus group two: urban people; age group 30-45 years old.
- Focus group three: rural people; age group 16-24 years old.
- Focus group four: rural people; age group 30-45 years old.

The focus group questions consisted of three parts. The first part was demographic questions about the participants to break the ice and help them be more comfortable while talking. Gender and age were known before the session started, so at the beginning of the session, participants were asked to introduce their name and their educational level, whether school students, university students, Bachelor holders, Masters holders or PhD holders.

The second part of the focus group questions were assessing the participants' familiarity with the climate change concept and whether their environmental conditions affect their knowledge about climate change or not. Accordingly, the questions formulated were: 1. Have you heard or read anything about global climate change? 2. How did you hear or know about climate change? 3. What is meant by climate change? 4. Have you observed any change in climate that you can recall in your memory from a young age to today?

Moving to the third part of the focus group, which examined the causes, impacts and solutions of climate change; participants were asked a couple of questions to evaluate their perceptions towards climate change impacts and what solutions they would suggest and that were tailored through the following questions: 1.What are the causes of climate change? 2.What are the solutions you would suggest for protecting ourselves and our community from climate change?

IV. Results

The first focus group was conducted among urban citizens within the age of 16 to 24 years old. This group were a combination of males and females; some of which were university students and others hold a bachelor's degree. The second group was urban citizens and their age started from 33 years old till 45 years old. The third group was rural people, and their age was 17 to 24 years old, and the last group was rural citizens aged 32 to 45 years old.

Familiarity with Climate Change Concept

All participants in the first group have heard about climate change whether through media channels especially social media platforms, through university's studies or among family talks. Some of them have even noticed it from rising sea level and the increasing in temperature degree. The participants are aware that climate change is caused by pollution and increased carbon dioxide and that all these have negative effects on human being and the environment.

However, the second urban group aged from 33 to 45 years old were more exposed to the media news and some of them hold Masters' degree and some are PhD holders who knew more about climate change from their studies and research papers. Most of the participants in this group assured that they have witnessed tremendous shift in the weather throughout the last two

decades. Some of the participants in this group knew about the scientific concept of climate change.

As for the third and fourth groups of rural Egyptian citizens, their awareness level regarding climate change were very similar. Due to their environmental conditions and most of them own lands and even the young people help their families in irrigating their lands, both groups mentioned that they have noticed the changes in the weather and that it is directly affecting their lands and crops' productivity. Both rural groups are not very aware about the scientific terminologies of climate change and its impact, yet they just noticed its agricultural impact on their lands.

In addition, when participants were asked what is meant by climate change, both urban citizens' groups replied by saying witnessing extreme changes in temperature, shifting in weather patterns as in Egypt nowadays, the winter season is too short, and the rainfall almost rarely exist. While rural participants claimed that they have witnessed some changes in the environment and ecosystem that results from changes in the climate.

Furthermore, urban participants mentioned that they have observed some changes in Egypt's climate especially in the last couple of years and this year especially, 2023, Egypt has witnessed extreme hot conditions during the summer season, which led the government to cut off the electricity in specific timing across all Egyptian regions to lessen the consumption of electricity. However, rural participants added as well that the

extreme hot weather has impacted the agriculture sector and the production of some crops as they have noticed some changes in seasonal fruits and vegetables due to differences in weather. The older age group of the rural participants added as well that during the extreme hot weather in Egypt this year, the water quantity that the farmers usually use for irrigation was not enough which had a harmful impact on the crops.

Solutions to Climate Change

Both urban and rural respondents have all agreed that to be able to solve the adverse impact of climate change on the ecosystem, the government needs to strengthen community's capacity to deal with climate change by providing the Egyptian citizens with awareness sessions about its impacts on human and environment. This can be done through workshop for adults, at schools or through university projects among the youth. Some of the participants even suggested that climate change is a crucial topic that should be considered in school syllabus. In addition, the older age group of urban participants believe that public understanding of environmental issues like climate change is not enough, yet they need to have moral responsibilities and learn about interacting with nature. Urban participants suggested as well to implement a law for factories to reduce carbon mission and save energy along with producing climate-friendly products that can be recycled or reused.

V. Discussion and Analysis

Awareness

The results indicated that familiarity with climate change scientific concept in rural areas and among the younger age group of the urban people is very low. Egyptian rural participants are aware about climate change from what they witness in temperature change and rainfall distribution, yet they are unaware of its causes and impacts or how to save the ecosystem. The younger age group among the urban participants have heard and learned about climate change, yet not to the extent of knowing its scientific explanation.

According to policy research working paper conducted by Meddison in 2007 in Egypt titled "The perception of and adaptation to climate change in Africa", Egyptian farmers can accurately detect climate change as they associate increasing temperature and decreasing rainfall with climate change; however, the farmers' awareness level is not linked to any studies. Accordingly, linking this published policy paper with this study's results, this research paper may indicate that the higher the level of education among Egyptians, the more familiarity with climate change scientific concept, which aligns with RH1 in this paper that states: urban people are more literate about climate change than rural people in Egypt.

Solutions to Climate Change

All participants among the four focus groups, conducted for this study, agreed that awareness sessions are highly recommended to be implemented across Egypt as citizens need to understand the impacts of climate change on human being and the environment. Although some of the urban university students' participants mentioned that they work on some university projects related to climate change and sustainability, yet they suggested to include the study of climate change among school syllabuses and to have moral responsibilities towards the environment. The older age group of urban participants suggested that the government should implement a law for factories to reduce carbon mission as it affects the crops' productivity.

Impacts of Climate Change

Most of the rural participants, specifically the older age group, have noticed the impact of climate change on the land crops since they have noticed some changes in the seasonal fruits and vegetables. This may assure that rural people observe changes and impacts in their local climate accurately. However, the participants of both urban groups know about the impacts of climate change on their environment, agriculture and ecosystem. Therefore, this indicates that RH2 is inaccurate as the age group of the participants is not linked to level of knowledge regarding climate change. However, the exposure to knowledge and

information regarding climate change is a key variable impacting the awareness level regarding climate change among all participants.

This reassures the applicability of the knowledge gap theory, where urban community, who are categorized as having a higher socio-economic status than rural Egyptians, are getting exposed to various media channels and gaining more information and knowledge regarding climate change than rural people.

VI. Conclusion

The study results showed that Egyptian rural community have not heard about the scientific concept of climate change, yet the environmental conditions of most of this community affected their understanding about climate change. Therefore, awareness sessions about climate change and including this crucial topic as a core module across all school syllabuses were among the participants' recommendations for this study.

However, according to a study conducted in 2000 by Bulkeley, public understanding about climate change is not only the main factor to solve this pivotal challenge, yet community's values and moral responsibilities are other significant values that should be considered as well with the awareness and knowledge needed to the public. Therefore, it is vital to learn more about climate change and include climate literacy in the educational

system and communication media with a simple language to be easily understood across all socio-economic classes.

Besides, developing a holistic sustainable approach among all the climate change key stakeholders in Egypt would drastically be beneficial to consider the negative consequences of climate change on human being and the environment. This may require including the ministry of environment, the ministry of water resources and irrigation, the ministry of education to collaborate to take the necessary actions to lessen the damages occurred or still to occur by climate change.

The study indicates as well that the Egyptian community needs to take actions towards climate resilience, which is the capacity of the Egyptian community to predict and manage climate impacts and lessen their damage. This can be attained by applying the information deficit model as the public needs to gain and comprehend more knowledge about environmental issues like climate change to initiate actions towards climate resilience (Burgess et al., 2000).

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