MALAYSIA NATIONAL SURVEY ON CLIMATE CHANGE CONCERN, BEHAVIOUR, AND MEDIA ATTITUDE

PRELIMINARY REPORT

CONTENTS

KEY FINDINGS

It is the first time that this survey has been conducted in Malaysia to gauge insight into Climate Change Concern, Behaviour, and Media Attitude. 1063 people participated in the survey. Below are key findings from the report on, 1) policy support, belief and motivation, 2) individual action and willingness to change, 3) media preference and trust, and 4) Malaysian response to climate change and climate change policy.

1. Policy support, belief and motivation

- 60% of respondents believe that Malaysia should reduce its greenhouse gas emission regardless of what other countries do.
- 86% of our sample strongly or somewhat agree that it should be mandatory to reduce energy usage if it reduces climate change.
- 86% of Malaysians strongly or somewhat agree that the government should increase the incentives for people who try to reduce climate change.

2. Individual action and willingness to change

- The most common purchasing behaviours are bringing one's own shopping bags for groceries (65% of respondents do this) and switching to more environmentally friendly products (63% of respondents do this).
- The most common energy related behaviours are reducing home energy use (79% of respondents do this), and turning off electrical appliances and lights when not using them (79% of respondents do this).
- The most common waste management behaviours are recycling (67% of respondents do this), and not openly burning trash (68% of respondents do this).
- The behaviours with the greatest proportion of people open to change are: taking part in an environmental/climate change campaign (63% of our sample would like to or are planning to do this), installing household solar hot water or panels (79% of our sample would like to or are planning to do this), and composting kitchen waste (51% of our sample would like to or are planning to do this).

3. Media preference and trust

- The most popular option being social media (86% of respondents use this media frequently and all the time), followed by chat apps (81% of respondents use this media frequently and all the time), and online news portals (72% of respondents frequently and all the time).
- The least popular option is print newspapers (21% never use this media) and radio (12% never use this media).
- The most trusted source for information regarding climate change are scientists (87% of respondents somewhat or highly trust them), environmental groups (86% somewhat or highly trusted) and academic journals/publications (80% somewhat or highly trusted).
- Least trusted information sources are religious groups (12% somewhat or highly distrusted).

4. Malaysian response to climate change and climate change policy

- 85% of Malaysians felt that Malaysia is warmer compared to 10 years ago.
- 85% of Malaysians have been directly or indirectly affected by extreme rain, 79% of Malaysians have been directly or indirectly affected by extreme heat and 70% of Malaysians have been directly or indirectly affected by flood.

BACKGROUND

The impacts of climate change on people and society are felt on a worldwide scale. Projections indicate that temperatures and mean sea level will keep increasing through the end of the twenty-first century, along with an increase in the frequency of extreme weather events. Even in the last decade, climate change's impacts on urban ecosystems have been assessed in terms of its impacts and vulnerability. The frequency of extreme weather events is projected to significantly increase as temperatures rise (IPCC, 2014). Eventually, climate change will affect each and every one of us. These effects are anticipated to have a wide range of social and environmental effects, escalating inequality and aggravating already-existing environmental problems.

Observations have shown a significant rise of surface air temperature in Malaysia and adjacent regions of Southeast Asia over the last few decades. Malaysia is seeing a significant impact from climate change. This is likely associated with both local modification of land use and land cover, and climate change driven by increasing anthropogenic climate change (Tang, 2019; Tangang et al., 2012). The rise of mean temperature and its extremes have altered the frequency, intensity, duration and spatial extents of heat wave events (Khan et al., 2019). These changes caused significant implications on public health (Anita et al., 2018; De Sario et al., 2013; Hashim and Hashim, 2016), decreased crop yields and food insecurity, and socio-economic vulnerability (Ehsan et al., 2022; MESTECC, 2018). Not everyone, however, associates these changes in natural phenomena with human-caused climate change. There has not been substantial participation from the general public in Malaysia in discussions regarding climate change adaptation and mitigation. According to Varkkey (2019), just 32% to 40% of the general public are aware of climate change and its effects.

Various organisations including Merdeka Center (2016), United Nations Development Program (UNDP) and United Nations Children's Fund (UNICEF) Malaysia (2021), Malaysian Youth Delegations (MYD) (Ker and Kaur, 2021) and Institute of Southeast Asian Studies, ISEAS-Yusof Ishak Institute (Seah et al., 2022) have observed the Malaysian public's understanding and awareness of climate change. UNICEF and MYD focused mainly on youth and young people's awareness and interest in climate change. This project follows a similar approach to that undertaken by various researchers for tracking community attitudes to inform policymakers of trends on issues relating to climate change. The survey provides strong national and regional level snapshots relevant to a range of policy areas and establishes a baseline for comparison of community attitudes to climate change over time.

In order to determine how information about climate change issues can be communicated more easily and effectively, this report aims to:

- assess Malaysia's public perception and understanding of climate change
- comprehend the Malaysian audience's behavioural responses towards climate change
- understand the Malaysian audience's media preferences and who they trust as sources of information.

METHODOLOGY

The survey was conducted between July and August in 2022, and recorded the views of 1062 Malaysian adults (aged 18 and above). The survey was assessed as low risk to participants by Monash University's Human Research Ethics Committee (project code: 32991). It gauges their awareness and concern regarding climate change, related behaviour in response to climate concerns, and their media preferences and trusted information sources. Surveys were completed anonymously online by participants approached by the research panel company, Qualtrics. The research team has no access to participant names or contact information.

The questionnaire was available in 2 languages: Malay and English. The translation of the survey into Malay language was done by the principal investigator and back-translated into English by a private translator to evaluate and ensure the questions were delivered in the same meaning in both languages. Participant quotas were adopted to ensure the sample matched the national population distributions across age, gender, location, and ethnicity. The quotas were based on the 2020 Malaysian population (DOSM, 2020) by the Department of Statistics Malaysia. Other demographic questions were also asked to further understand the population including religion, level of education, income and political ideology.

The survey was divided to 4 sections:

i. Climate change literacy and awareness: this section aimed to understand Malaysians' literacy, awareness and perception relating to climate change. It also contains questions for audience segmentation designed by the Yale Program in Climate Change Communication and the Center for Climate Change Communication at George Mason University in the USA (Maibach, 2009; Maibach et al., 2011) and used in Australia (Morrison et al., 2018) and New Zealand (Thaker, 2021).

ii. Behavioural responses: this section aimed to understand how Malaysians respond to climate change in their daily routine and lifestyle in terms of purchasing and consumption, energy and fuel usage, and waste management.

iii. iii) Media attitude: this section aimed to understand Malaysian media preferences, including which television channel, radio station, newspaper, online portal and chat applications individuals prefer and which types of people/information sources they trust for information on climate change.

iv. iv) Climate change and policy in Malaysia: this section aims to gauge Malaysians' understanding and awareness of the National Climate Change Policy 2017 and what is currently happening related to climate change in Malaysia.

This study employs a quantitative methodology focusing on the statistical analysis of data to explain and characterise a situation. Descriptive statistics were used to analyse each question and some questions were cross-tabulated with different questions to allow impactful insights from the dataset. Audience segmentation was carried out to come up with Malaysia's own segments. The method used was following the audience segmentation tool called the Six America Super Short Survey (SASSY!) tool developed by Chryst and colleagues (2018) which has also been utilised in various other countries including studies in Australia (Neumann et al., 2022) and multiple other countries (Leiserowitz et al., 2022).

RESPONDENTS' DISTRIBUTION

The demographic distributions of respondents reflected the national population distributions across age, gender, location, and ethnicity.

Out of the 1062 respondents, 51% were male and 49% were female.

Gender

Male (50.9%) Female (49.1%) Non-binary / third gender (0.2%) Prefer not to say (0.2%)
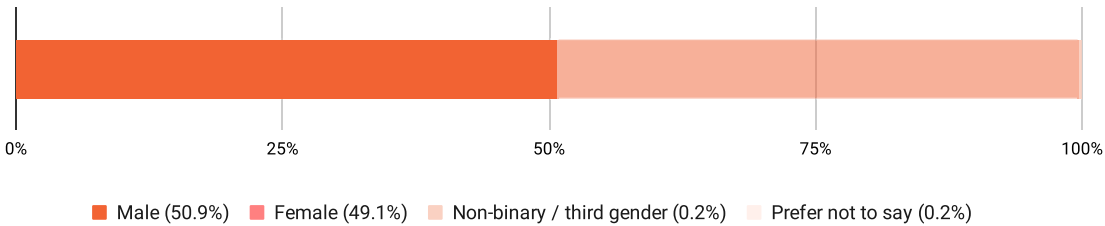
27% of our survey respondents came from the Central Region which is the most densely populated region in Malaysia and comprises of Kuala Lumpur, Putrajaya and Selangor. This was followed by the Borneo Region (Sabah, Sarawak and Labuan) with 23% of respondents. Southern Region (Johor, Melaka and Negeri Sembilan), Northern Region (Perlis, Kedah, Pulau Pinang and Perak) and East Coast Region (Kelantan, Terengganu and Pahang) had 19%, 17% and 14% respondents respectively. This is consistent with the total population distribution of Malaysia (DOSM, 2020).

Location

Southern Region (18.5%) Central Region (26.6%) Northern Region (17.3%) East Coast Region (14.5%) Borneo Region (23%)
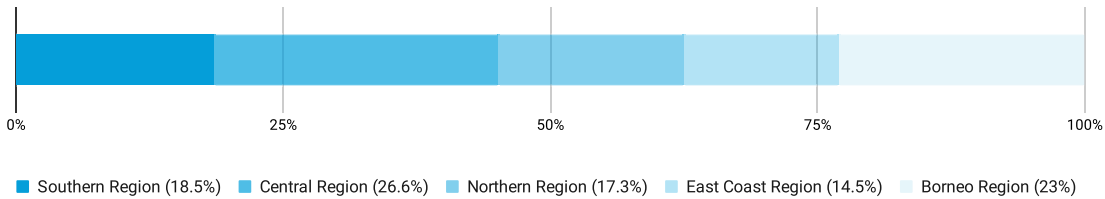
Survey respondents came from all age groups starting at the age of 18. The largest proportion of respondents are young adults between the ages of 25 to 34 years old (25%) and 35 to 44 years old (21%). This was followed by the oldest group (55 years old and above) with 21% of respondents, the youngest age group (18 to 24 years old) with 18% of respondents, and 14% of the respondents between 45 and 54 years old.

Age

18-24 years (17.8%) 25-34 years (25.4%) 35-44 years (21%) 45-54 years (14.3%) 55 years or older (21.5%)
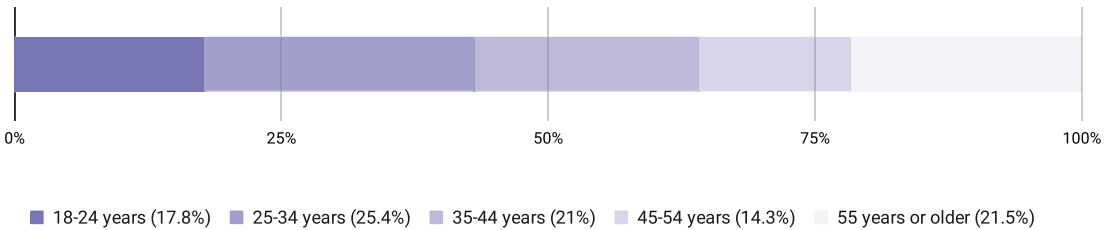
Respondents' ethnic distribution matched the national population. The largest group of respondents are the Malays and Bumiputera (Malaysia's indigenous group) with a total of 68% respondents, followed by Chinese (24%), Indian (4.7%) and others (2.5%). 60% of the total respondents took the survey in English while the other 40 % took the survey in Bahasa Melayu.

Ethnicity

Malay (57.3%) Bumiputera (11.1%) Chinese (24.4%) Indian (4.7%) Other (2.5%)
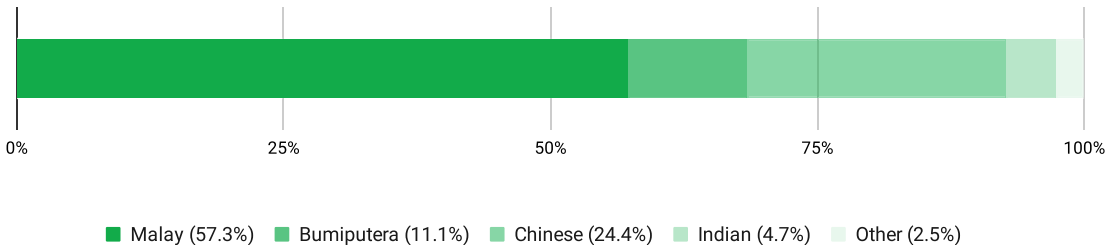
RESPONDENTS' DISTRIBUTION

A large majority of Malaysians (97%) accept that climate change is happening. In comparison, only 2% didn't know, and less than one percent didn't think climate change is happening. There is a strong public confidence that the climate is changing, as seen by the 38% of people who said they are extremely sure that it is happening.
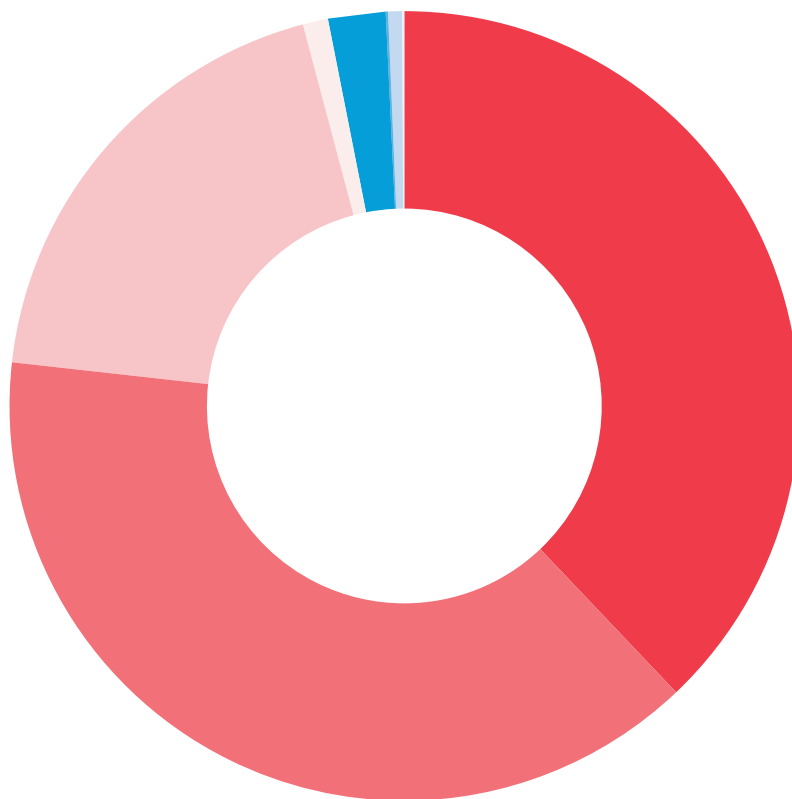
- I'm extremely sure that climate change is happening (37.9%)
- I'm very sure that climate change is happening (38.9%)
- I'm somewhat sure that climate change is happening (19.1%)
- I'm not at all sure that climate change is happening (1%)
- I don't know (2.4%)
- I'm not at all sure that climate change is not happening (0.1%)
- I'm somewhat sure that climate change is not happening (0.6%)
- I'm extremely sure that climate change is not happening (0.1%)

AUDIENCE SEGMENTATION

The audience segmentation analysis came out with 6 segments known as the 6 Americas (Leiserowitz et al., 2021; Maibach et al., 2009). The segments represent a spectrum of views about climate change. The segments are; Alarmed, Concerned, Cautious, Disengaged, Doubtful and Dismissive. The Alarmed group believes that climate change is occurring, caused by human activity, an immediate concern, and strongly supports climate policies. The majority, however, are unaware of what they or others may do to resolve the issue. The Concerned group think human-caused climate change is happening, is a serious threat, and favour climate policies. However, they tend to believe that climate impacts are still distant in time and space, as a result, climate change remains a low-priority concern.

The Cautious group are the ones who haven't decided; is climate change actually happening, could it be attributed to human activity and does it really have major consequences. The Disengaged group are the group of people that knows little about climate change and hears little or nothing about it in the media. The Doubtful do not believe in climate change or consider it to be a natural cycle. They do not give the matter much thought or view it as a significant threat. The Dismissive group do not believe that climate change is occurring, caused by humans, or a threat, and the majority embrace conspiracy theories (Leiserowitz et al., 2021; Maibach et al., 2009).

Following the same approach, we have found that 8 in 10 Malaysians are either Alarmed or Concerned about climate change. The majority of Malaysians are in the Alarmed (45%), Concerned (36%) and Cautious (17%) segments, while only a small proportion are in the Disengaged (1%), Doubtful (1%) and Dismissive (0.4%) segments. This finding suggest that most Malaysians believe that climate change is happening and is highly associated with human activities; and are in support of climate change policy although there are certain spectrums of behavioural response, media attitude and trust, and response towards climate change and climate change policy that is discussed further within this report.

Doubtful (1.2%)
Disengaged (0.8%)
Cautious (17.1%)
Dismissive (0.4%)
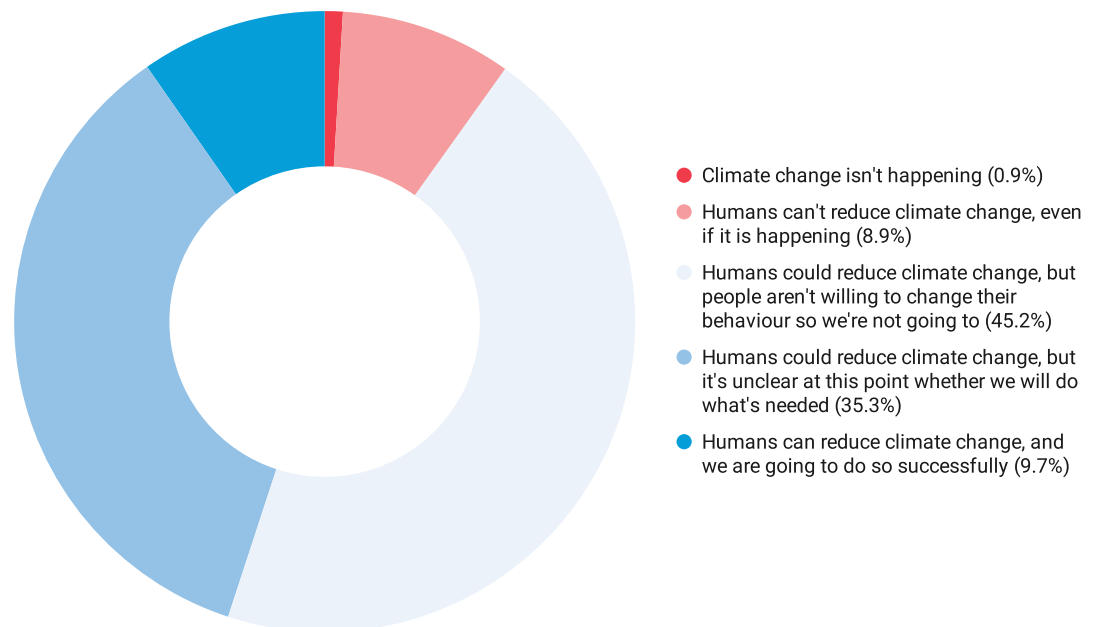Alarmed (44.9%)
Concerned (35.6%)
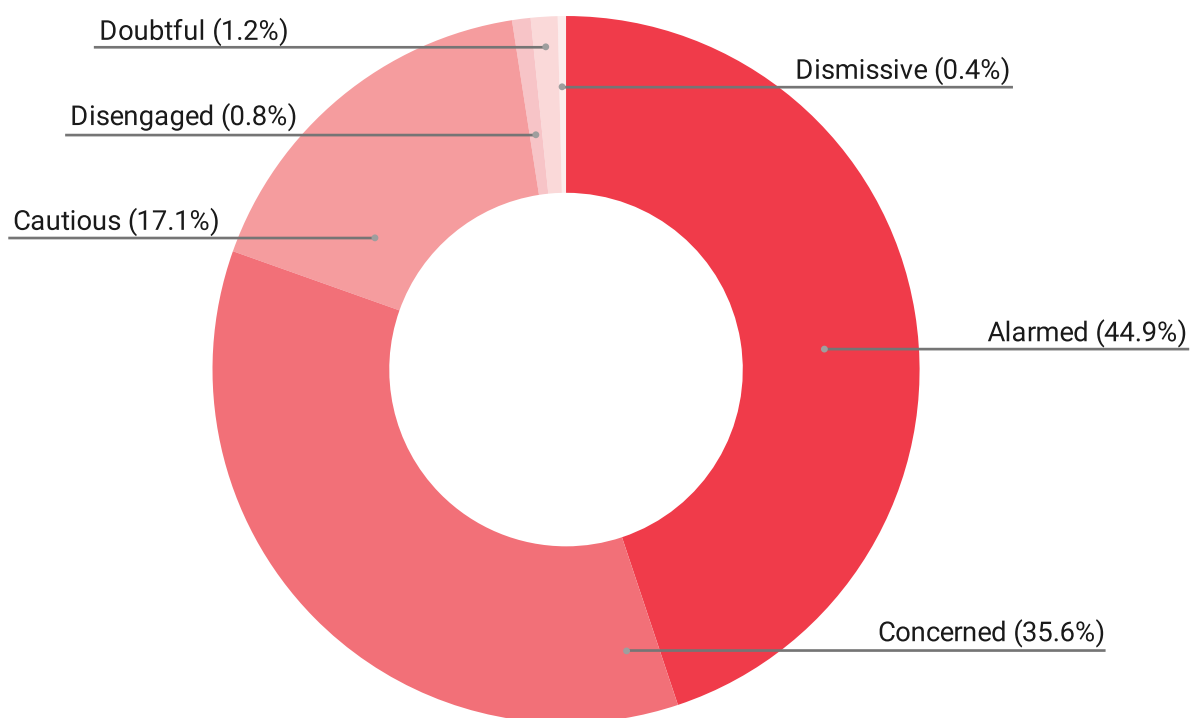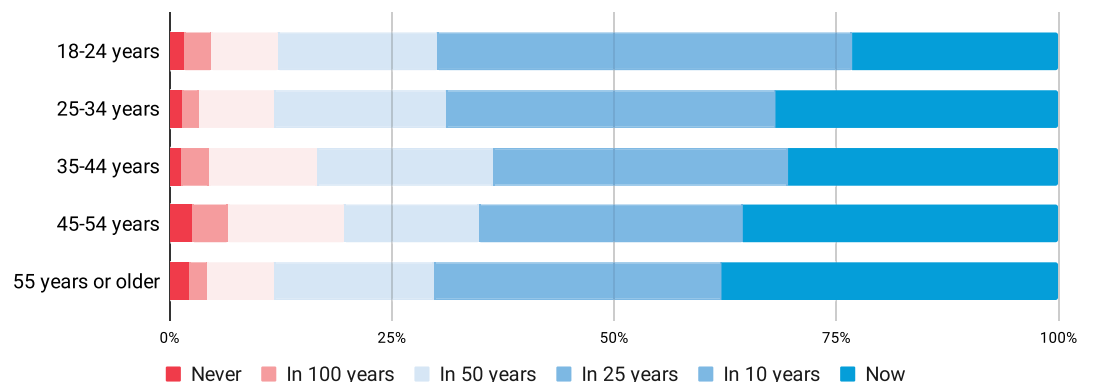
POLICY SUPPORT, BELIEFS AND MOTIVATIONS

We gauge our respondents' beliefs towards climate change by asking their views using a few statements. The majority of our respondents (45%) believe that humans could reduce climate change, but people are not willing to change their behaviour so we won't be able to reduce climate change. This view is followed closely by 35% of our respondents who believe that humans could reduce climate change, but it is not clear if we're actually going to do what is required at this point. 10% of our respondents are actually optimistic that humans can reduce climate change and we are going to do so successfully. 9% of our respondents believe that humans can't reduce climate change even if it's happening and a fraction of 1% denies the fact that climate change is happening.

Even though a huge majority of Malaysians agree that climate change is occurring, just 32% believe that climate change is presently causing harm to the Malaysian population, and 35% believe that climate change will cause harm to the Malaysian population within the next decade. 2% of respondents believe that climate change will never harm Malaysia. There is a notable difference in respondents' perceptions of harm timeframes across age groups. Less of the younger adults believe that climate change is happening now compared to the older adults' group. More from the middle-aged group (35 to 54 years old) thinks that climate change will only happen at least 50 years from now.

How sure are you the climate change is happening?

- Climate change isn't happening (0.9%)
- Humans can't reduce climate change, even if it is happening (8.9%)
- Humans could reduce climate change, but people aren't willing to change their behaviour so we're not going to (45.2%)
- Humans could reduce climate change, but it's unclear at this point whether we will do what's needed (35.3%)
- Humans can reduce climate change, and we are going to do so successfully (9.7%)

When do you think climate change will harm the people in Malaysia?

Never In 100 years In 50 years In 25 years In 10 years Now

POLICY SUPPORT, BELIEFS AND MOTIVATIONS

Over half of respondents (60%) believed that Malaysia should reduce its greenhouse gas emission regardless of what other countries do, and only 5% said that Malaysia should not reduce its emissions. This is in line with the stance made by the Malaysian government during the UNFCCC COP26 in November 2021 (KASA, 2021), where the Malaysian Government pledged to reduce the intensity of national greenhouse gas emissions by 45 percent by 2030 from its 2005 baseline (MNRE, 2015).

Malaysia should reduce its greenhouse gas emissions...

- Regardless of what other countries do (59.5%)
- Only if other industrialised countries (such as England, Germany and Japan) reduce their emissions (11.9%)
- Only if other industrialised countries and developing countries (such as China, India and Brazil) reduce their emissions (14.3%)
- Malaysia should not reduce its emissions (5.1%)
- Don't know (9.2%)
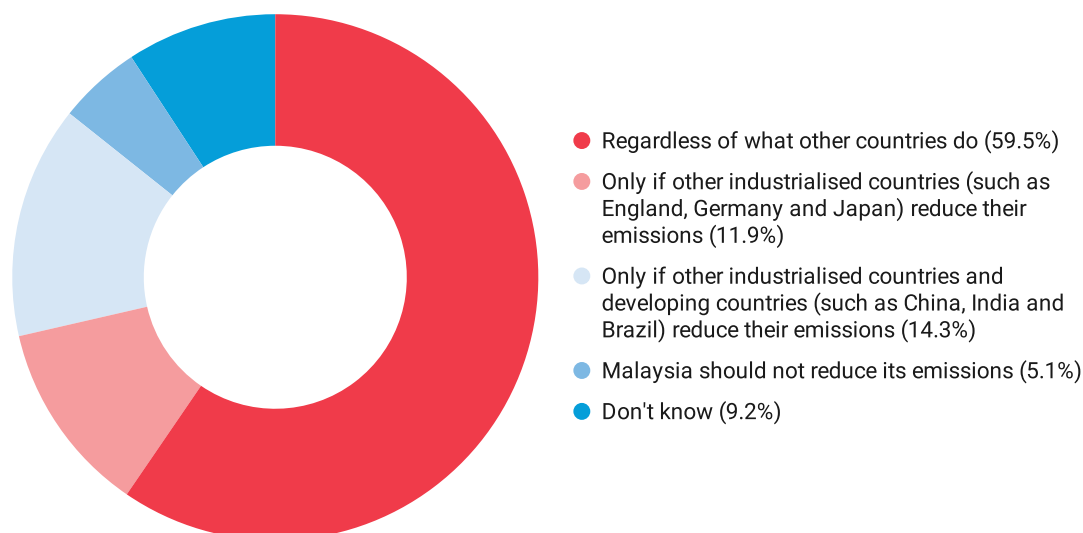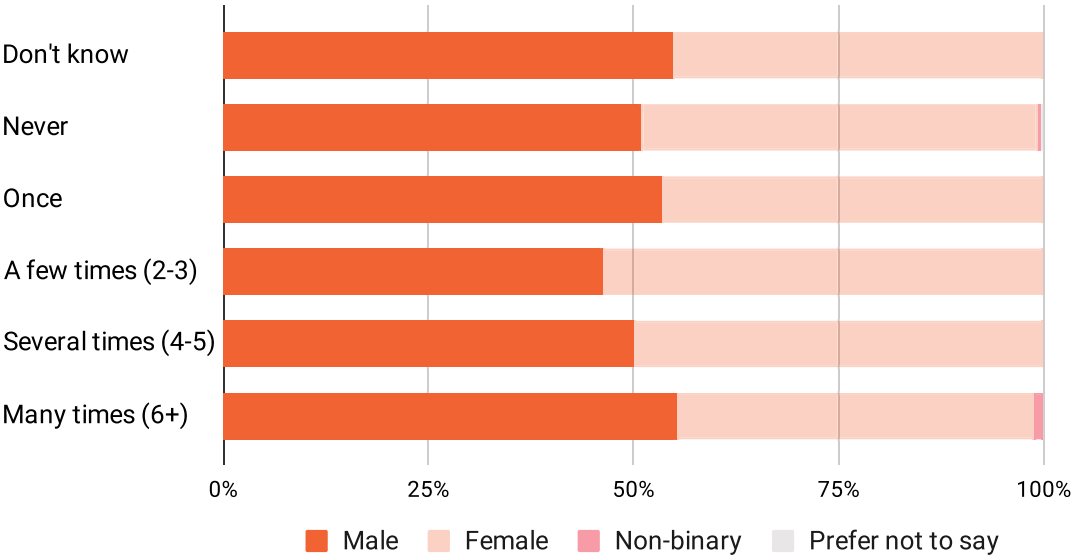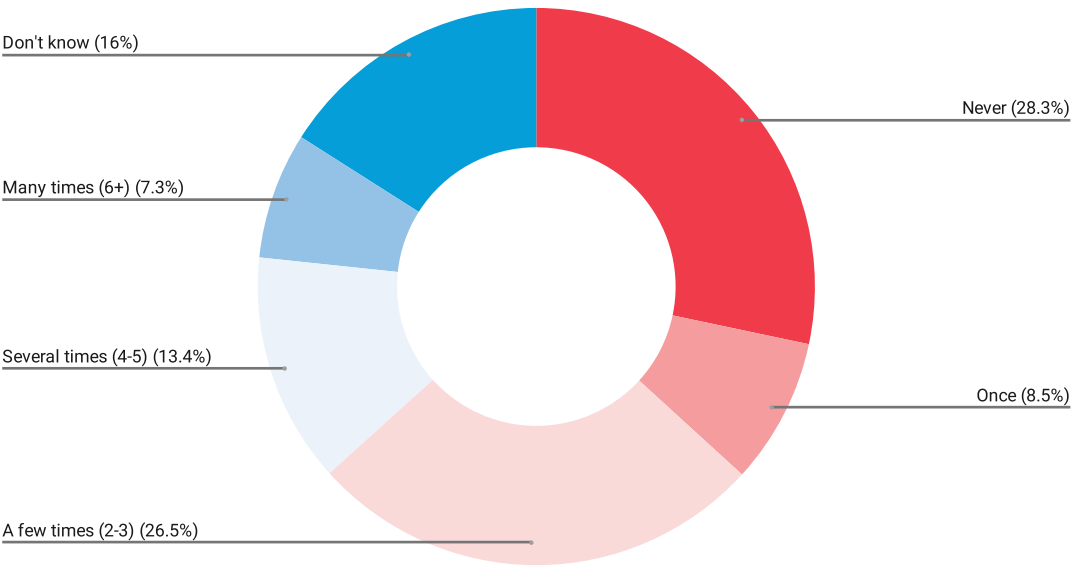
INDIVIDUAL ACTION AND WILLINGNESS TO CHANGE

We wanted to understand the behaviour that our respondents exhibited in their day-to-day lives and determine whether or not it is consistent with the awareness of climate change that they have. Changes in individual behaviour, however, can have a significant impact when implemented by billions of people simultaneously. 60% of our respondents believe we can all do our part to reduce climate change, also reflecting the 54% of our respondents (strongly and somewhat) disagree that climate change is a natural phenomenon that we can't do anything about. Over 80% believe it should be mandatory to reduce energy usage if it reduces climate change, and over 80% believe that the government should be doing more to incentivise the people trying to reduce climate change. Most people are willing to do more to promote a greener environment. Many people are making active efforts to change their daily habits.

State your level of agreement or disagreement for the following statements about climate change

Climate change is a natural phenomenon and we can't do anything about it

There are more important matters than climate change

I would only do my bit to reduce climate change if everyone else did as well

I will promote a greener environment and participate in initiatives to reduce climate change

It should be mandatory to reduce energy usage if it reduces climate change

The government should increase the incentives for people who try to reduce climate change

We can all do our bit to reduce the effects of climate change

■ Strongly disagree   ■ Somewhat disagree   ■ Neither   ■ Somewhat agree   ■ Strongly agree

INDIVIDUAL ACTION AND WILLINGNESS TO CHANGE

We asked our respondents: "Over the past 12 months, how many times have you punished companies that are opposing steps to reduce climate change by not buying their products?". Overall, 55% of respondents have punished companies that oppose efforts to mitigate climate change by not buying their products at least once in the past 12 months. 9% said they had done so once, and 27% said they had done so a few times. 13% said they had done so several times, and 7% said they had done so many times. 28% of our respondents said that they never did and 16% do not know. There were also differences between men's and women's responses where women generally are a little bit more proactive in their efforts to punish companies that are opposing steps to reduce climate change.

Don't know (16%)
Never (28.3%)
Many times (6+) (7.3%)
Once (8.5%)
Several times (4-5) (13.4%)
A few times (2-3) (26.5%)

Don't know
Never
Once
A few times (2-3)
Several times (4-5)
Many times (6+)

0%   25%   50%   75%   100%

■ Male   ■ Female   ■ Non-binary   ■ Prefer not to say

INDIVIDUAL ACTION AND WILLINGNESS TO CHANGE

Respondents were asked questions to establish their stage of adoption of specific actions to address climate change, including purchasing and consumption behaviours, energy and fuel related behaviours, and waste management behaviours.

Easier activities, such as reducing the amount of electricity used and turning off appliances in their households, are more popular in comparison to more time-consuming activities, like composting, or costly activities, like installing solar panels.
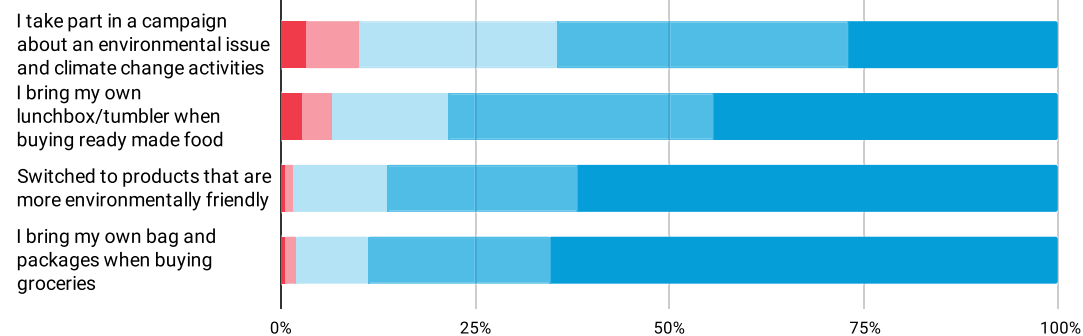
It was clear that the majority of people were already taking positive steps to protect the planet. In terms of purchasing and consumption behaviours, 65% of people bring their own shopping bags for groceries, 63% are switching to more eco-friendly products. Reducing home energy use (79%) and turning off electrical appliances and lights when not in use (79%) are two of the most common energy and fuel related behaviours.

When it comes to waste management related behaviours, 67% are already recycling and 68% are not openly burning trash.
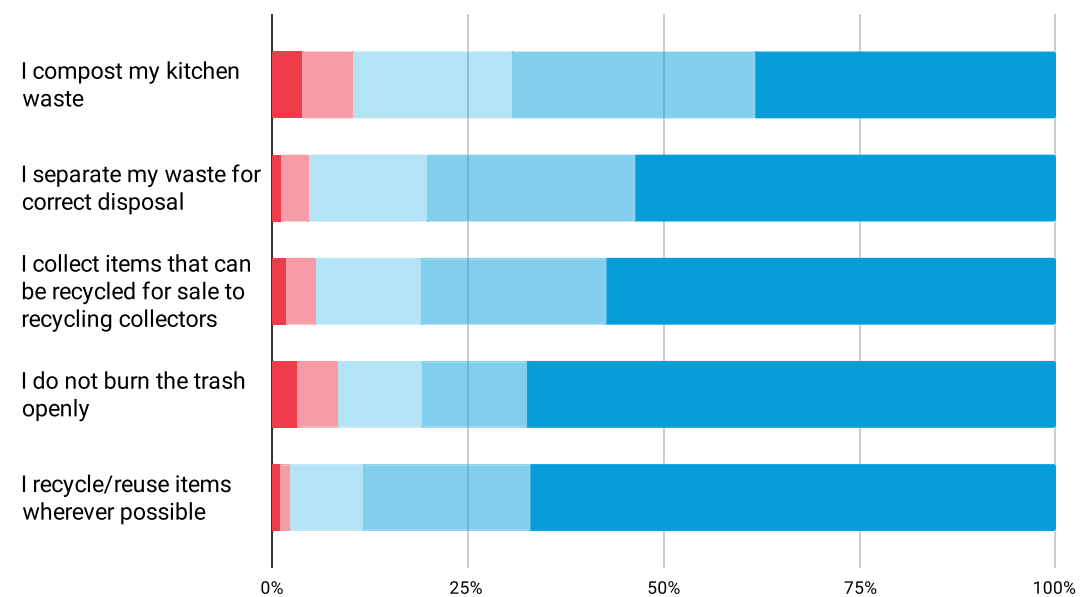
Other behaviours with the most potential for change are taking part in an environmental/climate change campaign (63% would like to or are planning to do this), installing household solar hot water or panels (79% would like to or are planning to do this), and composting kitchen waste (51% would like to or are planning to do this).
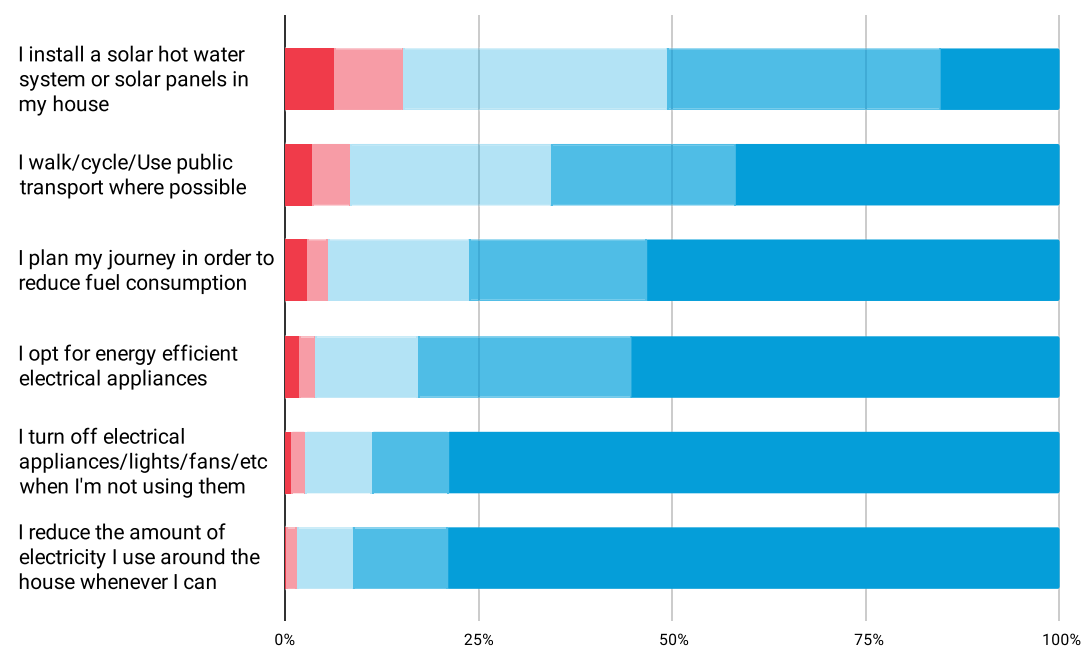
INDIVIDUAL ACTION AND WILLINGNESS TO CHANGE

Purchasing and consumption behaviour

- I take part in a campaign about an environmental issue and climate change activities
- I bring my own lunchbox/tumbler when buying ready made food
- Switched to products that are more environmentally friendly
- I bring my own bag and packages when buying groceries

Waste related behaviour

- I compost my kitchen waste
- I separate my waste for correct disposal
- I collect items that can be recycled for sale to recycling collectors
- I do not burn the trash openly
- I recycle/reuse items wherever possible

Energy and fuel related behaviour

- I install a solar hot water system or solar panels in my house
- I walk/cycle/Use public transport where possible
- I plan my journey in order to reduce fuel consumption
- I opt for energy efficient electrical appliances
- I turn off electrical appliances/lights/fans/etc when I'm not using them
- I reduce the amount of electricity I use around the house whenever I can

Legend:
- This is not relevant to me
- I don't do this and don't plan to do it
- I would like to do this but It's impossible right now
- I have a plan for starting this soon
- I'm doing this

MEDIA PREFERENCE AND TRUST

The survey respondents had a clear preference of media for news and information.

Respondents tend to go to online applications with the most popular option being social media (86% reported that they used social media frequently and all the time), followed by chat applications (81% reported that they used them frequently and all the time), and online news portals (72% frequently and all the time). The least popular option was print newspapers, 21% respondents stated that they did not read these, followed by 12% who never listen to radio, and 3% never watch news television channels. This strong digital media preference aligns with the internet penetration rate of 90% of the total population at the start of 2022 (DataReportal, 2022).

Which of the following media do you often go to/use?
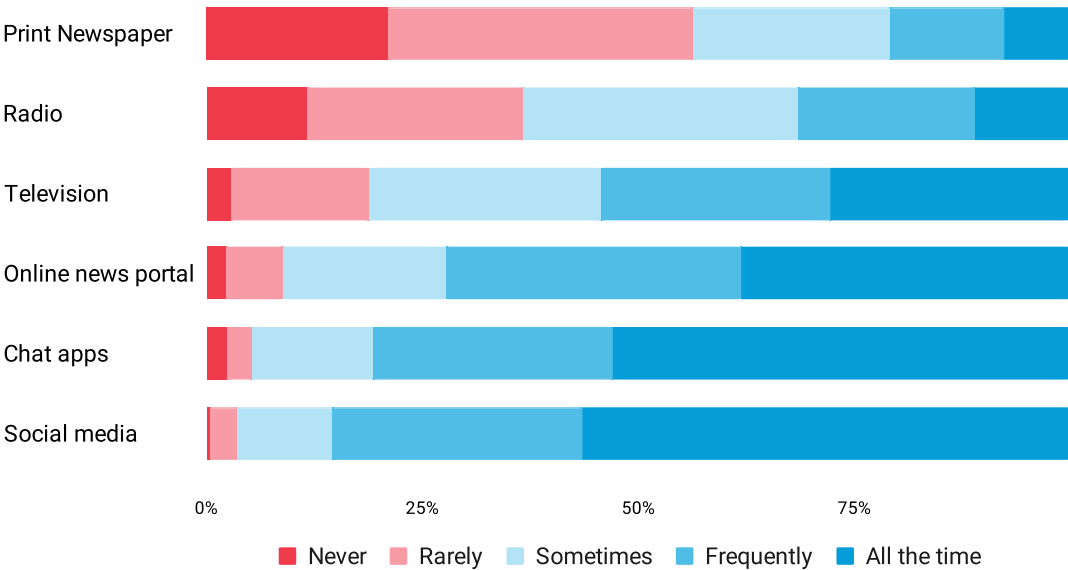
We asked questions on the breakdown of popular media in each category: television, radio, print newspaper, online news portal, social media, and chat apps.

The most popular TV stations with major news program are TV3, with 40% of our sample engaged frequently and all the time. The second most popular was Astro Awani (30% said that they watched this frequently and all the time) while the least favourites are TV Al-Hijrah (32% never watched) and Channel 8 (29% never watched).

How often do you use the following TV stations for news/information?

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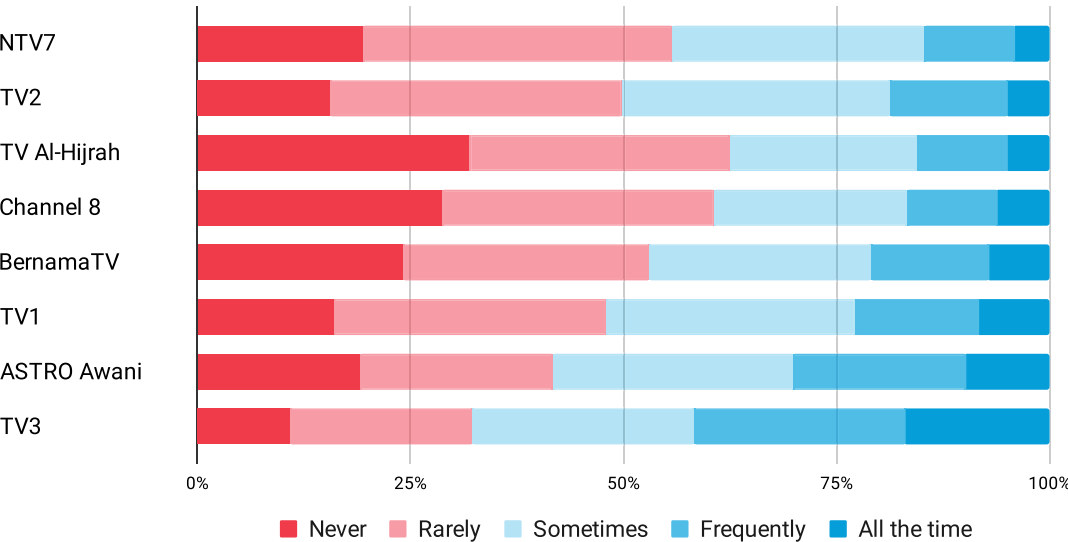
Favourite radio stations are Hitz FM, Hot FM, Sinar FM, and Suria FM (25% of our sample said that they listened to them frequently and all the time) and the most popular radio stations for news and information among Chinese listeners are My FM and 988 FM (almost 30% of our Chinese respondents listen to these two stations frequently and all the time).

How often do you use the following radio stations for news/information?

Never   Rarely   Sometimes   Frequently   All the time
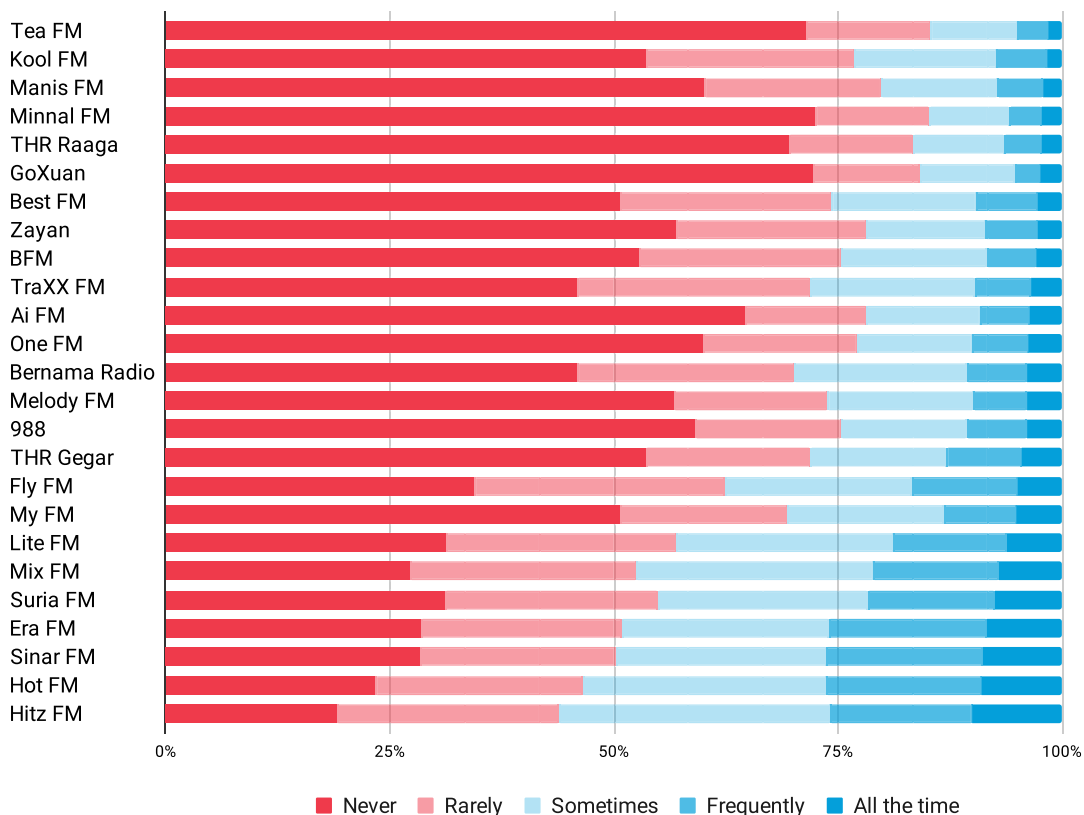
Although print newspapers are the least popular news/information sources that Malaysians went to, The Star was the most read newspaper (read by 28% of our sample frequently and all the time) and Berita Harian was the second most read newspaper (with 26% saying they read it frequently and all the time).

How often do you use the following print newspapers for news/information?

Never   Rarely   Sometimes   Frequently   All the time
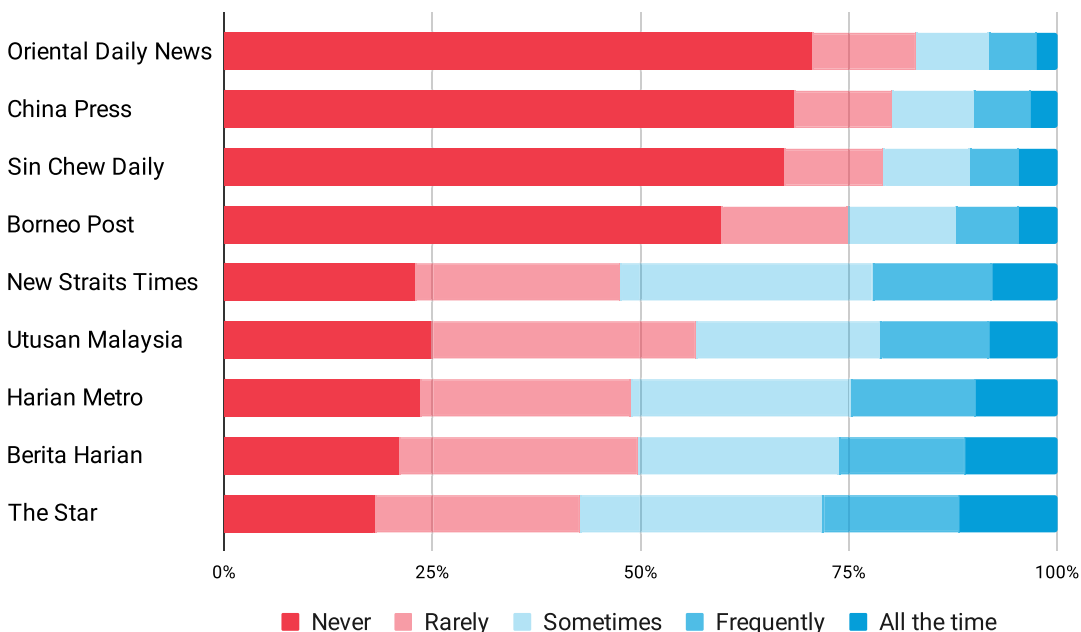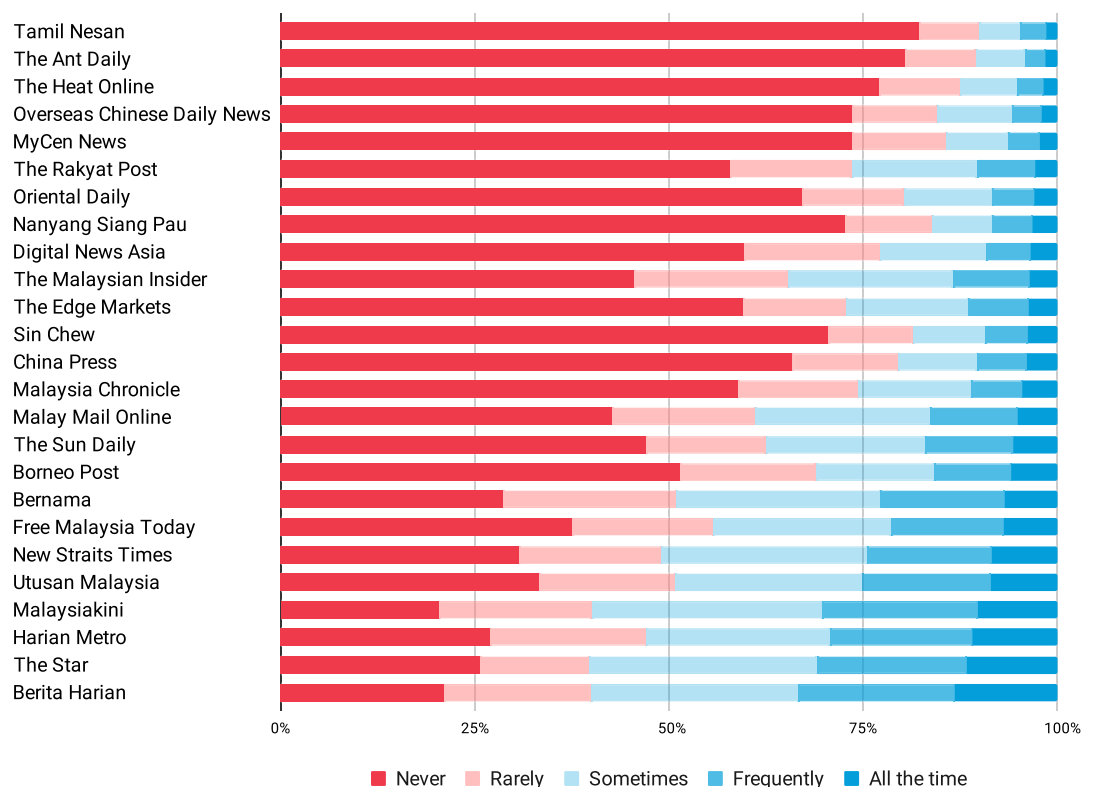
MEDIA PREFERENCE AND TRUST

Social media is the most popular news and information sharing medium in Malaysia. All 1026 respondents answered that they use social media either rarely, sometimes, frequently or all the time (57%). The most popular social media was Youtube (77% frequently and all the time) and second was Facebook (69% frequently and all the time).

How often do you use the following social media for news/information?

- ■ Never ■ Rarely ■ Sometimes ■ Frequently ■ All the time
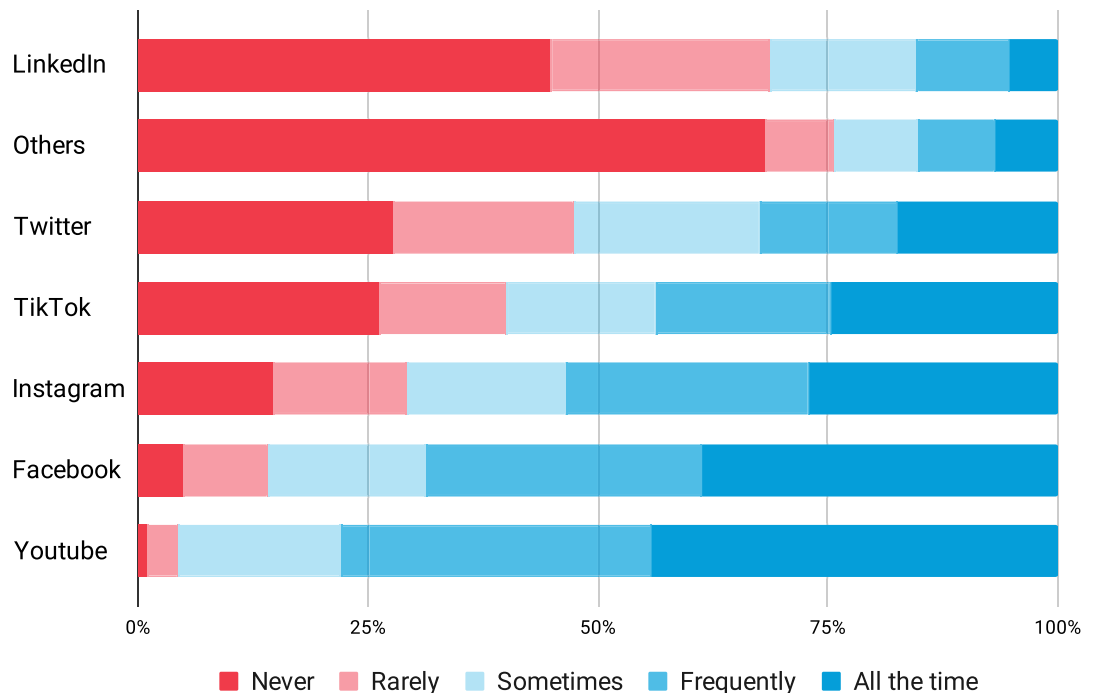
Online news portals are also the popular option among Malaysians to get their news and information. From the 72% who frequented online media portals, the most favourites are Berita Harian (33% frequently and all the time), The Star (30% frequently and all the time), Harian Metro (28% frequently and all the time) and MalaysiaKini (30% frequently and all the time).

How often do you use the following online news portals for news/information?

- ■ Never ■ Rarely ■ Sometimes ■ Frequently ■ All the time

17

MEDIA PREFERENCE AND TRUST

Favourite chat applications for news and information are Whatsapp (with 86% saying that they use it frequently and all the time), second, Facebook Messenger 39% frequently and all the time) and third, Telegram (36% frequently and all the time). Only 1% never used Whatsapp for news and information gathering/transfer and discussion.

How often do you use the following chat applications for news/information?

|	Never	Rarely	Sometimes	Frequently	All the time
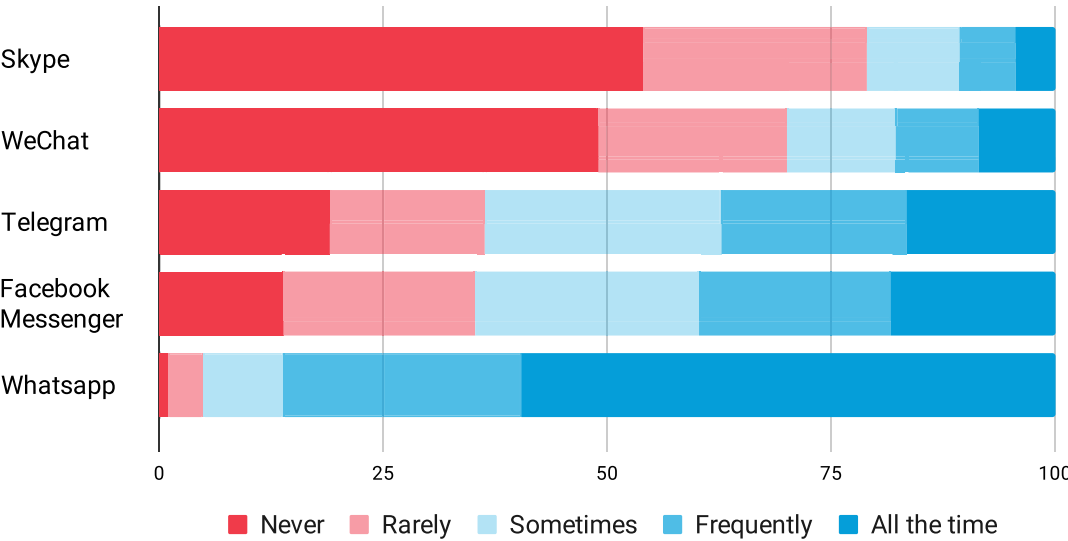
MEDIA PREFERENCE AND TRUST

We asked a question to understand who Malaysians trust for information about climate change. The most trusted sources are scientists (87% of people somewhat or highly trust) and environmental groups (86% somewhat or highly trust) followed by academic journals/publications (80% somewhat or highly trust) and schools, colleges and universities (79% somewhat or highly trust).

The least trusted source was religious groups (12% somewhat or highly distrust) followed by journalists, local councils, and government agencies (7% somewhat or highly distrust). The 2022 Edelman Trust Barometer report found Malaysians have expressed an eroding sense of confidence in both the government and media (Edelman 2022).

Malaysians are worried that misinformation and fake news are being communicated to them and that media practitioners are spreading disinformation or exaggerating the contents of their reports (Edelman, 2022).
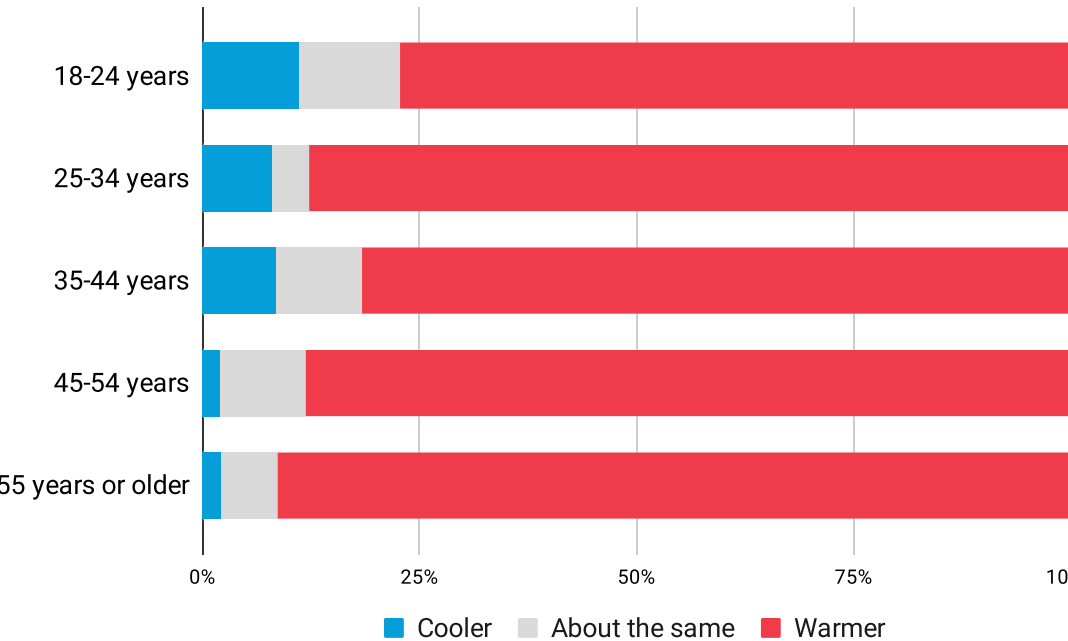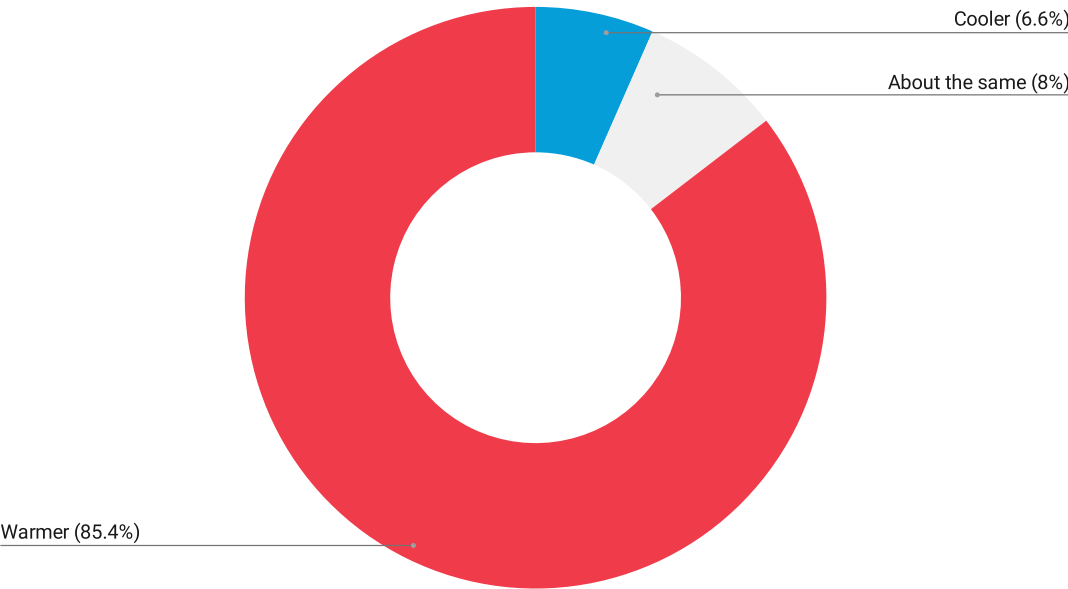
How much you would trust information about climte change if you heard it from...

Highly distrust · Somewhat distrust · Neither · Somewhat trust · Highly trust
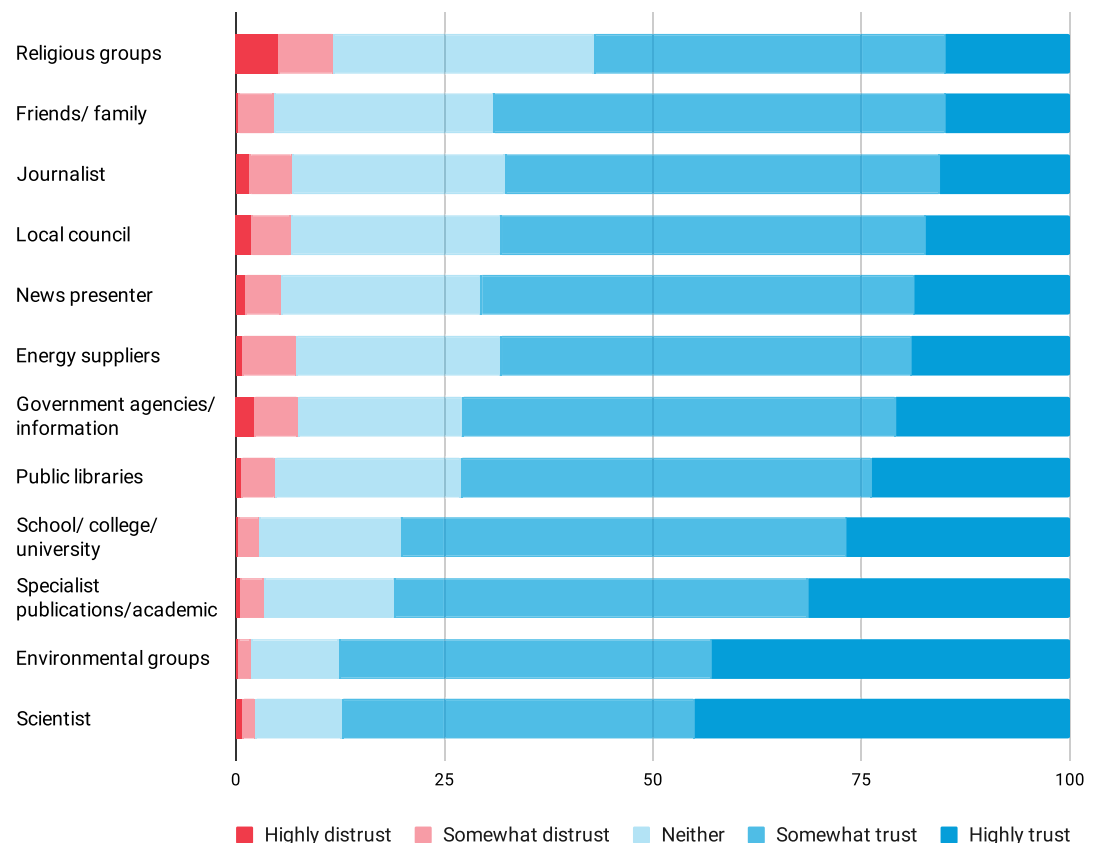
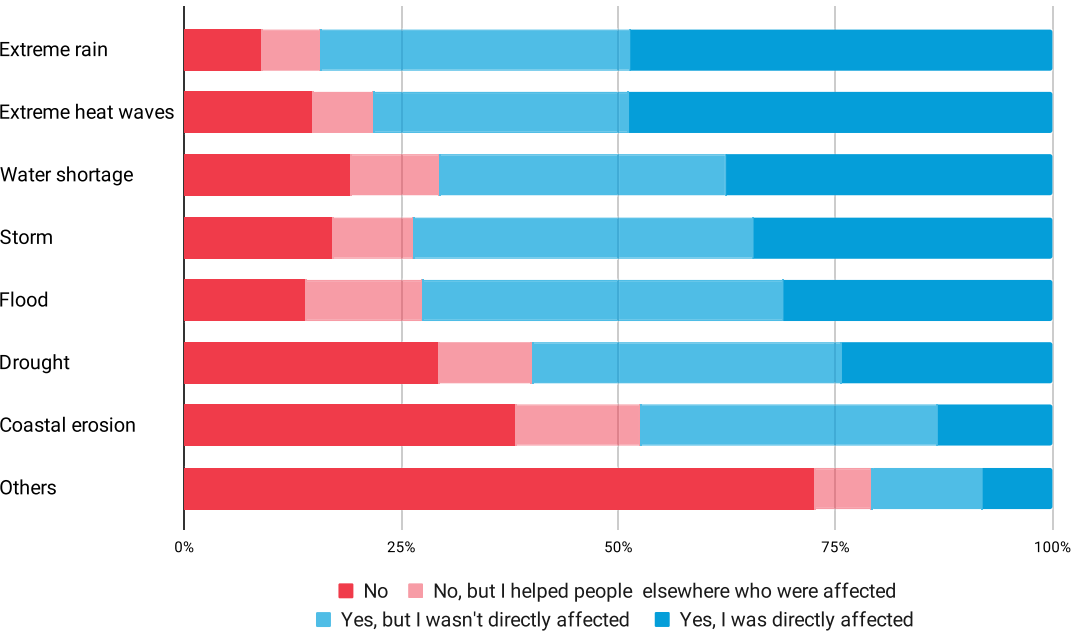# MALAYSIAN RESPONSE TO CLIMATE CHANGE AND CLIMATE CHANGE POLICY

We asked our respondents how they think the average temperature in Malaysia has changed in the last ten years. 85% of respondents agreed that the average temperature in Malaysia has increased, while 7% thought it was cooler and 8% thought it was about the same. Although there is little seasonal variability in a tropical country like Malaysia, the annual average mean temperature for 2019 was 27.6 °C, which is 0.7 °C above the normal temperature for Malaysia (MetMalaysia, 2020). Based on the observations, the older generations seem to have the impression that it is warmer in Malaysia than 10 years ago, compared to the younger generations.

As as you know, how has the average temperature in Malaysia change in the last ten years?

Cooler (6.6%)
About the same (8%)
Warmer (85.4%)

- 18-24 years
- 25-34 years
- 35-44 years
- 45-54 years
- 55 years or older

0% 25% 50% 75% 100%
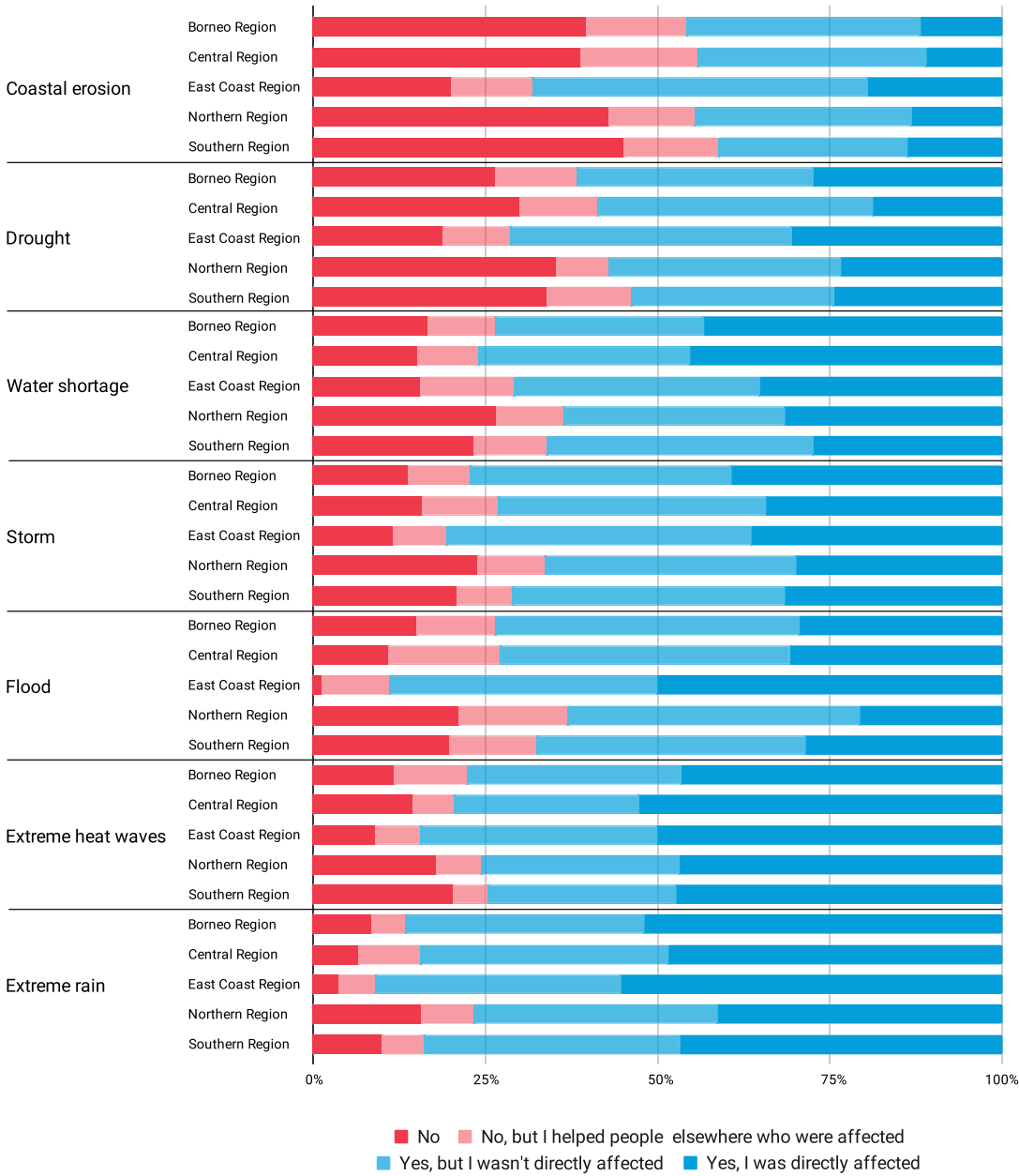
■ Cooler   ■ About the same   ■ Warmer

We asked our respondents how they have been affected by extreme weather events or natural disasters within the past 5 years. A majority of respondents have directly or indirectly experienced extreme weather events such as extreme rain, flood, storm, extreme heat waves, drought, water shortage and coastal erosion. 84% of the Malaysian population has experienced extreme rain either directly (48%) or indirectly (36%) affected by it, while 77% of our respondents say they had been directly (49%) or indirectly (29%) affected by extreme heat waves. The least common extreme weather event that our respondents had experienced was coastal erosion, with 38% of them saying they had never been affected by it, followed by drought (29% said they had never been affected by it).

Legend:
- No
- No, but I helped people elsewhere who were affected
- Yes, but I wasn't directly affected
- Yes, I was directly affected

We can also see that some of the extreme weather events or natural disasters are more localised to certain region of Malaysia because different regions have different responses towards the extreme weather events that they had experienced. Respondents from the East Coast region shows that they experienced more flood and coastal erosion compared to other regions. 88% of East Coast region respondents say that they either been directly or indirectly afftected by flood, and 68% say that they have been directly or indirectly affected by coastal erosion. 76% of respondents from the Central Region say that they have been directly or indirectly affected by water shortage compared to Southern Region (65%) and Northern Region (63%).

In the past 5 years, have you experienced the following extreme weather events or natural disasters

Legend:
- No
- No, but I helped people elsewhere who were affected
- Yes, but I wasn't directly affected
- Yes, I was directly affected

CONCLUSION AND RECOMMENDATIONS

Through this report, the newly established MCCCRH Malaysia node has provided significant new understandings on national and regional level snapshots into climate change concern, behaviour, and media attitude for Malaysia. This section of the report concludes the extent that the aims of the study have been achieved, and makes recommendations for the future.

This survey's aim was to determine how information about climate change issues could be communicated more easily and effectively, by:

- assessing Malaysia's public perception and understanding of climate change
- comprehending the Malaysian audience's behavioural responses towards climate change
- understanding the Malaysian audiences' media preference and who they trust as sources of information.

The Malaysia National Survey on Climate Change Concern, Behaviour, and Media Attitude – Preliminary Report 2023, was the first time the SASSY! segmentation tool was used and applied in Malaysia and adapted for use in a country where English was not just the primary language. The survey was offered in two languages, in English and in Bahasa Malaysia. A total of 636 respondents answered the survey in English, and 427 respondents answered survey questions in Bahasa Malaysia.

By conducting this survey across Malaysia's five regions, Central Region (comprising Kuala Lumpur, Putrajaya and Selangor) the Borneo Region (which is Sabah, Sarawak and Labuan), the Southern Region (includes Johor, Melaka and Negeri Sembilan), the Northern Region (covering Perlis, Kedah, Pulau Pinang and Perak) and lastly, the East Coast Region (which included Kelantan, Terengganu and Pahang), the MCCCRH Malaysia node has successfully established a starting point and baseline for comparison of community attitudes to climate change for future research and repeat surveys that may come over the years.

The four district areas the report offered insights into were: 1. Policy support, belief and motivation; 2. Individual action and willingness to change; 3. Media preference and trust; and, 4. Malaysian response to climate change and climate change policy.

The aforementioned survey recorded the views of 1062 Malaysian respondents which are ratioed to represent the general adult population in Malaysia according to their age, gender, location and ethnic groups to represent the diversity of Malaysian population. Segmentation analysis showed that eight in 10 Malaysians are alarmed and concerned about climate change. Malaysians are supportive of Government efforts to decrease emission levels regardless of what other countries are doing. Behavioural responses showed that Malaysians are making efforts in making purchasing shifts, and changing their energy-related and waste management behaviour. For example, our survey found that Malaysians bring their own bags when they go shopping. They are cutting back on how much energy they use at home and recycling more. There was a desire across our sample that the government should offer more incentives for more challenging behaviour shifts such as installing solar panels in homes and composting. The majority of Malaysians rely on the internet as their primary source of news and information. It was also found that scientists and environmental groups are Malaysia's most trustworthy sources of information about climate change. Majority of Malaysians report that they have been directly or indirectly impacted by the increasing frequency of extreme weather events brought on by climate change, such as storms, floods, and droughts, which had impact on their everyday lives, health, and economic well-being.

CONCLUSION AND RECOMMENDATIONS

Our recommendations for future surveys of this kind and the ways in which this research can be used in Malaysia and other countries in Southeast Asia, include:

- Offering this survey in Mandarin and Tamil alongside Bahasa Malaysia and English would create a wider reach in Malaysia, due to Malaysia's multiracial population with the many languages spoken by its communities. For other countries we highly recommend offering this survey in other languages. Translating the survey has undoubtedly helped make this survey more accessible.

- In Malaysia, to understand climate change knowledge, behaviours and attitudes, as well as new policy development initiatives, a repeat survey could be conducted in another four to five years. This would capture any changes, as Malaysia is rapidly developing as a country. Other countries that have rolled out this survey such as Australia (Richardson et al., 2022), and America (Chryst et al., 2018; Leiserowitz et al., 2021) have followed up after four-five-year timeframes.

- In order for Malaysia and other countries in Southeast Asia to better understand its progress on climate change communication efforts, it would be beneficial for the Association of Southeast Asian Nations (ASEAN) region to conduct similar surveys in their respective counties.

- To conduct more national and regional level interventions on climate change at a population level in Malaysia, policy makers, NGOs and Governments in and outside of Malaysia may find it helpful to build on our baseline work and tailor communication messages using the mass and social media we have outlined.

- This survey offers a snapshot of the population level behaviours and attitudes and communication preferences. To gauge a deeper level of understanding of Malaysia's climate change behaviour, change barriers and facilitators, a qualitative study is needed to gain an understanding of daily behaviours and lifestyles for different groups, such as the elderly, families with young children, teenagers, and people living with mental health and disabilities. Detailed understandings of these groups' behaviours and lifestyles are gaps in the literature and in research, currently.

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