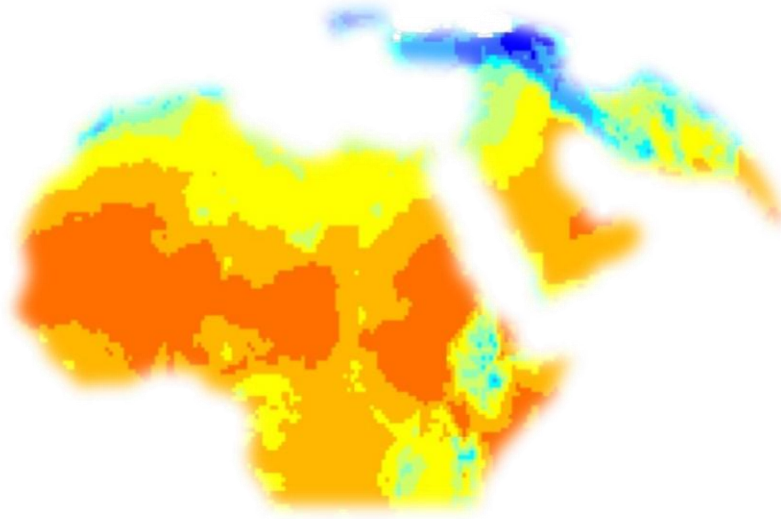




AArU Report 2022

Association of Arab Universities Survey on Global Climate Change-Related Efforts and Road Map



Report Development Team

Prof. Dr. Amr Ezzat Salama
AArU Secretary General

Prof. Dr. Hesham Mohamed El-Askary
*Professor of Remote Sensing and Earth Systems Science, Chapman University, USA
Vice President Egyptian Space Agency for Space Missions, Egypt*

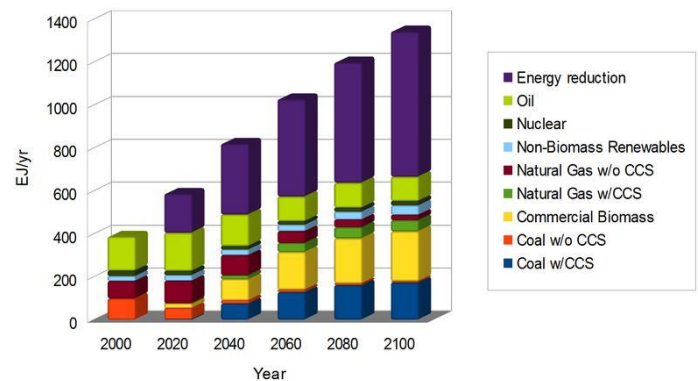
Dr. Najm Aleessawi
Head of Studies and Research Department, Secretary of AArU Journal

2022



AArU Report 2022

Association of Arab Universities Survey on Global Climate Change Related Efforts and Road Map



Executive Summary

This study aimed to identify the role of Arab universities in addressing climate change issues and stand on the research efforts that universities and researchers contributed to reducing the negative effects of climate change. Also, it aimed to explore future visions for dealing with climate development. The study adopted a descriptive approach to obtain the responses of Arab universities' professors using the questionnaire tool, distributed according to the random sample pattern, and the number of responses was 570 from various academic disciplines in the Arab world. It concluded that (22.11%) of them show extensive knowledge of greenhouse gases as the most prominent topic of climate change. It also showed that more than 80% of the participants consider climate change a threat worldwide, and 66% of them agreed that human activities caused climate change. Regarding policies to protect people from extreme events, 86.12% of participants agreed on the necessity of installing more early warning systems for disasters, providing good and affordable insurance, building infrastructure, and conserving nature to protect lives and livelihoods. Relating to the sustainable development goals, the participants focused on those related to ending poverty, quality education, justice and peace, a clean environment, and climate change.

Keywords

[Arab Universities; Climate Change; COP27; Sustainable Development Goals (SDGs)].

Introduction

Climate change is one of the most important global risks facing humanity. World leaders have been meeting annually in what is called the COP "Conference of Parties" to address that issue. Recently, more than ever climate change's impact has been observed on a local, regional, and global scale. The world has understood that addressing global climate change is a must. Last year, the COP26 meeting took place in Glasgow and highlighted the massive risks facing different parts of the world and opened the conversation for finding solutions. In 2022, COP27 will take place in Egypt and next year COP28 will take



place in the United Arab Emirates. It is an excellent opportunity for the Middle East and North Africa (MENA) region to come together through their academic institutions to highlight the risks facing our region, outline ways of mitigation, propose adaptation strategies, and ask all involved parties to take their responsibilities and rise to the urgency of the situation. In this report, a survey has been accomplished to know the Arab Universities professors' views on the state of climate change in the MENA region to be presented at the COP27 meeting.



www.aaru.edu.jo

The problem Statement

Climate change is one of the urgent threats that call for the attention and attention of academic and community institutions, and what is required in this issue is to do more worldwide. Universities represent the most prominent of those institutions that are responsible for providing scientific effort and then strategic planning to face the repercussions of climate changes at the world level, especially the changes that the Arab climate is witnessing as well.

From here, a fundamental research problem emerges that requires more research and scientific effort in order to provide solutions and help decision-makers take appropriate steps in this regard. The current report comes within this context as an Arab effort that serves the whole world. What is the role of universities in addressing climate change? What research efforts can universities and researchers provide to contribute to reducing the negative effects of climate change?

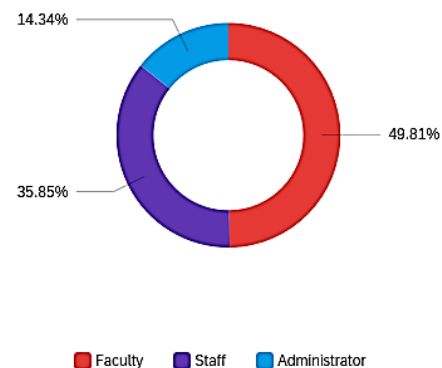
Methodology

This survey report used a descriptive approach to obtain the responses of Arab university professors using the questionnaire tool, distributed according to the random sample pattern, and the number of responses was 570 from various academic disciplines in the Arab world(see: table1).

The audience of the study is professors at Arab universities, and according to the responses, they were (49.81%) faculty, (35.85%) staff, and (14.34%) administrators.

Table 1: the participants' jobs

#	Answer	Count	%
1	Faculty	132	49.81%
2	Staff	95	35.85%
3	Administrator	38	14.34%
	Total	265	100%



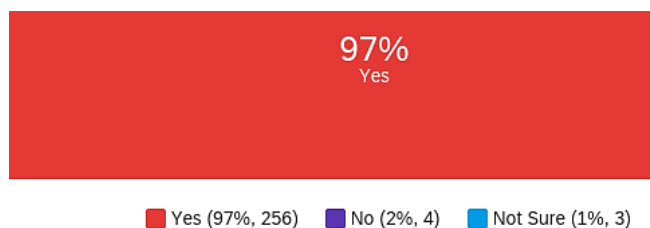
The Results

Do you believe in Climate Change?

As for whether university professors believe in the existence and impact of climate change, 97% of them admitted it. This is a significant positive indicator that contributes to ensuring at least an academic awareness of the need to interact with this topic and provide future visions on it.

Table 2: believing in Climate Change

#	Answer	Count	%
1	Yes	256	97.34%
2	No	4	1.52%
3	Not Sure	3	1.14%
	Total	263	100%

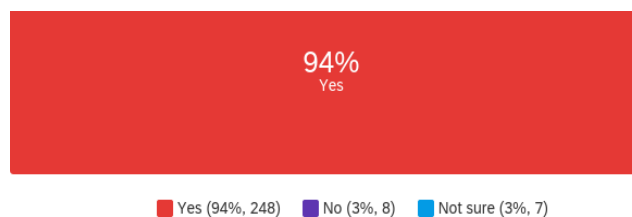


Do you think Climate Change is a problem for the MENA Region?

(94%) of Arab university professors believe that climate change is a problem for the Middle East and North Africa region.

Table 3: Is Climate Change a problem for MENA Region

#	Answer	Count	%
1	Yes	248	94.30%
2	No	8	3.04%
3	Not sure	7	2.66%



Total	263	100%
-------	-----	------

The knowledge and its effects regarding the following:

Relating to the respondents' knowledge and its effects, (22.11%) of them show their extensive knowledge of Greenhouse Gases as the most prominent topic of climate change, and (16.20%) confirm their moderately broad knowledge about it. While (8.52%) of them indicate that their knowledge is limited, and (6.67%) of them have no knowledge of that. Also, (32.06%) of respondents have very broad knowledge about Deforestation, and Moderately broad knowledge (37.80%). On another side, the results display that university professors did not have much knowledge of the El Nino subject, as (47.50%) of them don't know it at all, and (18.41%) have limited knowledge.

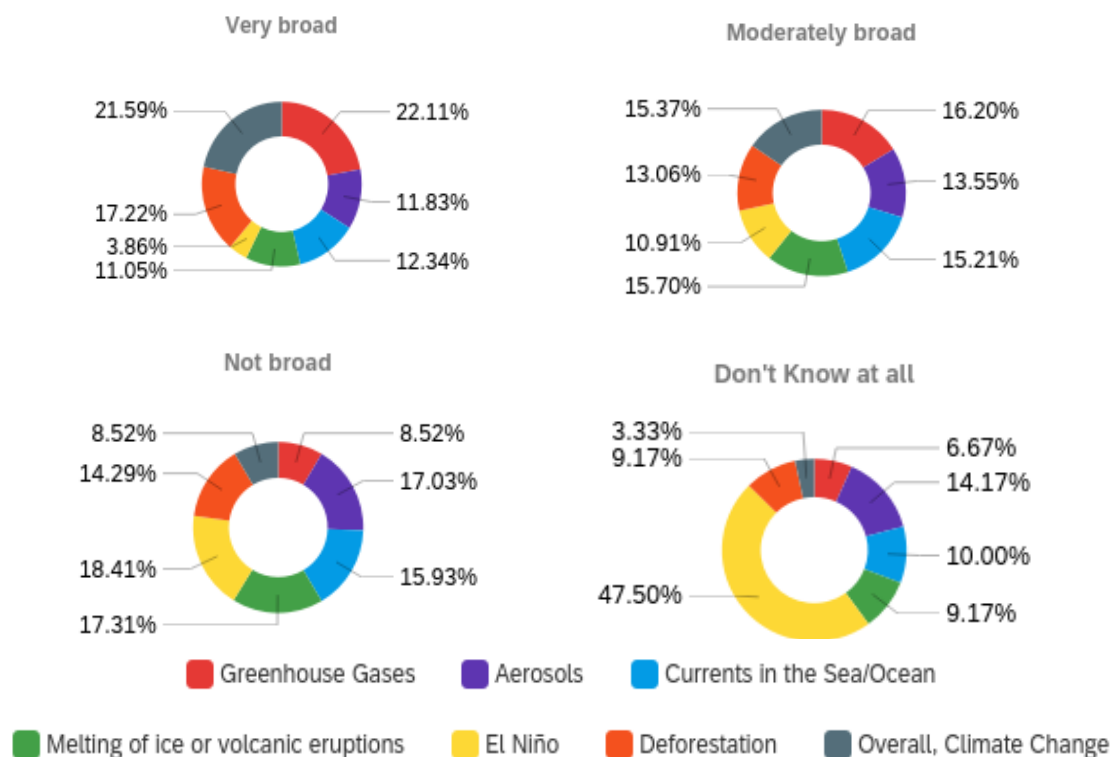


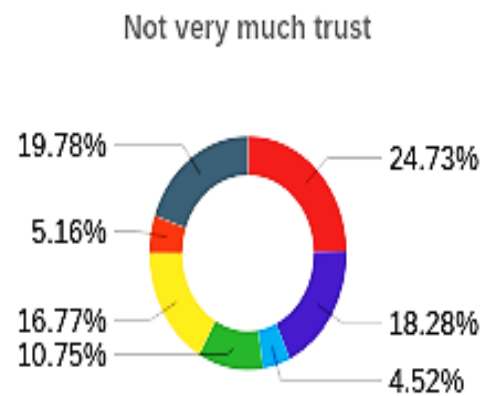
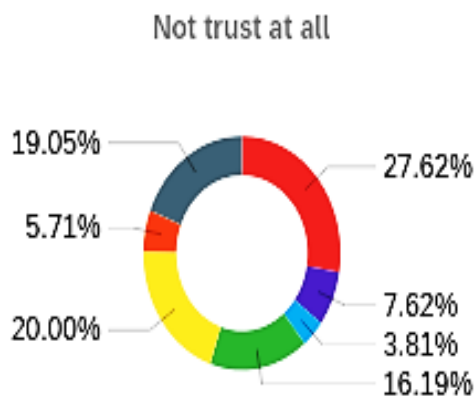
Table 4: The Knowledge and its effects regarding

#	Question	Very broad		Moderately broad		Not broad		Don't Know at all		Total
1	Greenhouse Gases	38.57%	86	43.95%	98	13.90%	31	3.59%	8	223

2	Aerosols	22.22%	46	39.61%	82	29.95%	62	8.21%	17	207
3	Currents in the Sea/Ocean	22.86%	48	43.81%	92	27.62%	58	5.71%	12	210
4	Melting of ice or volcanic eruptions	20.28%	43	44.81%	95	29.72%	63	5.19%	11	212
5	El Niño	7.32%	15	32.20%	66	32.68%	67	27.80%	57	205
6	Deforestation	32.06%	67	37.80%	79	24.88%	52	5.26%	11	209
7	Overall, Climate Change	39.62%	84	43.87%	93	14.62%	31	1.89%	4	212

The trust on information about Climate Change

Regarding Arab university professors' trust in the sources of information on climate change, scientists were in the first place with (55.56%) full trust, and (32.87%) lot of trust, which constitutes more than 88% confirming their trust in the scientists. In second place were environmental organizations with (42.92%) full trust and (43.38%) lot of trust. It is followed by Government bodies with percentages of (31.82%) full trust, and (37.73%) lot of trust, which constitutes more than half of the sample confirming their trust in the information received from government agencies on climate change.



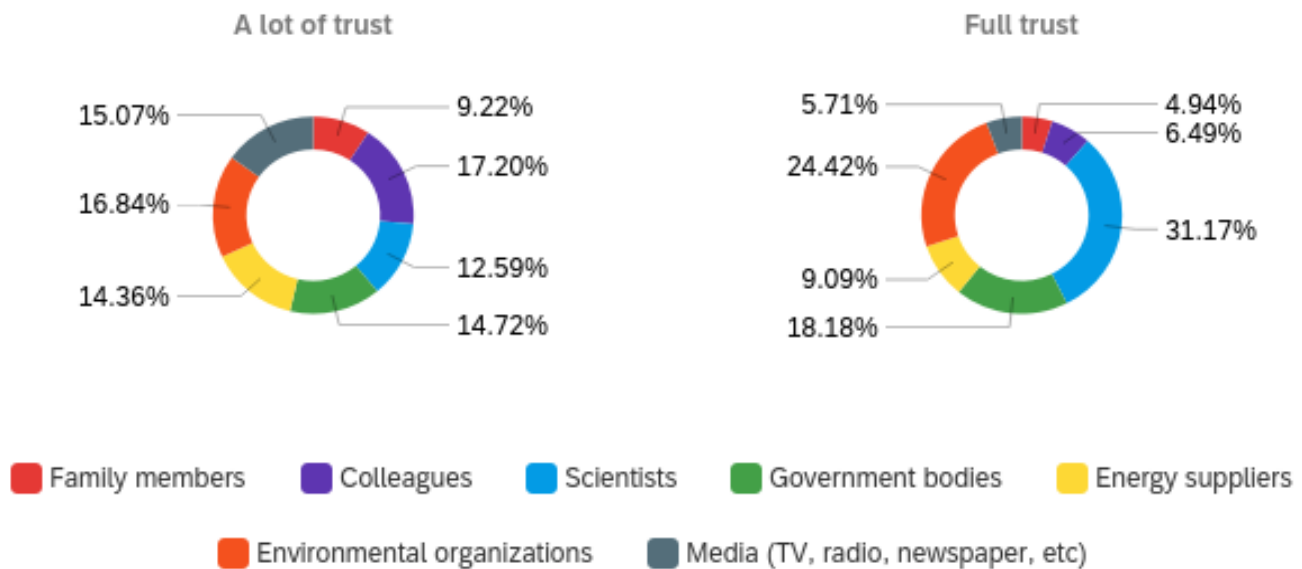


Table 5: The Trust on Information about Climate Change

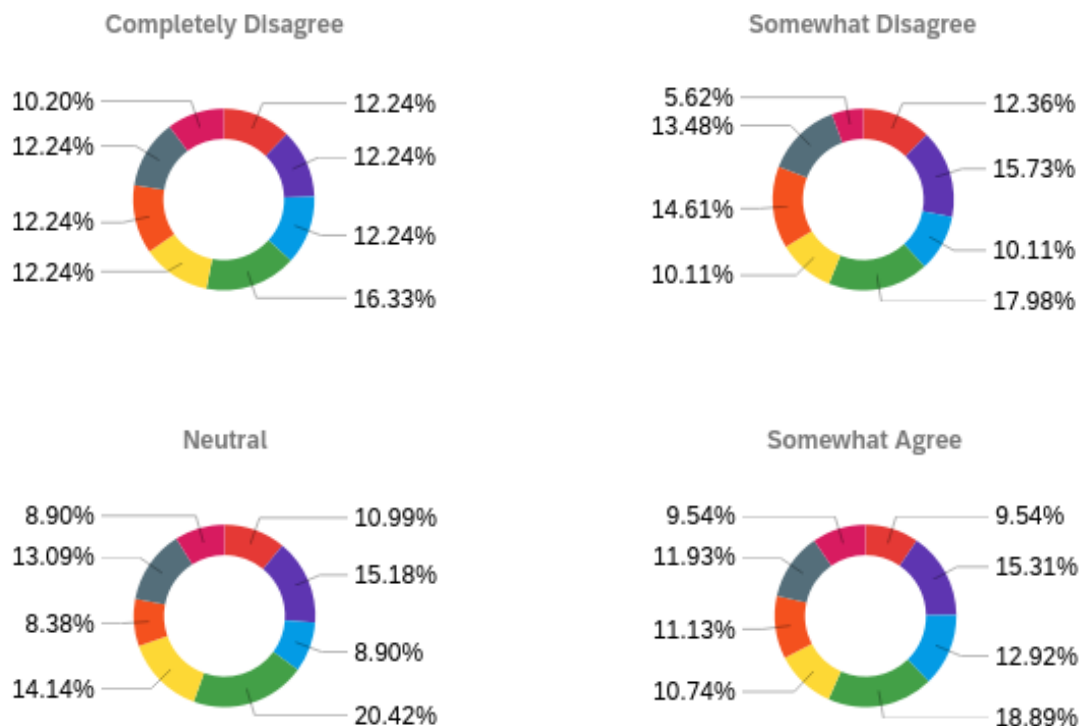
#	Question	Not trust at all		Not very much trust		A lot of trust		Full trust		Total
1	Family members	13.49%	29	53.49%	115	24.19%	52	8.84%	19	215
2	Colleagues	3.72%	8	39.53%	85	45.12%	97	11.63%	25	215
3	Scientists	1.85%	4	9.72%	21	32.87%	71	55.56%	120	216
4	Government bodies	7.73%	17	22.73%	50	37.73%	83	31.82%	70	220
5	Energy suppliers	9.77%	21	36.28%	78	37.67%	81	16.28%	35	215
6	Environmental organizations	2.74%	6	10.96%	24	43.38%	95	42.92%	94	219
7	Media (TV, radio, newspaper, etc)	9.13%	20	42.01%	92	38.81%	85	10.05%	22	219

Statements regarding global warming and climate change

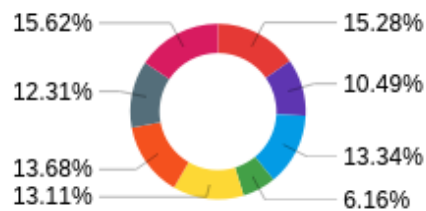
60.91% of the respondents completely agreed that climate change poses a severe threat to people around the world, and 21.82% of them somewhat agreed. This means that more than 80% of the participants consider climate change a threat worldwide. 42.20% of respondents completely agreed that climate change poses a severe threat to you and your family and 35.32% somewhat agreed with such. This means that more than 77% of the participants believe that climate change is also a severe threat to the family.

On the other hand, 54.67% of the participants fully agreed that human activities caused climate change, and 30.37% believed so to somewhat agreed. 44.81% somewhat agreed that problems and their impact are underestimated in the news, and 25.47% completely agreed, which means a total of 66% of the participants.

And about how much climate change means, 54.50% of respondents completely understand, and 25.59% somewhat understand that. As for whether Climate change is happening right now, 56.87% of the participants confirmed that exactly, and 26.54% agreed to some extent. 51.18% of participants are fully prepared for reducing energy usage to tackle climate change with 28.44% being somewhat prepared. Regarding the participants' knowledge of climate changes compared to previous periods, 64.62% of them fully confirmed that the global temperatures have changed compared to the previous decade, along with 22.64% who confirm this to some extent, which means that 87% of Arab university professors know that there is a change in temperature.



Completely Agree



- It poses a serious threat for people around the world
- It poses a serious threat to you and your family
- It is caused by human activities
- Problems and its impact are underestimated in the news
- You completely understand what climate change means
- Climate change is happening right now
- I am ready to reduce my energy usage to tackle climate change
- The global temperatures have changed compared to the previous decade

Table 6: Statements regarding global warming and climate change

#	Question	Completely Disagree		Somewhat Disagree		Neutral		Somewhat agreed		Completely agreed		Total
1	It poses a serious threat for people around the world	2.73%	6	5.00%	11	9.55%	21	21.82%	48	60.91%	134	220
2	It poses a serious threat to you and your family	2.75%	6	6.42%	14	13.30%	29	35.32%	77	42.20%	92	218
3	It is caused by human activities	2.80%	6	4.21%	9	7.94%	17	30.37%	65	54.67%	117	214
4	Problems and its impact are underestimated in the news	3.77%	8	7.55%	16	18.40%	39	44.81%	95	25.47%	54	212
5	You completely understand what climate change means	2.84%	6	4.27%	9	12.80%	27	25.59%	54	54.50%	115	211



6	Climate change is happening right now	2.84%	6	6.16%	13	7.58%	16	26.54%	56	56.87%	120	211
7	I am ready to reduce my energy usage to tackle climate change	2.84%	6	5.69%	12	11.85%	25	28.44%	60	51.18%	108	211
8	The global temperatures have changed compared to the previous decade	2.36%	5	2.36%	5	8.02%	17	22.64%	48	64.62%	137	212

Statements about climate change

49.32% of the participants completely agreed that each one of us can reduce the effects of climate change, and 29.68% of them agreed to some extent that, and accordingly 79% of Arab university professors agree that everyone in society has a role in reducing the rates of vulnerability to climate change.

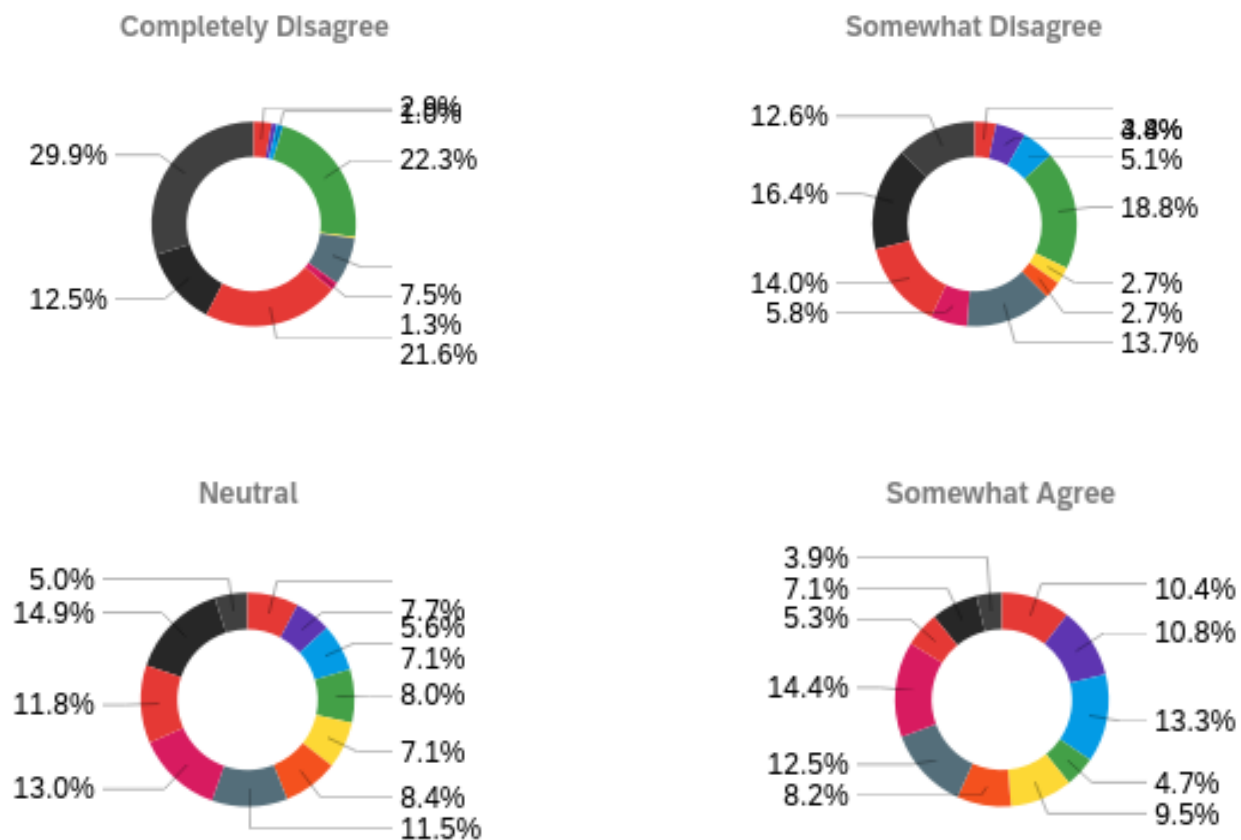
Regarding energy usage, 52.34% of the participants completely agreed that it is mandatory to reduce energy usage if it reduces climate change, and 31.31% agreed with them to some extent, that means; more than 80% think it is necessary. It was found that 41.59% of respondents confirmed that Climate change is bound to happen because of the current modern society, and 38.79% of respondents agreed with them to some extent. That is, nearly 80% of Arab university professors believe that.

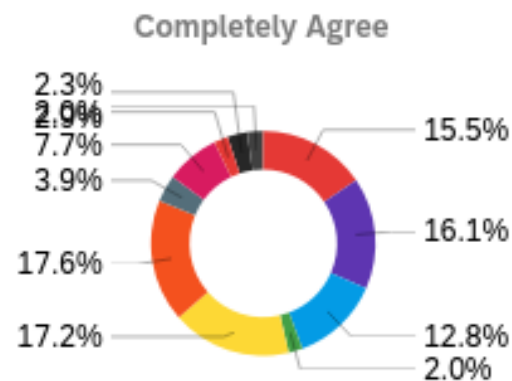
As for whether Climate change is a natural phenomenon that we cannot do anything about it or not, about 67% (40.95% completely agreed, 26.19% agree to some extent), it means that they emphasize the ability of doing something about it. Besides, more than 80% (56.87% completely agreed, 27.96% somewhat agreed) agreed that the government should increase the incentives for people who try to reduce climate change. More than 80% of participants (58.85% completely agreed, 24.40% somewhat agreed) were willing to promote a greener environment and participate in initiatives to reduce climate change.

The professors' responses varied about the main cause of climate change, but about 49% of them (12.80% completely agreed, and 36.97% agreed to some extent) that the cause was

pollution, while more than 31% (13.74% completely disagree and 18.96% somewhat disagree) refused that pollution was the cause of climate change. Moreover, 68% of the participants (25.96% completely agreed, 43.27% somewhat agreed) agreed that recent global disasters are because by climate change, compared to 10% who see the opposite.

Is climate change a topic that the media exaggerate, and is it not an important topic? On this question, more than 58% disagreed (39.71% totally disagree, 19.62% disagreed somewhat), on another side, there are about 22% of them agreed. As for whether there are more important topics than climate change, more than 46% of the professors disagreed (23.08 completely disagreed, 23.08% disagreed to some extent), while more than 30% agreed with that (9.62% completely agreed), 1.15% agreed to some extent), while 23.08% selected the neutral choice. More than 72% of university professors (55.29% completely disagreed, 17.79% somewhat disagreed) disagreed to consider cutting down trees to build infrastructure is not a bad thing.





- ☒ Each one of us can reduce the effects of climate change
- ☒ It should be mandatory to reduce energy usage if it reduces climate change
- ☒ Climate change is bound to happen because of the current modern society
- ☒ Climate change is a natural phenomenon, we can't do anything about it
- ☒ The government should increase the incentives for people who try to reduce climate change
- ☒ I will promote a greener environment and participate in initiatives to reduce climate change
- ☒ Climate change is only because of the pollution from industries
- ☒ Recent global disasters are because of climate change
- ☒ The climate change topic is exaggerated by the media, in fact it is not that big of a deal
- ☒ There are more important matters than climate change
- ☒ Cutting down trees to build infrastructure is not a bad thing

Table 7: Statements about climate change

#	Question	Completely Disagree		Somewhat Disagree		Neutral		Somewhat agreed		Completely agreed		Total
1	Each one of us can reduce the effects of climate change	5.02%	11	4.57%	10	11.42%	25	29.68%	65	49.32%	108	219
2	It should be mandatory to reduce energy usage if it reduces climate change	1.40%	3	6.54%	14	8.41%	18	31.31%	67	52.34%	112	214
3	Climate change is bound to happen because of the current modern society	1.87%	4	7.01%	15	10.75%	23	38.79%	83	41.59%	89	214
4	Climate change is a natural phenomenon, we can't do anything about it	40.95%	86	26.19%	55	12.38%	26	13.81%	29	6.67%	14	210
5	The government should increase the incentives for people who try to reduce climate change	0.47%	1	3.79%	8	10.90%	23	27.96%	59	56.87%	120	211
6	I will promote a greener environment and participate in initiatives to reduce climate change	0.00%	0	3.83%	8	12.92%	27	24.40%	51	58.85%	123	209
7	Climate change is only because of the pollution from industries	13.74%	29	18.96%	40	17.54%	37	36.97%	78	12.80%	27	211
8	Recent global disasters are because of climate change	2.40%	5	8.17%	17	20.19%	42	43.27%	90	25.96%	54	208
9	The climate change topic is exaggerated by the media, in fact it is not that big of a deal	39.71%	83	19.62%	41	18.18%	38	15.79%	33	6.70%	14	209
10	There are more important matters than climate change	23.08%	48	23.08%	48	23.08%	48	21.15%	44	9.62%	20	208
11	Cutting down trees to build infrastructure is not a bad thing	55.29%	115	17.79%	37	7.69%	16	11.54%	24	7.69%	16	208

The role of certain entities in taking initiatives to reduce climate change

The responses of the participants varied as to which entities are most involved in introducing initiatives to reduce the effects of climate change. 66.67% of the respondents confirmed that “environmental groups” are the organizations that provide initiatives to reduce the effects of climate change, followed by “international organizations” with 64.49%, then “national government” at 46.70%, followed by “regional government” with 45.75%, then “corporations” and industries” by 35.05%, and finally “Citizens themselves” by 34.27%.

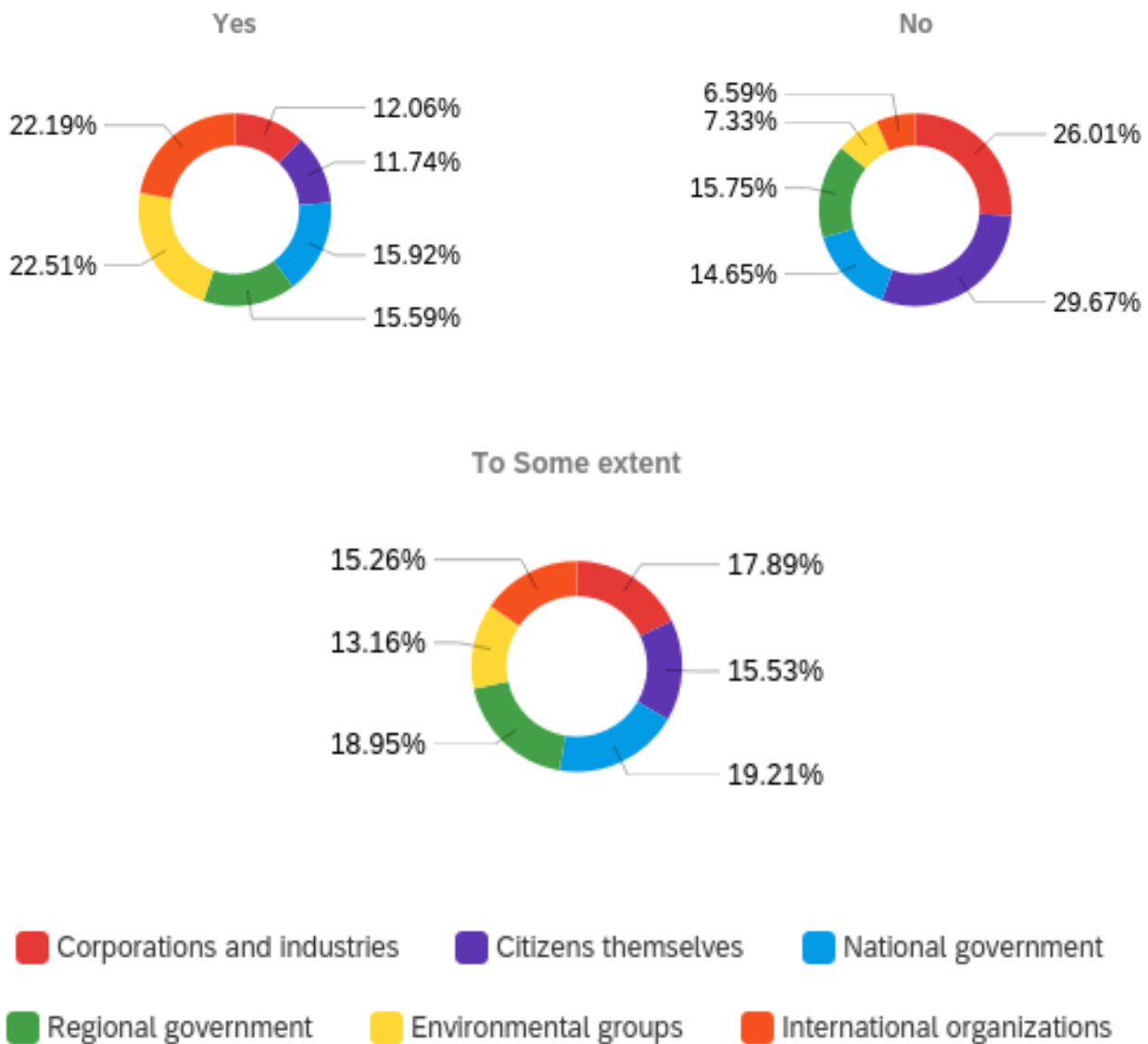




Table 8: The role of certain entities in taking initiatives to reduce climate change

#	Question	Yes		No		To Some extent		Total
1	Corporations and industries	35.05%	75	33.18%	71	31.78%	68	214
2	Citizens themselves	34.27%	73	38.03%	81	27.70%	59	213
3	National government	46.70%	99	18.87%	40	34.43%	73	212
4	Regional government	45.75%	97	20.28%	43	33.96%	72	212
5	Environmental groups	66.67%	140	9.52%	20	23.81%	50	210
6	International organizations	64.49%	138	8.41%	18	27.10%	58	214

The policies or initiatives that are taken by organizations to reduce climate change

46.67% of the respondents confirmed that their organizations have policies or initiatives that are taken by organizations to reduce climate change/global warming, while 22.22% of them answered “No”, while 31.11% of them are not sure whether their organization has initiatives or not. The professors mentioned some examples for these policies or initiatives such as:

- Encouraging Energy Efficiency in building codes. Like the LEAD Certificate, and Green Pyramids certificate in Egypt.
- Building wind and solar farms.
- Observations of the raising of sea levels.
- Support the scientific research and academic events to study climate change effects and challenges.
- Paris Agreement. Kyoto protocol Forth IPCC report of 2007 COP26
- The university encourages researchers to this point
- Renewable energy (solar energy)
- The new technology of extracting crude oil.
- Transformation to clean energy through the use of solar, wind energy, etc.
- Reducing the use of plastic and similar materials.
- Increasing the processes of recycling.
- United Nations Paris Climate Agreement
- The United Nations Environment Programme (UNEP) The World Environment Day Oscar Award for the Best documentary feature film was given to “An Inconvenient

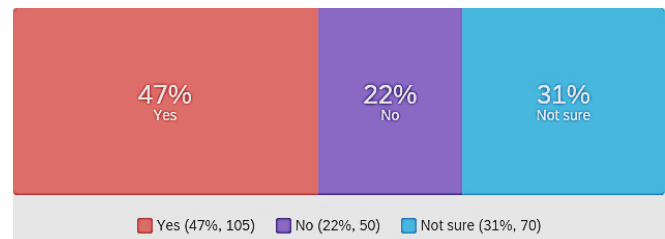


Truth”, a documentary film about global warming, ASEAN Agreement on Transboundary Haze Pollution

- advertising, courses
- Google Starbucks DHL
- The National Climate Change Adaptation Plans
- we have a project in partnership with Oxfam entitled" Supporting vulnerable and affected Palestinian communities to transition to more resilient, sustainable, and equitable economic growth in the Gaza Strip and the Jordan Valley.
- Environmental Impact Assessment
- Depending on green technology
- Cultivation of green spaces
- Carbon reduction
- Gas imitations agreement

Table 9: The policies or initiatives

#	Answer	%	Count
1	Yes	46.67%	105
2	No	22.22%	50
3	Not sure	31.11%	70
	Total	100%	225



The Environmental policies

42.15% of the participants confirmed that there are national initiatives to reduce climate change in their countries, while 23.32% of them don't aware of any initiatives and policies in this regard, and 34.53% of them are not sure. As for the participants who confirmed the existence of initiatives of this kind, and referred to some of them, such as:

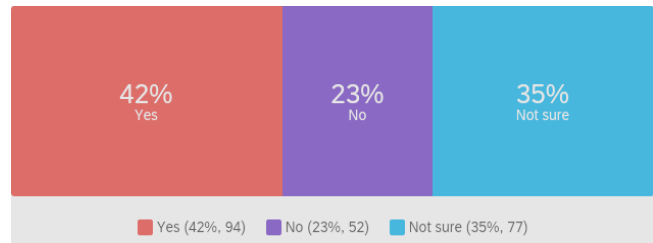
- Encouraging renewable energy and green activities.
- Support scientific projects that deal with the topic.
- Standards for different emissions by industries and transportation
- Adaptation strategies for water resources Management

- Protection of some sea animals Reduction of energy consumption some actions are taken in forest Using of renewable energy
- transformation to green economy. green energy, green hydrogen preparing & hosting cop27
- Regulations against throwing litter from a car window
- dumping trash in open areas is illegal
- controlling the co2 emissions in industrial sector
- Reducing exhaust from industry Getting rid of waste
- rising sea level in the Southern Iraq. 2. dust storm and drought.
- Transformation to clean energy using solar, wind energy, etc.
- Reducing the use of plastic and similar materials.
- Increasing the processes of recycling.
- Royal Decree No. 114/2001 promulgating the Environmental Protection and Pollution Control Law Ministerial Decision Number 118/2004 is for the Control of Air Pollution from Stationary Sources.
- AlRyadh Green The use of natural sources of energy
- Ministry of Environment Strategic Plan (2020-2022)
- Kingdom of Bahrain environment's organization initiatives.
- Alba Bapco
- The National Climate Change Adaptation Plan of Jordan - 2021
- Palestinian Environmental Law
- Only research and university conferences
- Afforestation plan to help reduce Co2 by 2035
- Environmental Law beside the renewable energy action plan
- The Ministry of Environment and the agricultural relief agency
- environmental policy, marine police, water police and son
- The government stopped cutting trees
- Policies regarding deforestation



Table 10: The environmental policies

#	Answer	Count	%
1	Yes	94	42.15%
2	No	52	23.32%
3	Not sure	77	34.53%
	Total	223	100%

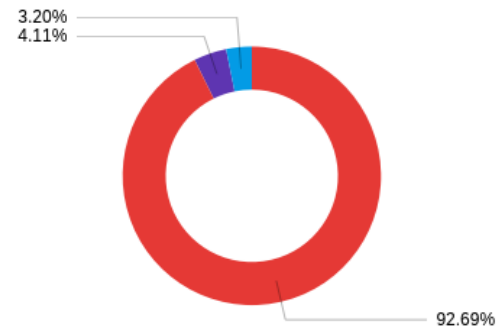


Energy Policies

Regarding several energy policies and strategies such as: the usage of solar, wind, and renewable power, waste less energy in homes, buildings, and factories, stop burning fuels that pollute and others, 92.69% of respondents agreed that these policies should be adopted to mitigate the effects of climate change.

Table 11: The energy policies

#	Answer	Count	%
1	Yes	203	92.69%
2	No	9	4.11%
3	Other policies you know of	7	3.20%
	Total	219	100%



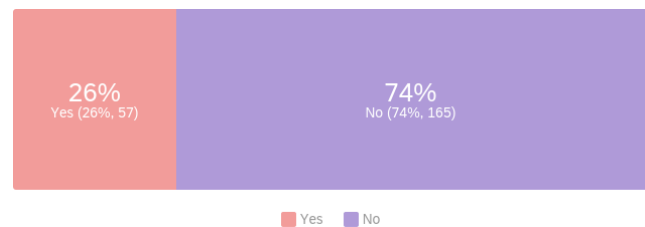
Yes No Other policies you know of

The past research related to energy policies?

Only 25.68% of Arab university professors confirmed that they have completed or are in the process of completing a study or research related to climate change, compared to 74.32% of them who have no previous or current study on the subject. Not all professors may be within the scientific disciplines close to the topics of climate change, but this percentage indicates the weakness of scientific interest in the subject, as climate change is in fact a common issue that can be addressed and studied by all disciplines, whether scientific, humanitarian or social and cognitive or applied ones.

Table 12: The past research related to energy policies

#	Answer	%	Count
1	Yes	25.68%	57
2	No	74.32%	165
	Total	100%	222



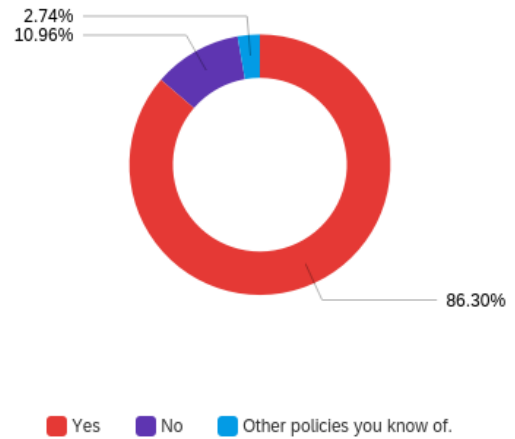
Yes No

Economic Policies

Regarding economic policies such as investing more money in green businesses and jobs, requiring more information on how products are made, and make companies that pay for their pollution and others, 86.30% of Arab university professors affirm their importance and necessity to adopt them, compared to about 11%, it doesn't see fit.

Table 13: The economic policies

#	Answer	Count	%
1	Yes	189	86.30%
2	No	24	10.96%
3	Other policies you know of.	6	2.74%
	Total	219	100%

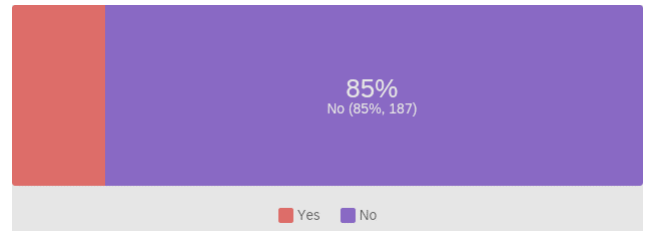


The past research related to economic policies

If any of the participants are ongoing or done in past research related to economic policies, only 14.61% confirmed that, while 85.39% of them did not work and are not working on any of that.

Table 14: The past research related to economic policies

#	Answer	Count	%
1	Yes	32	14.61%
2	No	187	85.39%
	Total	219	100%

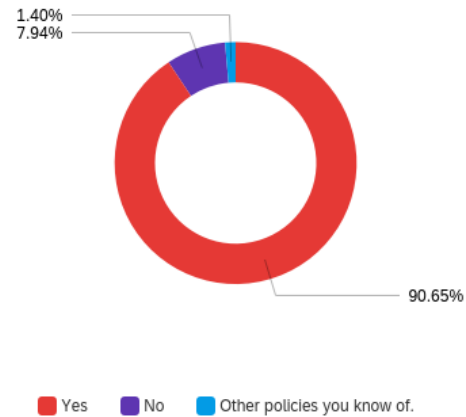


Transportation Policies

About transportation policies such as using more clean electric cars and buses, or bicycles, transporting goods on planes, ships, trains and trucks that run on clean energy, Improving the design of cities and rural communities, others, 90.65% of participants agreed on necessity of adopting them.

Table 15: The Transportation policies

#	Answer	Count	%
1	Yes	194	90.65%
2	No	17	7.94%
3	Other policies you know of.	3	1.40%
	Total	214	100%



Other transportation-related policies:

- Investigating new self-energy-generating technologies for green vehicles.
- using public and collective means of transportation - sharing private cars
- Monorail in Egypt. Public transportations using clean energy. New electric cars produced in Egypt.
- Monorail in Egypt Public transportation using clean energy New electric cars produced in Egypt
- Green Taxi
- Subsidies for clean energy adoption must be stated, better streets and traffic management
- cars with clean energy such cars with water
- electric car project in Egypt
- Maybe using solar energy for cars
- cars must have a catalyzer in order to reduce carbon emissions
- controlling the gas emissions from burning fuel
- encouraging using gas instead of petrol oil in buses and personal cars.
- incentives to carpooling and mass transportation & clean energy vehicles , like dedicated lines , favored parking , special license plates, etc.
- Public transportation



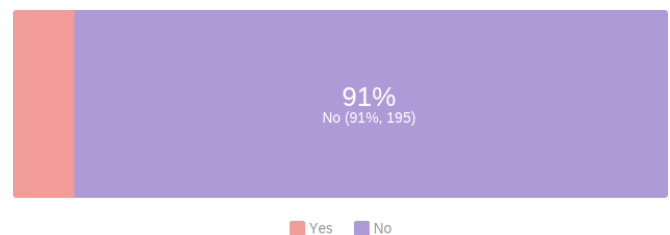
- Metro & undergrounds
- Polluters must pay: companies using fossil energy must be highly taxed to push corporations towards the use of renewable energy.
- Promoting investment in sustainable urban transport through funds and carbon market, by analyzing the evolution of climate-based finance mechanisms and opportunities.
- Transportation: Policies should adopt using more clean electric cars and buses, or bicycles, Transport good on planes, ships, trains and trucks that run on clean energy, Improve the design of cities and rural communities, others. Do you agree with the above-listed policies?
- Through the emission from combustion of fossil derived fuels transportation system contribute to degraded air quality as well as changing climate, transportation also leads to noise pollution water pollution and affects ecosystem through multiple direct and indirect interaction
- Work to modify some behaviors related to transportation, such as not using private transportation to places that can be reached by walking
- transformation of oil flue cars to bio gas
- Electricity tram using wind and solar energy
- escalators
- Smart Transportation
- Electric cars and bikes

The past research related to transportation policies

If any of the participants are ongoing or done in past research related to transportation policies, only 9.30% confirmed that, while 90.70% of them did not work and are not working on any of that.

Table 16: The past research related to transportation policies

#	Answer	Count	%
1	Yes	20	9.30%
2	No	195	90.70%
	Total	215	100%

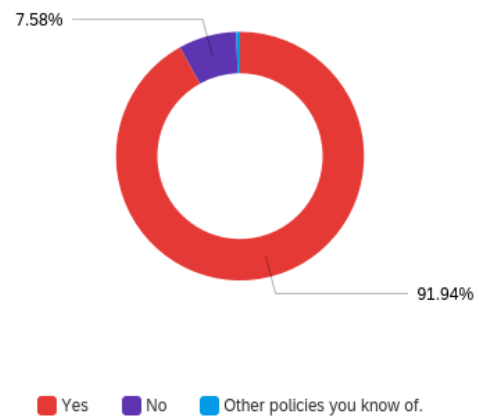


Policies of Farms and food

Regarding farms and food policies such as using climate-friendly farming techniques; reducing food waste, and promoting plant-based diets, others, 91.94% of participants agreed on the necessity of adopting them and working to achieve them, while 7.58% of the professors do not agree with that.

Table 17: The Policies of Farms and food

#	Answer	Count	%
1	Yes	194	91.94%
2	No	16	7.58%
3	Other policies you know of.	1	0.47%
	Total	211	100%



Other farm and food-related policies

- Reduce using of pesticides - Reduce using of fertilizers - Cleaning water channels - Reduce heavy substances in water and soil - Applying modern irrigation

healthy Food, reduce eating meet

Preventing of rice straw. New method for irrigation of rice in order to decrease the amount of emissions.

Preventing burning of rice straw. New methods for irrigation of rice in order to decrease the amount of emissions.

Education program for thr importance of good blanaced diet and healthy diet

Health Education

it is reduce and recycle

Reduce burning fire

Sugar industry

DDT usage is not allowed

Wast of food factory used for Antioxidant extract



effect of Air temperature (Mean, Max, and Min) on acculture.

Reduce pesticides usage

We must urgently bring back the local seeds and ban GMOs. corporations using fraudulent marketing techniques to deepen farmers' dependency on their products must be fined.

stop using pesticides

climate-smart agricultural policies

Preventing cutting of trees - Expanding the cultivation of lands - Preserving biodiversity - Reducing desertification - Stop wasting food consumption

Climate change is expected to threaten food production food quality food prices and distribution system .many crop yields are predicted to decline because of the combined effects of change in precipitation more frequent and severe weather events and increasing competition from weeds and pests on crop plants

planting low water requirement crops, Most importantly, maximize the reuse of treated wastewater

control pesticides, reduce the uses of chemical fertility, reduce irrigation in water salts

Using biological controls Using biofertilizers Using biogases Using bioremediations

Biomass

Establish basic infrastructure for food security

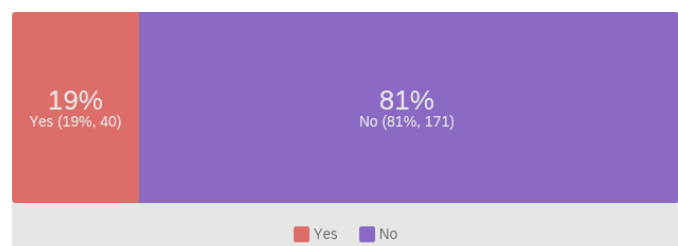
Smart farms and agriculture

The past research related to farm and food policies

If any of the participants are ongoing or done in past research related to farm and food policies, only 18.96% confirmed that, while 81.04% of them did not work and are not working on any of that.

Table 18: The past research related to farm and food policies

#	Answer	Count	%
1	Yes	40	18.96%
2	No	171	81.04%
	Total	211	100%



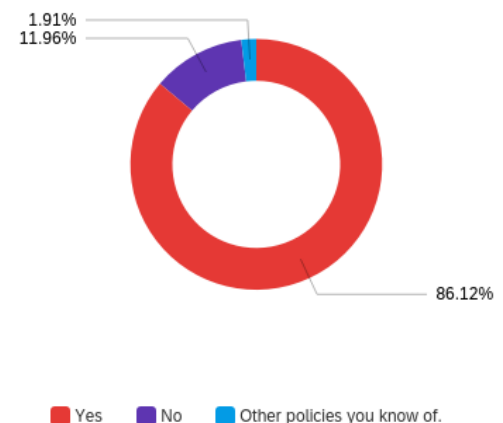
Protecting People from extreme events:

Policies should adopt installing more early warning systems for disasters, providing good and affordable insurance, building infrastructure and conserve nature to protect lives and livelihoods, others. Do you agree with the above-listed policies?

Regarding Protecting People from extreme events policies such as installing more early warning systems for disasters, providing good and affordable insurance, building infrastructure and conserve nature to protect lives and livelihoods, others, 86.12% of participants agreed on the necessity of adopting them and working to achieve them, while 11.96% of the professors do not agree with that.

Table 19: The policies of Protecting People from extreme events

#	Answer	Count	%
1	Yes	180	86.12%
2	No	25	11.96%
3	Other policies you know of.	4	1.91%
	Total	209	100%



Other policies of protecting people from extreme events related policies.

Aware people by disaster plan and developing programs to learn people how to deal with extreme events

intelligent control of garbage's and disasters

Protection from harmful fumes and harmful rays.

sharing information

Preventing wars - love - cooperation - non-discrimination - helping poor countries - education and culture - eliminating poverty - preventing extremist and biased ideas and preventing intellectual pollution

FEMA Flood zone policies

Increasing environmental awareness and enhancing the media role of society through the university and its media activities

flood disaster, drought disaster, storms and so on

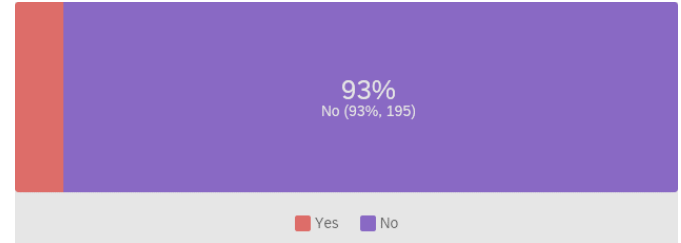
Mask wearing

The past research related to protecting people from extreme events policies

If any of the participants are ongoing or done in past research related to protecting people from extreme events policies, only 7.14% confirmed that, while 92.86% of them did not work and are not working on any of that.

Table 20: The past research related to protecting people from extreme events policies

#	Answer	%	Count
1	Yes	7.14%	15
2	No	92.86%	195
	Total	100%	210

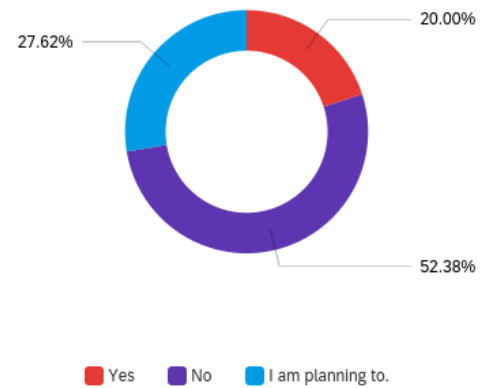


The prior research related to Climate Change

As for the professors having any prior research related to Climate Change, 20.0% of them answered “yes”, compared to 52.38% who denied having research related to this matter, and 27.62% of them indicated that they are planning to do a study related.

Table 21: The prior research related to Climate Change

#	Answer	Count	%
1	Yes	42	20.00%
2	No	110	52.38%
3	I am planning to.	58	27.62%
	Total	210	100%



The issues that have been addressed in research.

Energy Efficiency and sustainable technology in built environment. Using broken solar cells in building envelopes.

Reduction of energy utilization and use of clean energy

Using technology to improve the use of energy as a step of living with the climate change

Dust pollution caused by traffic and trains

About heritage in Egypt



Climate change in Egypt in term of presentation and temperature and also for blue Nile basin using regional climate model

Water Desalination using Solar Energy Traffic Noise pollution

About climate change global warming, mean gas's, green houses affect, how to reduce climate change by using another energy such as wind solar energy

Using multi axis textile in filters.

water quality carbon stock air pollution agriculture Diversity

Impact of climate change on natural resources

Rising air temperature

co2 emission and crude oil

Empirical analysis of CO2 emission using EKC model in Iraq

Effect of climate on soil moisture and dust emissions

water scarcity

Time series analysis of national meteorological data to detect climate change in jordan

Water purification Wastewater treatment air, and soil contaminants removal

impress

Green human resource management practice Environmental performance Pro environmental activities

Modeling climate change by using WEAP model

Wastewater treatment and GHGs emissions

Urban Heat Island Phenomenon

Carbon Dioxide Emission from Traffic and Its Impact on Micro-climate Change in Gaza City, Palestine Traffic emissions are a major source of air pollution in most urban areas affecting public health and the climate.

recurrence of drought

Dust and impact on solar energy

Coastal monitoring using remote sensing to evaluate coastal erosion, sea level rise. Mapping the waste water effluent in coastal water

a desk review to address the climate change challenges in Gaza Strip

Determination of Suitable Types of Solar Cells for Optimal Outdoor Performance in Desert Climate.

Local adaptive variation in plant functional traits. Conservation biology of endangered plant species. Chang in distribution and floristic composition of vegetation

Design Criteria for the Floating Walkways and Pontoons considering the Extreme Climatic Conditions

Some related papers on solar and wind energy.

Climate Change data

On if the professors have explored any Climate Change data, 30.73% answered “yes”, compared to 51.71% who answered “No”, and 17.56% of them indicated that they thought about it.

Table 22: The Climate Change Data

#	Answer	%	Count
6	Yes	63	30.73%
7	No	106	51.71%
8	I thought about it.	36	17.56%
	Total	205	100%

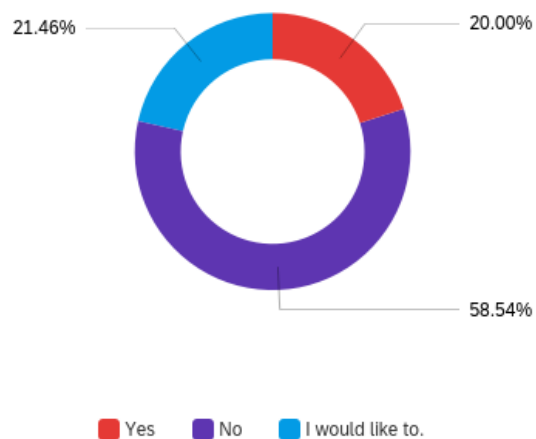


Climate Change projects

On if the professors have ever worked on Climate Change projects, 20.0% answered “yes”, compared to 58.54% who answered “No”, and 21.46% of them indicated that they would like to.

Table 23: The Climate Change Projects

#	Answer	%	Count
6	Yes	41	20.00%
7	No	120	58.54%
9	I would like to.	44	21.46%
	Total	205	100%

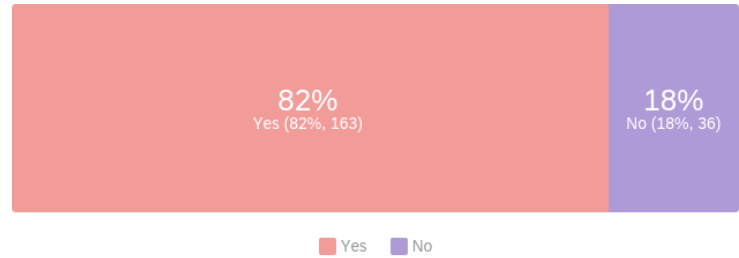


The urgency of COP meetings

81.91% of participants agreed with the urgency of COP meetings, compared to 18.09% who answered "no."

Table 24: The urgency of COP meetings

#	Answer	Count	%
1	Yes	163	81.91%
2	No	36	18.09%
	Total	199	100%

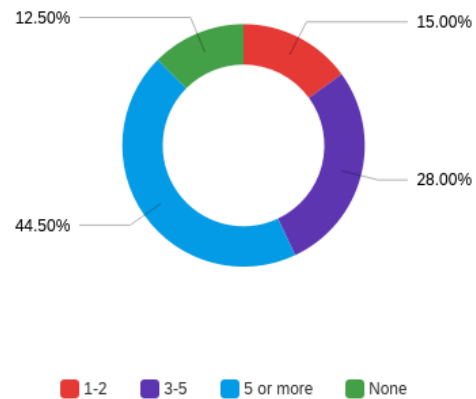


The sustainable development goals interested in

Regarding the number of sustainable development goals that professors are interested in, 44.50% of them selected the option (5 or more), followed by 28.0% selected the option (3-5), and 15.0% selected the option (1-2), while there were 12.5% don't interest in any goal.

Table 25: The urgency of COP meetings

#	Answer	Count	%
3	1-2	30	15.00%
4	3-5	56	28.00%
5	5 or more	89	44.50%
6	None	25	12.50%
	Total	200	100%



On defining the sustainable development goals that Arab university professors are interested in, the responses showed a clear variation and great diversity, but in general the participants focused on the sustainable development goals related to ending poverty, quality education, justice and peace, a clean environment and climate change.



The universities efforts to face climate changes and their risks

The efforts/activities that universities made in recent years or are now making to enhance social awareness of these climate changes and their risks

The most prominent efforts/activities that universities have made in recent years or is now making to enhance social awareness of these climate changes and their risks are :

- Intending to add a new course in the faculty of law and the faculty of political and diplomatic sciences: Climate change as an armed conflict multiplier
- Many studies and articles on Green Finance have been done
- planning many collaborative efforts to share in the COP27
- Workshops Encourage research in climate changes
- program how to deal with disaster as corona virus and in most faculties have disaster units to learn students and all members how deal with unexpected events
- Symposiums Expected Research Agenda
- Conferences, webinars, Seminars and meetings
- training workshops
- Increase budget targeted to environmental science research
- Climate change champions
- Establishing a diploma program in Climate Change Monitoring and Management

The participating in events related to climate change

About the participating in local or international events related to climate change, the participants have mentioned some events such as:

- Planning to participate in COP27
- Azhar university International annual conference on basic and applied science Advanced science and sustainable development
- workshops about climate change
- conferences
- Participating in many efforts, including training programs on hazardous waste management targeting hospitals and other healthcare facilities in different Egyptian governorates
- Seminars to raising awareness sessions



- International conferences on achieving the sustainable development goals
- International Conference on Desert Studies, 2021
- UNESCO Climate Change and youth report/survey with Cairo office
- Several climate changes workshops
- Climate change resiliency conference
- Renewable Energy Labs
- establishing sustainable development center at a regional base

The Future thoughts on mitigation and adaption measures

- An initiative was made for each student, before graduation, to plant a tree and educate 10 members of his surroundings about the dangers of climate change to be a “climate ambassador” in his village.
- Commitment to the state's vision for sustainable development 2030
- Continuing to develop and increase the number of research in the field of environment, climate protection and the environment in general
- Contracting with waste companies with an appropriate environmental reputation.
- Contribute to the establishment of sustainable projects inside or outside universities.
- Current: Smart agriculture as a mitigation to climate change. we have research projects "GAZA FOODWAYS: TOWARDS RESILIENT WOMEN-LED URBAN AGROECOLOGICAL FOOD SYSTEMS AS A PATHWAY TO WOMEN'S ECONOMIC EMPOWERMENT." under IDRC CALL: Women's Economic Empowerment in a Low-Carbon COVID-19 Recovery Future: Recommended Actions at the farming level Promoting Non-conventional water resources (e.g., treated wastewater reuse, rainwater harvesting structure and desalination of brackish water). Promoting Water-smart technologies like a furrow-irrigated raised bed, micro-irrigation and efficient irrigation equipment (e.g. trickle irrigation), and cover-crop method. Promoting Climate Resilience agriculture technology based on a precision estimation of crop water needs; altering the fertilizer and irrigation schedules; cultivating less water requiring varieties; adjusting the planting dates; irrigation scheduling; and adopting zero-tillage which may help farmers to reach satisfactory crop yields, even in deficit rainfall and warmer years
- Cut down on water consumptions
- Depending totally on solar energy in the campus and using electric cars as well...
- Developing action plans for climate emergencies.



- Encourage more scientific study on SDGs themes.
- Encourage pupils' good health.
- Enhancing research programs in universities on sustainable development.
- ensure gender equality
- Establishing new institutions at the university level to coordinate the activities of the sustainable development goals among the various university departments.
- Expand the green regions
- Funding for innovation
- Harvesting water system grey water reuse Free emissions
- Highlighting the climate problem.
- I am trying to join organizations concerned with climate change and working on implementing independent plans to reduce pollutants. As for universities, I think they should contract with institutional bodies that contribute to spending money on the applied research side to reduce pollution
- Imposing more restrictions on industrial companies to force them to switch to renewable energy to reduce the effects of climate change
- Improve educational quality
- Improving energy efficiency and opting for renewable energy over fossil fuels.
- Increased use of renewable energy sources
- Increasing the awareness of the climate change problem between the following members:
 - Government officials and workers in national ministries and local authorities
 - Environmental managers and workers in the private sector and non-governmental organizations
 - Interested citizens
- Increasing training programs for teaching and technical staff on sustainable development.
- Introducing new educational programs to teach tomorrow's leaders the multi-disciplinary challenges of sustainable development.
- Investigating and developing innovative solutions to prevent and manage natural catastrophes.
- Local adaptation is a central process determining the limits to species' ranges and how they respond to environmental change. It arises because of selection by the local environment favoring phenotypes that enhance fitness. Geographic patterns of phenotypic variation are in part due to this selective process. The relationship between



gene flow and adaptation to local conditions is complex. High levels of gene flow between environmentally distinct areas can inhibit adaptation and contribute to range boundaries by “swamping” small peripheral populations with maladapted alleles or it may enhance adaptation by increasing local genetic diversity, an important prerequisite for a population to respond to natural selection. Clines have long been used to infer the action of natural selection on particular genes and traits across environmental gradients. So, it should be main purpose of conservation biologists (especially conservation geneticists) to investigate variation in functional traits and whether this variation is an adaptation as response to environmental variation. This knowledge will help in designing long-term management plans for threatened organisms under prospected climate change.

- Lowering energy consumptions.
- mitigation policy has stalled at 1) the national level, local and regional actors are increasingly taking progressive steps to reduce their greenhouse gas emissions. Somali international University are poised to play a key role in this grassroots effort by targeting their own emissions and by working with other local actors to develop climate change mitigation programmes.
- More research work in climate-related issues More climate-related knowledge and skills within the curriculum Increasing impact to public by increasing climate-related activities Adopt climate-related strategies within campus such as limited GHG transport and more clean transportation.
- Our university has begun a huge awareness campaign to increase the knowledge and awareness among staff and faculty, and students. the SDGs have been mapped to all courses within the curricula and have been included as guiding policies in our individual departments.
- Presentation and participation of local and international projects that contribute to combating climate change
- Promoting ecological industry, agriculture, fishing and livestock farming, food sustainability, responsible consumption and the 3Rs rule (reduce, reuse, recycle).
- Rationalizing the use of energy from traditional sources.
- Reducing carbon-based emissions
- reducing the paper usage via the electronic mails and the electronic exam via the e-learning system.
- Replanting forests and restoring damaged ecosystems.



- Research related to screening of knowledge of university students Research related to Health Education of teachers and preschool children Symposiums related to effect of Climate change on children
- Seminars, research. innovations, and conferences
- Significant progress has been made in accessing education, specifically at the primary school level, for boys and girls. However, access does not always mean the quality of education, or completion of primary school.
- Studying offering of e-waste division in the university.
- The university is currently working on a project, "Confronting Climate Change thru Ecosystems Restoration." This is a long-term campaign against deforestation.
- The university's involvement in communication and leadership programs by bringing together all major stakeholders - from government, business institutions, civil society, and academia - to cooperate in order to achieve the goals of sustainable development
- Use natural base solution for Adaptation and mitigation (green infrastructure instead of grey one) Soft demand Management in water sectors Unconventional water resources Nexus approach (water nexus with other resources)
- Using clean energy for the environment, campaigns for afforestation of sustainable cities, reducing carbon emissions from oil projects in southern Iraq, using modern irrigation techniques, increasing education campaigns on the impact of climate change on the environment
- Using Solar energy instead of electricity
- Using solar power on the roofs of the university buildings as a source of clean energy.
- wastewater treatment and reuse
- We are all ready to mitigate the risk of climate change, I agree with you this research.
- We collect data for all Libya such as temperatures to see it is increasing or not
- we encourage to uses alternative energies like solar, wind, biogas, and other renewable energies to reduce the fuel energy
- We will keep organizing regional and international events to promote sustainability and climate actions, recently we set up a task force for Pre-Cop 27, which aim to mobilize people to actively participate in Cop 27.
- We would like to take part any environmental conservation activities and using of energy resources available



Conclusion

Universities are the most important institutions that can make more qualitative and scientific efforts to confront the risks and effects of negative climate change. They are seen as the powerhouse where great talents can come together to address urgent needs of the communities. Arab universities have various efforts in this regard, including conducting research, holding conferences, and participating in international events related to climate change. But it was clear that there are large knowledge and practical gaps that Arab universities should keep striving to fill and reduce. It was clear from the responses of university professors that there are large percentages of them who are not interested in climate change, and that the number of research in this regard is not commensurate with the potential impact or threats. The survey report provides a comprehensive view of the subject, through which it can diagnose weaknesses and work on strengthening them.

Recommendations

Through the results, we can put a number of recommendations that can contribute to reducing the effects of climate change:

- Holding conferences specialized in climate change targeting important segments of society, such as merchants, farmers, university students, research centers, and civil society organizations.
- Designing curricula for basic, secondary, and university stages to introduce climate change and the necessary steps to mitigate the effects of climate change.
- Promote funds allocation for Arab Universities targeting different mitigation and adaptation research oriented strategies to address the urgent needs for the region.