Global warming and its relationship to climate change and its impact on human activities in the city of Sabya.

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Abstract:
This study aims to identify the phenomenon of global warming and its relationship to climate change and its impact on human activities in the city of Sabya, which is not isolated from this phenomenon. Hence, we started to suggest the following: Research questions and hypotheses:

Is there a relationship between global warming and climate change in its impact on human activities?

Hypothesis:
There is a relationship between global warming and climate change in its impact on human activities in the city of Sabya.

procedures:
We used the observational and descriptive survey method. A questionnaire was distributed to a random sample consisting of 9 items, measurements were made with Globe tools and data visualization from the site, and we took a set of pictures illustrating climate change in Sabya city.

Results:
There is a relationship between global warming and climate change that affects human activities in the city of Sabya.

Conclusions:
There is a direct relationship between global warming and climate change that affects human activities and varies from one region to another.
This study helps to develop solutions and emphasizes the importance of studies and research to obtain solutions and results that help reduce the risk of global warming on our planet.

Terms:
Global warming: an increase in the average temperature of the atmospheric air in the lower layer of the Earth's surface.
Climate: Describes the weather over a long period of time.
Human activities: a scientific scope related to the understanding of the interaction between humans and the element of other systems.
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Abstract:

This study aims to identify the phenomenon of global warming and its relationship to climate change and its impact on human activities in the city of Sabya, which is not isolated from this phenomenon. Global warming is defined as an increase in the average temperature of the atmospheric air in the lower layer, and this phenomenon occurs when the sun’s heat is trapped in the Earth’s atmosphere after entering it.

We are beginning to suggest the following:

Research questions and hypotheses:

- Is there a relationship between global warming and climate change in its impact on human activities?
- What is the impact of global warming on human activities?

Hypothesis:

1- There is a relationship between global warming and climate change.
2- There is a direct relationship between global warming and human activities.
3- There is an effect of global warming on human activities.

Variables:

Independent: global warming
Subordinate: human activities

research aims:

Identifying the relationship between global warming and climate change and its impact on human activities in the city of Sabya by monitoring and following up on climate elements in terms of their movement and direction, the causes that lead to them, and access to results.

research importance:

The importance of the research lies in knowing the phenomenon of global warming and its relationship to the elements of climate and its impact on human activities in the city of Sabya and the consequences of it, whether drought waves or the expansion of desert areas as well as
the occurrence of agricultural disasters and the loss or lack of agricultural crops production.

**search limits:**

**Objectivity:** Global warming and its relationship to climate change and its impact on human activities.

**When:** 2022 AD.

**Location:** the city of Sabya.

**Search terms:**

**Global warming:** an increase in the average temperature of the atmospheric air in the lower layer of the Earth's surface.

**Climate:** A description of the weather over long periods, including the temperature during a particular season, the intensity of the winds, and even the amount of rain and snow falling in a particular area in a season.

**Heat:** It is one of the forms of energy accompanied by the movement of atoms or any particle that enters into the composition of matter.

**Human activities:** a scientific scope related to understanding the interaction between humans and the element of other systems, which is the profession that applies theory, principles, data and methods in design for the purpose of improving living.

**Introduction:**

Global warming is a phenomenon that causes rising temperatures, which causes the Earth's temperature to rise, making the Earth unsuitable for life on it. Global warming rates increased from the nineteenth and twentieth centuries due to the great industrial revolution in the world, which led to climate changes all over the world, affecting the weather.

Among the causes of global warming are human activities that clearly contribute to changing the climate through the human use of fossil fuels in its various forms in their activities, as the combustion of fossil fuels leads to the emission of greenhouse gases such as carbon dioxide into the atmosphere, which leads to a major change in the atmosphere. Like the amount of aerosols and clouds.
Both greenhouse gases and aerosols affect the Earth’s energy imbalance through their effect on the change in the percentage of solar radiation and infrared rays entering and leaving the atmosphere, and the different properties of gases and molecules, which leads to a rise in the Earth’s temperature.

The effects of global warming on the climate:

Changes in precipitation rates, sea level rise, increase in the number of clouds, and change in weather.

Effects of global warming on health:

Global warming affects the health of living organisms, for example, as follows: the outbreak of harmful infections and the acute epidemic of cholera in some types of seafood; Because of the high temperature of surface waters such as the oceans.
The body's ability to resist infectious viruses and infections is reduced due to the failure of agricultural crops and the spread of famine.
The prevalence of kidney stone disease resulting from drought. Studies have shown a high incidence of this disease since 1994 AD, after the rate was one person out of 20, now the rate is one person out of 11 people, and if the global temperature continues to rise, it is expected to increase number of injuries. The increase in the summer temperature and its prolongation leads to the spread of many diseases caused by mosquitoes, including infection with the West Nile virus.

Previous studies:

- In a study by Amer Rajeh Nasr in 2010 on the impact of climate characteristics on the occurrence of global warming, as it aimed to analyze the factors affecting it from emission sources and quantities, the quality of gases, climate characteristics, their variations and their environmental effects, and also tried to reveal the environmental phenomena related to the phenomenon.

- In the study of the scientist John Fourier in 1824, global warming is a complex phenomenon, as it is the result of the interaction between human causes with a group of natural factors, and it threatens the safety of life on planet Earth.
Based on previous studies, we conducted a similar study that helps improve the hypothesis that there is a relationship between global warming and climate change and its impact on human activities in Sabya.

**Materials and Method (Procedures):**

**Tools:**
- Resolution.

A - Preparation of the study tool: The research questionnaire was built, and in its final form it consisted of (9) paragraphs, and the questionnaire was distributed to a random sample.

B - The validity of the research tool: the researchers presented the questionnaire to a random sample to express their opinion on this test in terms of: its relevance to the research topic, its comprehensiveness, and the sufficiency of the number of elements to enrich the research. And its approval, and it became in its final form.

C - Stability of the research tool: The stability of the research tool (resolution) was confirmed, and high rates of stability were observed for all areas of the resolution.

**Steps:** We used observation and descriptive survey method.

- We used the GLOBE website and devices to take the temperature, humidity and atmospheric pressure to take the data, determine the location and its altitude, and notice the clouds (Fig. 1)
And visualization of temperature and cloud data at the site of Al-Mattan School and Sabya First School. (Chart 1, 2, 3, 4)

Diagram No. (1) shows the visualization of the withdrawal data for a month from 15/1/2022 - 15/2/2022 at Al-Mattan School in Sabya.

A graph (Fig. 2) showing temperature data for a year from the Globe School of Al-Mattan website.

Diagram No. (3) shows the visualization of the drawing data for a year from 1/2/2021 - 27/1/2022 at the First Secondary School in Sabya.
Diagram No. (4) illustrates the perception of temperature data for a year from 31/1/2021 - 26/1/2022 at the First Secondary School in Sabya.

- Then we used the observation while we went out and took some pictures that show the weather in different places and scattered parts of the Sabya area, and we took them in different months as well.

**Pictures illustrating global warming and its relationship to climate change Figure (2-3-4)**

When we went out on a family picnic on February 8, 2021 to the sea of Baish, we noticed a drop in sea level and very calm winds.

![The sea of the city of Bish picture (2)](image)

We noticed on February 19, 2021 in the governorate of escaping the accumulation of clouds and the movement of winds with an acceleration movement with high atmospheric pressure.

![Photo from Harroub Governorate (3)](image)
On June 17, in Fayfa governorate, we noticed heavy rain with a cold breeze and high atmospheric pressure.

![Picture from Fayfa Governorate (4)](image)

On July 22, 2021, we noticed the blowing of dust in the city of Sabya and its provinces

![A picture from the village of Al-Mattan showing dust (5)](image)

• Then we used the questionnaire.

**Show results:**

**Statistical methods:**

To achieve the objectives of the research and analyze the data collected, the arithmetic mean was used to find out the trends in the responses of the members of the research sample.

Ratios and frequencies: One of the important steps in preparing the scientific research is to determine the research sample. The researchers chose the sample in a random way, as its number reached (70) from the study population, and a random sample (50) was taken from it, representing a percentage of (80%).
Analysis and results:
From the table and the statistical graph, we note the percentage of approval degree in the study tool, the questionnaire

Table No. (1)

<table>
<thead>
<tr>
<th>paragraphs</th>
<th>descent</th>
<th>SMA</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Change in climate and your daily activities</td>
<td>I totally agree</td>
<td>80 %</td>
<td>100 %</td>
</tr>
<tr>
<td>I agree</td>
<td>54 %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>neutral</td>
<td>42 %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>disagree</td>
<td>2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>disagree</td>
<td>2%</td>
<td></td>
<td></td>
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<tr>
<td>High</td>
<td>50%</td>
<td>80%</td>
<td>100%</td>
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<tr>
<td>Average</td>
<td>46%</td>
<td></td>
<td></td>
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<tr>
<td>Weak</td>
<td>2%</td>
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<td>Weak</td>
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<td>High</td>
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<tr>
<td>Weak</td>
<td>14%</td>
<td></td>
<td></td>
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<tr>
<td>Weak</td>
<td>2%</td>
<td></td>
<td></td>
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<tr>
<td>2 There is a relationship between commercial warming and its change</td>
<td>High</td>
<td>80%</td>
<td>100%</td>
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<tr>
<td>High</td>
<td>50%</td>
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<tr>
<td>Weak</td>
<td>46%</td>
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<tr>
<td>Weak</td>
<td>2%</td>
<td></td>
<td></td>
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<tr>
<td>3 Global warming is related to infectious and epidemiological drugs</td>
<td>High</td>
<td>80%</td>
<td>100%</td>
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<tr>
<td>High</td>
<td>38%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weak</td>
<td>46%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weak</td>
<td>14%</td>
<td></td>
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<tr>
<td>4 Increasing the effectiveness of the local community.</td>
<td>High</td>
<td>80%</td>
<td>100%</td>
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<tr>
<td>High</td>
<td>48%</td>
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<tr>
<td>Average</td>
<td>38%</td>
<td></td>
<td></td>
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<tr>
<td>Weak</td>
<td>14%</td>
<td></td>
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<tr>
<td>5 Equipment and means of human activities play a role in the emission of greenhouse gases</td>
<td>High</td>
<td>80%</td>
<td>100%</td>
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<tr>
<td>High</td>
<td>50%</td>
<td></td>
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<tr>
<td>High</td>
<td>36%</td>
<td></td>
<td></td>
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<tr>
<td>Average</td>
<td>14%</td>
<td></td>
<td></td>
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<tr>
<td>6 The climatic zone causes a reduction in agricultural yields in your area</td>
<td>High</td>
<td>80%</td>
<td>100%</td>
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<td>High</td>
<td>44%</td>
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<tr>
<td>High</td>
<td>50%</td>
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<tr>
<td>Average</td>
<td>6%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 Global warming can cause natural disasters in your city.</td>
<td>High</td>
<td>80%</td>
<td>100%</td>
</tr>
<tr>
<td>High</td>
<td>52%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weak</td>
<td>42%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 Palestinian activities in global warming and affected by it.</td>
<td>High</td>
<td>80%</td>
<td>100%</td>
</tr>
<tr>
<td>High</td>
<td>40%</td>
<td></td>
<td></td>
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<tr>
<td>High</td>
<td>50%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weak</td>
<td>6%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 Variation of the region's topography is fundamental to climate change.</td>
<td>High</td>
<td>80%</td>
<td>100%</td>
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<tr>
<td>High</td>
<td>60%</td>
<td></td>
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<tr>
<td>High</td>
<td>32%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weak</td>
<td>6%</td>
<td></td>
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</tbody>
</table>

Discussion and explanation of the reasons:
From the tables and graph, we conclude that:
The results related to the study questions and their discussion as shown through the graphical forms:
Percentage of answers and opinions for the first paragraph: Through your daily activities and actions, you noticed a change in the climate in the seasons of the year.

**Figure No. (1)**

Change in climate and your daily activities

Percentage of answers and opinions for the second paragraph: There is a relationship between global warming and climate change that affects human activities in your area.

**Figure No. (2)**

There is a relationship between commercial warming and its change

Percentage of answers and opinions for the third paragraph: Global warming is related to infectious and epidemic diseases

**Figure No. (3)**

Global warming is related to infectious and epidemiological drugs
Percentage of answers and opinions for the fourth paragraph: Increasing community awareness reduces the risk of global warming.

**Figure No. (4)**

![Pie chart illustrating increasing the effectiveness of the local community.](image)

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Percentage of answers and opinions for the fifth paragraph: Equipment and means of human activities that lead to the emission of greenhouse gases.

**Figure No. (5)**

![Pie chart illustrating equipment and means of human activities play a role in the emission of greenhouse gases.](image)

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Percentage of answers and opinions for the sixth paragraph: Climate changes are causing a decrease in agricultural productivity in your area.

**Figure No. (6)**

![Pie chart illustrating the climatic zone causes a reduction in agricultural yields in your area.](image)
The percentage of answers and opinions in the seventh paragraph: Global warming can cause natural and human disasters in your city

**Figure No. (7)**

Percentage of answers and opinions for the eighth paragraph: Human activities affect and are affected by global warming.

**Figure No. (8)**

Percentage of answers and opinions for the ninth paragraph: The difference in the topography of the region is a key factor in climate change.

**Figure No. (9)**
The results highlighted during the statistical analysis some important matters:

The approval of the approval was the approval of the high approval.

I set the percentage I specified that there is a certain relationship between global warming and climate change on those activities that are related to the economic relationship at 38%. Tourism activities in Dura lead to the emission of greenhouse gases by 50%. It turns out that the contribution to the impurity is broadcast. And that the difference in the topography of the main region in climate change, which was estimated at 60%. Those products that belong to the mats.

The data of the analysis showed that there is a direct relationship between global warming and climate change that affect human activities in the city of Sabya.

And based on the observations and pictures that were taken and visualizing the temperature and cloud data in the village of Al-Mata’in in the city of Sabya (Diagram 1, 2, 3, 4) it becomes clear to us that the climate of the city of Sabya is variable and varies from one governorate to another. Rain increases, while in low locations, the opposite occurs. It varies from season to season. In summer, dust blows and temperature rises, and its effects change rainfall rates, sea level rise, increase in cloud numbers, and change in weather. This has a significant impact on the practice of human activities in the city of Sabya.

Conclusions:

In this study, we concluded that there is a direct relationship between global warming and climate change and its impact on human activities and it varies from one region to another.

There is an impact of global warming on human activities, as it affects and is affected by them.

This study helps to develop solutions and emphasizes the importance of studies and research to obtain solutions and results that help reduce the risk of global warming on our planet.
**Discussion:**

There are many studies that prove the relationship between global warming and climate change and its impact on natural and human activities in agreement with our current study, but the purpose of this study is to identify the relationship between global warming and climate change and its impact on human activities in Sabya city through monitoring and follow-up Climate elements in terms of their movement and direction, the causes that lead to them, and access to results and solutions that help reduce the risk of global warming.

In light of the conclusions we have reached in this current research, the following recommendations can be made:

- Supporting major centers such as the National Center of Meteorology and spreading ecological awareness, to preserve the environment and the ocean.

- Expanding research operations and conducting more advanced studies on the effects of global warming and its severity on the planet.

- Establishing centers for scientific research and monitoring of environmental problems by the Ministry of Environment.

- Monitoring the permanent and strict respect of environmental laws to reduce polluting emissions.

- Enhancing the use of renewable energies.

- Reducing environmental pollution and sustainable governance of human activities.

**Difficulties:**

1- Unavailability of some measurements for the study site in the Globe program.

2- Corona Covid 19 pandemic and preventive precautions, as we were unable to go out and communicate directly, and the study worked on several other sites.
Acknowledgments:

Thank you to our family who pushed us forward, and to my country, and Globe’s environmental teacher, Faizah Ibrahim Bahri, a geography major, for helping us and training us on the correct method in preparing the research, teacher Fadda Atif, with a master’s degree in science from Al Shaqiq’s middle and high school, and Ms. Kamela Muharraq, with an English major for translating the research. The science teacher, Ms. Awali Attia, Ms. Hashima Sebai, majoring in biology, and Ms. Fatima Wafi, majoring in chemistry, the lab preparer, Ms. Hanan Kharmi for help and guidance, and the teacher, Homaa Hattan, from the third secondary school in Beish. They were asked about some information about Globe, the Ministry of Health, the Ministry of Water and Environment, our school that gave us support, and the Globe program for giving us supplies.
badges:

1- Cooperation: This research was prepared in a participatory manner in all its procedures and stages, and we also cooperated with Professor Faizah Ibrahim Bahri with a Bachelor’s degree in Geography for training on how to prepare the research, and Ms. Kamela Muharraq, with an English major for research translation, and science teachers, A. Awali Attia and A. Longing seven, a. Fatima Wafi. In addition to cooperating with Ms. Najla Khawaji, the supervisor of scientific activity in the Sabya Education Department. And the cooperation between the students, Atheer Bahjar, Al-Hanouf Sebai, Amal Bahri, in translating the research into English and writing the research paragraphs, research and reading on the subject of the research, making and distributing the questionnaire, and conducting observation and data collection.

2- Communication between schools: Communication with the teacher Homaa Hattan from the third secondary school in Baish, where they were asked about some information about Globe. And communication with the teacher, Fadda Atif, a master's degree from Al-Shuqaiq Intermediate and Secondary School, regarding the question and hypothesis of the research, and communication with our colleagues from the school, the two students, Amassi Daghasi, Raghad Bahri, for their participation in the previous year.

3- The impact of the community:
The research in brief studies is a real problem that the local community suffers from, and it tries to answer the questions to reach specific results that are expected to lead to actual solutions, and this is what we recommended at the end of this research and aspire to. To be able to generalize the proposed solutions and results on a community and then global scale to all countries living in the same geographical conditions.

4- STEM (Science, Technology, Engineering, and Mathematics Specialist):
In this research, the teacher Fadda Atif, a master of science, was contacted and asked about the research hypothesis, and with the professor and trainer, A. Faizah Bahri Bachelor's degree majoring in geography for training in the method of preparing research Professor of Computer Science at the school a. Fawzia Al-Zahrani to supervise the research, as well as Professor Hashima Sebai, specializing in biology, Professor Fatima Wafi, specializing in chemistry, Professor Ashwaq
Sebai, specializing in physics, and Professor Kamela Muharraq, specializing in English for translation of the research.

5- STEM storytellers:
We shared our experience with many of our colleagues at the school level, in addition to making a questionnaire and publishing it on social media to reach the largest possible segment of society to know their opinions.

6- Data Scientist:
To answer the research questions, we relied entirely on the data we collected, analyzed it, compared it, then extracted conclusions from it, and finally came up with results that can be generalized, as well as developing the future and recommendations.
the reviewer:

- Globe 2021 Virtual Exhibition https://www.globe.gov/news-events/meetings_symposia/annual-meetings/23rd-annual-meeting

- Global Warming https://ar.wikipedia.org/wiki/


- Academic journals https://www.iasj.net/iasj/article/36847

- The difference between weather and climate (mawdoo3.com)

poster

https://drive.google.com/file/d/1FqnOM5xQQmj9qjChdRgFdbE9T3_pcCJv/view?usp=sharing

Search in Arabic

https://drive.google.com/file/d/15qS0iW8x6DtYffN__tu8FFv4ON-qQ2K/view?usp=sharing