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# Youth perception on climate change: a study in Central Java, Indonesia

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**Abstract.** Climate change has been an international issue and a current problem. Most studies focus on adapting to and mitigating climate change's effects. However, few studies emphasize the public's perception of climate change. Meanwhile, increasing the public's understanding of climate change is important, especially for the youth. It is essential due to the demographic bonus that will happen in 2030 in Indonesia. Understanding climate change from a young age is expected to reduce more severe environmental damage. This study aims to explore the perception of youth about climate change. This study employed a qualitative method with a descriptive approach. This current study utilizes primary data based on a questionnaire with certain criteria. The results revealed that most of youth in Central Java are aware to the climate change. Furthermore, the youth also believe that the climate change do affect economic growth. The findings surely add to the literature on climate change perception, especially among the youths in Indonesia.

## 1. Introduction

Climate change is inevitable due to the world increasing temperature. The data revealed that there are changes in temperature in the past decades. The National Centers for Environmental Information reported that since 1880 the global annual temperature has increase 0.08° celcius in average per decade. Furthermore, the data also shows that the global land temperature has increased 1.59 ° celcius in 2020. The increasing temperature make 2020 is the warmest year since 1884 [1].

World Meteorological Organization reported that there were more than 11000 reported disasters caused by climate change globally. Furthermore, over 2 million deaths and US\$ 3.64 trillion in losses from 1970 to 2019. In Asia, there are 454 disasters reported from 1970 to 2019, with 975,622 lives lost and US\$ 1.2 trillion economic loses [2].

Most population in this world are youth. The United Nations reported that 1.2 billion or 16 percent of global population is youth aged 15 to 24 years. Furthermore, youth population also projected to growth at 7 percent. Regarding to this fact, youth will be the leader in the next ten years. Their awareness and understanding about current problem and issue should be increased. Including climate change. The awareness of climate change is important. The awareness will lead to the action to deal with climate change which is to adapt or mitigate it.



The youth is future asset of a country. The presence of youth can affect economy and development in various ways [3]. The youth tend to be more innovative to dealing with the existing problem. There are a number of studies about people perception in climate change [4–6]. The study observe a group of spesific people or special characteristic to perceive the perception about climate change. This current study aims to discover whether the youth especially in central java are aware to climate change.

## 2. Literature Review

According to the American Meteorological Society, climate change is a change in climate components such as temperature, wind, and rain that continue over time [7]. Climate change can also be described as comparing a weather statistic at a specific time to another time. If the weather statistic changes over time, it can be described as climate change.

Perception on climate change has been discused in a number research [8–10]. Public perceptions of climate change are essential, especially for the development of effective communication strategies, democratic policies, and technology crucially. Whitmarsh and Capstick in 2018 revealed that factors influencing public perceptions of climate change include weather and weather events, economic factors, socio-political events and media coverage, and individual-level factors, in particular one's worldview and ideology [11].

Baiardi and Morana in 2021 found empirical evidence in climate awareness research in the European Union [12]. Environmental concern is directly related to per capita income, social trust, secondary education, physical stresses associated with hot weather, media coverage, the share of young people in total population, and monetary losses caused by extreme weather episodes. This is also inversely proportional to greenhouse gas emissions, the relative power position of right-wing parties in government and higher education. In addition, the study also found significant opposite impacts for 2017 and 2019, which were attributed to the effects of Donald Trump's rejection campaign and the announcement of the withdrawal of the US Paris Agreement, and Greta Thunberg's environmental activism, respectively.

Climate change awareness, especially age, has also been carried out by various studies. Lee et al. (2020) synthesized literature relating to the perception and understanding of children aged 8 to 19 years of climate change, to identify trends and inconsistencies, potential gaps in knowledge, and directions for future research [13]. In some studies, younger children expressed greater concern and were more willing to take action than older adolescents.

## 3. Methodology

### 3.1. Reserch location

This current study was conducted in Central Java due to the most populated area. The youth population is approx 5,6 million according to databoks 2021. The data implies that demographic bonus is existing.

### 3.2. Population and sample

The population of this study is youth who living in Central Java by de jure. The United Nations defines youth as an individual between the ages of 15 and 24 years. The Law of Youth in Indonesia No. 40/2009 defines youth is a person between the ages 16 and 30 years. While there is no concencus defines the youth, this study breakdown the youth age group into two groups which are 13 to 18 years old and 19 to 24 years old. This study generated primary data by using quistionnaire based on internet survey. This study employed purposive random sampling to obtain the primary data.

### 3.3. Method and data analysis

The primary data is generated using a survey with a questionnaire distributed from August 3rd, 2022, to August 14th, 2022. Singarimbun in 2006 explained that a survey is conducted due to the sample

taken from the population . This study is a descriptive research which employed a content analysis study that consist of data reduction, data presentation, and conclusion generation.

Commonly there are two types of questions in the questionnaire which are open-ended and close-ended questions [14]. The open-ended question able to capture the respondents' answer spontaneously and also avoiding the bias. The close-ended question limits the respondent by providing some given answers. This study utilizes a close-ended questionnaire to capture the respondent's answers by giving a certain answer to avoid out-of-context discussion.

This current research also utilizes the Likert scale to discover the answer of the respondents. Likert-scale provide given statements that respondent should choose to show their agreement level from disagree to strongly agree on metric scale [15].

## 4. Result and Discussion

### 4.1. Respondent Characteristic

This current research generated primary data by using a questionnaire based on an internet survey. This section provides the characteristic of the respondent. The result revealed that 221 respondents answered the questions through an online questionnaire. The respondents are 63 males and 158 females aged 13 – 18 and 19 – 24. There are 6, 96, 104, and 15 respondents in junior high school, senior high school, and university, respectively. Most of the respondents have a monthly allowance of fewer than 500.000 rupiahs.

**Table 1.** Respondent Characteristic

Variable	Description	Freq	Percentage
Gender	Male	63	28.5
	Female	158	71.5
Age	13-18	106	48.0
	19-24	115	52.0
Education	Junior High School	6	2.7
	Senior High School	96	43.4
	University	104	47.1
	No School	15	6.8
Monthly allowance	<500.000	123	55.7
	500.001-1.000.000	73	33.0
	1.000.001-1.500.000	17	7.7
	>1.500.000	8	3.6
Climate Change Awareness	Aware	218	98.6
	Not Aware	3	1.4
Human behavior caused climate change	Strongly agree	110	49.8
	Agree	49	22.2
	Uncertain	27	12.2
	Less agree	24	10.9
	Do not agree	11	5.0
Impact of Climate Change to region	Do not affect (1-3)	12	5.4
	Affect (4-7)	90	40.7
	Strongly affect (8-10)	117	52.9
Impact of climate change to economic growth	Do not affect (1-3)	4	1.8
	Affect (4-7)	72	32.6
	Strongly affect (8-10)	145	65.6

Source : primary data (2022)

#### 4.2. Youth perception

Most of the youth are aware of climate change. It is explained by the 218 respondents who answered that they heard and know about climate change. 49.8 percent of respondents agreed that human behavior caused climate change. It is in line with research by Verplanken and Whitmarsh in 2021 that human habit is one of the drivers of climate change over carbon footprint [16]. Human use energy to support their activities such as economic and tourism activities [17]. Those activities required mostly non-renewable energies such as fossil fuel that lead to the higher carbon emission which caused climate change in the long run. The awareness of climate change might trigger the youth to behave more efficient, effective, and innovative regarding to the activities that can increase carbon emission. The youth tend to be more open to the innovation such as renewable energy to mitigate the climate change.

Furthermore, 52.9 and 65.6 percent of respondents agree that climate change affects their region and economic growth, respectively. Climate change is identified by observing the agriculture productivity, sea level, and the amount of fresh water [18]. One of the factors affecting agriculture productivity is the climate anomaly including the increasing rainfall and drought. These two conditions will decrease the agriculture productivity which lead to the lack of supply in the market. Thus, it will increase the price. In the long term, if the authorities and farmer are not aware of this condition the food scarcity could happen.

### 5. Conclusion and Policy Recommendation

#### 5.1. Conclusion

The data showed that most of the youth living in Central Java are aware of climate change. There are 28.5 per cent male and 71.5 per cent female respondents. There are 48 per cent and 52 respondents between the ages of 13 and 18 years and between the ages of 19 – 24, respectively. The education variable showed that 6, 96, 104, and 15 respondents are in junior high school, senior high school, university, and no school, respectively. The 98.6 per cent respondents are aware of the climate change and only 1.4 per cent are not aware. Furthermore, most of the respondents agreed that human habit and behavior does affect climate change as much 49.8 per cent. There are also 52.9 percent and 65.6 percent respondents who agreed that climate change will affect their region and economic growth respectively.

#### 5.2. Policy recommendation

The result implies that most Central Java youth are aware of climate change. Thus, some recommendations for the authorities, such as the Ministry of Communication and Information Technology Minister of Environment and Forestry, to maintain climate change education and enhance the communication style to spread the climate issue to the youth as the future generation. In that way, if the youth are fully aware and concerned, at the time, they will be authorities, and they will construct a new paradigm of policy to deal with climate change in the long term.

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