

# Sunny the Rainy, Rainy the Sunny: Climate Change Through the Eyes of DOSCST Students

**MARSHALEY J. BAQUIANO**

Division of Social Sciences, College of Arts and Sciences, University of the  
Philippines — Visayas, Miagao, Iloilo

Corresponding author's e-mail: [shybaks@yahoo.com](mailto:shybaks@yahoo.com)



This work is licensed under a [Creative Commons Attribution-NonCommercial 4.0 International License](https://creativecommons.org/licenses/by-nc/4.0/).

## ABSTRACT

The study examined undergraduate students' social understanding of climate change, using the lens of Social Representation Theory. One hundred thirty-seven students answered a free association questionnaire in which they wrote down their ideas regarding climate change. Climate change is socially perceived as plain modification in the patterns of weather, climate, season, and temperature. A phenomenon that brings both progress and harm. It is viewed as causing the weather to become unpredictable and abruptly changing, similar to a person with mood swings. Climate change is also socially understood to have been caused by human beings' abusive behaviors towards the environment, resulting to financial, psychological, social, and health problems as well as environmental devastation. Climate change rouses fear and anxiety, leading to a cry for people to take care of the environment. Insights from the study have implications on the creation and implementation of strategies and policies on climate change mitigation and adaptation.

Keywords: climate change, Social Representation Theory, global warming, weather pattern, El Niño, La Niña

## INTRODUCTION

Climate change is the long-term change of weather patterns, either due to natural variability or as a result of human activity.<sup>1</sup> It is a natural phenomenon which could take millions of years to occur: Today, however, climate change has been observed to be happening at a much-accelerated pace. It is believed to be caused by human activities, such as energy use and land use practices. Regarded as a major challenge to today's society,<sup>5</sup> changes in climate strongly impact the vulnerable ecosystem and human societies.

For instance, the shifting weather patterns affects food production;<sup>7</sup> the rising- sea level messes up coastal ecosystems; and catastrophic flooding, severe El Niño and La Niña events increase the number of people suffering from illness and injury. These events prompted many researchers to study the phenomenon from various vantage points of view.

### Climate Change Investigations

Climate change investigations have been conducted by various researchers from different fields - natural sciences, social sciences, and agriculture, amongst others. The central points of these research studies vary, according to the field of specialization of the researchers as well as the angle at which they look at the phenomenon. Those in the field of natural sciences look at climate change impacts on the environment and its inhabitants. For instance, Hughes<sup>9</sup> investigated climate and geographical trends over the last decades in Australia while Cotton<sup>10</sup> looked at the trends of migration among birds in the United Kingdom. Easterling and colleagues<sup>11</sup> documented gradual and biological changes among wild plants and animals while Harley,<sup>12</sup> studied the effects of climate change on coastal marine systems. These studies report of ecological effects that were set off by the occurrence of global climate change.

Other researchers, on the other hand, focus on the impacts of the phenomenon on people and their lives. For instance, Hunter<sup>13</sup> studied diseases brought about by climate change. Patz, Campbell-Lendrum, Holloway, and Folley<sup>14</sup> investigated the effects of climate change on human health. O'Brien and Leichenko looked into the dual impact of climate change and economic globalization on people's lives. Results of these studies point to increased risks brought about by climate change in people's health and the economy. Other scientists studied how the world adapts to climate change. Berang-Ford, Ford, & Paterson,<sup>15</sup> supposing that human systems have to adapt to climate change, investigated how this is taking place. Berkes and Jolly,<sup>16</sup> on the other hand, looked into the social-ecological resilience of a Canadian western arctic community as they attempted to adjust to the changing climate. Moreover, Tompkins and Adger,<sup>17</sup> examined the value of building resilience in both human and ecological

systems in coping with environmental changes. These studies emphasize short- and long-term strategies in coping with climate change, including enhancement of people's capacity for learning and for adapting to the impacts of future changes in climate. There are also researchers who investigated potential means of lessening the impacts of climate change. Betsill,<sup>18</sup> for instance, looked into plausible opportunities and obstacles that may be met in trying to mitigate the effects of climate change in the United States of America. She argues that reframing climate change as a local issue instead of a global issue plus policy changes in the local, state, and national levels may meaningfully contribute to climate change mitigation. These various investigations indicate the undeniable relevance of the phenomenon of climate change to our current society.

The findings of these studies point to a bleak and dreary future if the climate change trend continues. As such, it is imperative to engage people in mitigating the adverse effects of climate change.<sup>3</sup> In the Philippines, Republic Act 9729, also known as Climate Change Act of 2009, was put into law to ensure the protection of the environment. Thus, in order for the society to act, it is vital to appreciate where the society members are coming from by looking into their own understanding of the phenomenon.

It is vital to explore people's social knowledge on this issue as their understanding may also affect their behaviors. Their social perceptions of climate change influence their involvement on climate change mitigation and adaptation programs.

#### Investigating Climate Change Using a Social Representations Approach

The climate change phenomenon may also be investigated using a Social Representations approach. This theory was advanced by Serge Moscovici. This framework looks at how people construct their reality together through their interactions and communications. As such, a group's social representations are the products and processes that give a picture of their —common sense<sup>11</sup> thinking.<sup>20</sup> Wagner and colleagues<sup>21</sup> defined social representation as the —ensemble of thoughts and feelings being expressed in verbal and overt behavior of actors which constitutes an object for a social group. It is a collective phenomenon that pertains to a community and co-constructed by individuals in their everyday talk and action. These representations reside across the minds of these co-acting individuals.<sup>11</sup> Social representations take into account explanations of attribution; attitude towards; emotion towards; and stereotypes about those objects linked to the representation object".<sup>22</sup>

#### **Creating Social Representations**

Creating social representations involves two processes: anchoring and objectification.<sup>20,21</sup> For a group to understand an unusual occurrence, such as climate change, its members would have to label this phenomenon and to ascribe characteristics to it so they can discuss it among themselves. This is anchoring.<sup>21</sup> It pertains to the - integration of new information to the system

of knowledge and meaning that have been present before||.20 Thus, in order to understand the puzzle behind climate change, people may try to assimilate new information with their lay knowledge about anything related to climate and to environmental changes. Doing this would help make it easier to grasp the meaning of the phenomenon. Objectification, on the other hand, is creating an icon, metaphor, or trope that will represent the new phenomenon or idea. It is, therefore, —a mechanism by which socially represented knowledge attains its specific form||.21 It captures the very core of the new idea, makes it comprehensible for people, and merges it into the frame of the common sense of the group. In short, it is the process of turning the abstract into something that is concrete or tangible.22,23 In doing this, people may use figures of speech or any symbol in referring to climate change so as to create a picture that stands for the construct, allowing for a better and easier comprehension of the phenomenon. Knowing how groups of people use anchoring and objectification would give us a peek on how they symbolically cope with climate change. This makes Social Representation Theory valuable in understanding how a group makes sense of its world.

### **Representations as Social**

Social representations are produced and reproduced through social interactions. This could happen, for instance, when members of a group deliberate on the issue of climate change. Representations are social by virtue of the ideas shared by the members of the group. More than that, however, they are social because they are created through the process of group interaction.25 Moscovici posits that communication is not just the expression of ideas and feelings; but also, the communication of the action underlying those thoughts and feelings, be it instrumental or entirely ritualistic. A group's reality is, thus, constructed, translated into practice that objectifies feelings and thoughts, and then transmitted and imparted. With this, we can see that the use of Social Representation Theory will, thus, help us apprehend how people create their reality together as members of one social group.

### **Apprehending the Context of Social Representations**

Social Representation Theory proposes that frequent interface among members serve as tapestry in the creation of group knowledge. The meanings that a group makes of any social object are intertwined with their thoughts and feelings that are, in turn, interlinked with their culture. Social representations, thus, are elaborately conjoined with a group's culture.19 For instance, a group's apprehension of climate change would be similar to the members' shared convictions, principles, and values. If the members have a strong religious view, they may link climate change with the teachings and philosophy being advanced by their church. Using Social Representation Theory, thus, takes into consideration the meanings created by a group based on their own circumstance.26

This study aimed to capture Davao Oriental college students' meaning-making of the climate change phenomenon. It also tried to see if they use objectification and anchoring in the process of creating their social representations of climate change.

## **MATERIALS AND METHODS**

The participants in this study were 132 undergraduate students enrolled at Davao Oriental State College of Science and Technology. Of the 132 participants, 72 were females and 60 were males. Participants' age ranges between 15 and 33 years ( $M=18$ ). Students were chosen as participants in the belief that they could give valuable information. Considering that besides conversations with other members of the community about the observed changes in climate, the issue on climate change is also being discussed in the academic environs. Free association technique was used in gathering data. The participants were asked to answer the questions, what is your understanding of climate change? what comes to your mind when you think of climate change? and how would you describe climate change? They were to write the first ideas that came to their mind upon reading the questions. They were asked to write as many as 10 answers for each question. They were also allowed to write their responses freely in English, Filipino, or the vernacular Bisaya and Mandaya to encourage them to communicate in the language that they were most comfortable with. Data were analyzed using thematic analysis.

## **RESULTS AND DISCUSSION**

Climate change is regarded as a phenomenon that is being experienced by the world today. It is seen by college students in Davao Oriental as having three facets, as a puzzle, as a cause, and as an effect. Discourses on the issue also include their feelings about it, the metaphor depicting climate change, as well as the appeal to care for the environment. This section shall tackle these seven subject matters one by one.

### **Climate Change: The Good, the Bad, the Puzzle**

Climate change is socially understood as plain modifications in the patterns of weather, climate, season, and temperature. These changes, according to the participants, may sometimes be unpredictable; but they are, nevertheless, inevitable. Aside from these neutral descriptions, changes in climate are described in three distinct ways: positively, negatively, and as a puzzle. These three ways are discussed next.

The good. Climate change is seen as a natural phenomenon that could bring *kauswagan* (progress) to the various communities. It is thus perceived as a good climate and as serving an important purpose both for the human beings and for the environment.

The bad. Contrariwise, climate change is perceived as not normal especially that the observed changes in weather patterns occur at a much-hastened pace. There are changes in the environment that occur, most of which lean on the negative. For instance, there is the melting of ice caps, extreme heat, and occurrence of acid rain. These changes are seen as uncontrollable. Because of this, climate change is viewed as dangerous and marahas (cruel) since it only brings harm to human beings, animals, and the environment. It is seen as the enemy of nature; thus, a problem that needs to be solved. Climate change is also perceived as nature's way of pagbalos or getting back at human beings because of the various ways that they abuse the environment. It is also seen as Mother Nature's means of punishing those who harm and injure the earth. Because of that, climate change is, thus, considered as the fall of mankind. More than anything else, climate change is understood as a sign that the world is coming to an end and that what would come next would be the Final Judgment.

The puzzle. Oscillating between being perceived as bewildering because of the occurrence of rain during summer and there are clear and fair days during the rainy season. One participant gives this description: Bisag ting-ulan nga panahon, nahimo na nuong ting-init (rainy season has become summer). Thus, one would no longer be sure which is tag-init (summer) and which is tag-ulan (rainy season). Wet summer is how another participant describes it. Sometimes there is what is termed as ulan-init. Meaning, it rains in the middle of a sunny day. Participants also do not understand why sometimes it could be raining hard in one place while it is bright and sunny in its neighboring area. Or it could be raining for days on end, which, people find unusual in the Philippines. The weather is found to be scorching these days and it is also described as exceedingly cold at times. Thus, on one end, climate change is associated with global warming and greenhouse effect; while on the other it is also linked to ice age. People also find it puzzling that the temperature could already be warm even early in the morning. Or it could already be raining hard, yet people still feel uncomfortably hot. As one participant says, —nausab ang dagan sa panahon (time has changed).

### **The Picture of Climate Change**

Because the weather is perceived as difficult to understand, it has been likened to a buang. Buang is a vernacular word which means mentally disordered. In the Philippine context, a buang could be one who is hard to follow because of his/her unpredictability. This instability may be manifested in one's mood which could swing from extreme mania and depression. It may also be demonstrated in one's behavior, such that one could be crying and laughing at the same time. A buang may also be incoherent at times. In the same vein, the weather these days is also described as unpredictable, perplexing, as well as incomprehensible, as already described above. Thus, to the participants, climate change means nabuang ang weathen Meaning, the weather has become like that of an individual with a mental disorder.

### **The Whys of Climate Change**

The discourse on climate change does not end on the description of the phenomenon. It also extends to the reasons why it is happening. Climate change is socially understood to have been caused essentially by human beings' abusive behaviors towards the environment. These abusive behaviors come in the form of overly populating the earth, ravaging of the earth's resources, and the advancement of technology. The earth, according to the participants, has been overloaded by human beings with an unwarranted number of people. The greater number of people there are, the more resources are also being consumed at a much faster rate. Bigger population also means more garbage is being produced. Filling the earth with trash, polluting it in the process is seen as one sure way of annihilating the environment. The abusive acts of humans are perceived to come in the form of excessive cutting of trees, throwing of garbage anywhere, and burning of plastics, amongst others. Other forms of environmental ill-treatment are the creation of devices that damage the ozone layer in particular, the rapid increase of the number of buildings being constructed, as well as the activities of the mushrooming factories and the mining industry. All these result to pagkasira ng kalikasan (environmental destruction). These acts of environmental cruelty are seen as varied ways of exploiting the earth's resources, as a sign of human negligence, and as an indication that people are undisciplined. They are also taken as acts showing human beings' kabuang and pagpasagad (irresponsible behaviors) towards the environment. These, according to the participants, show that people have no regard for the environment.

### **The Impact of Climate Change**

The everyday talk about climate change also includes the effects of the phenomenon not only on human beings but also on the other inhabitants of the earth and on the environment itself. Humans are said to be experiencing financial, psychological, social, and even health problems as a result of climate change. That is, the change in weather and the extreme heat causes people to have headache, colds, heatstroke, diseases, and various kinds of sickness. The children are seen to be most affected because of their vulnerability.

Climate change is perceived to affect people's moods. That is, the intense heat of the sun makes people feel discomfort, irritable, and sometimes even depressed. It could even lead to aggressive behaviors. It is believed that disasters and calamities occur because of climate change. Examples of these are El Niño, La Niña, landslide, flood, typhoon, storm, tsunami, erosion, drought, tornado, wild fire, and the occurrence of acid rain. These catastrophes are observed to be taking place more often these days. It was also supposed that the sobrang init (extreme heat) is causing more volcanoes to erupt. The disasters are said to cause not just inconvenience but also serious loss, hardship, hunger, and even death. Any disastrous event could damage people's property, the crops that the farmers plant, and people's kabuhayan or livelihood. It can also disrupt school activities.

This tragedy could result to starvation and eventually to poverty. According to the participants, walang sinasanto ang climate change. That is, climate change does not single out who to victimize. It picks on everyone. It is, thus, a global crisis that causes human sufferings. The bad news is that, it is one big problem that is difficult or even impossible to solve, mainly because the main cause are the human beings themselves. It is socially believed that climate change also affects other inhabitants on earth like the animals and plants. For instance, the melting of glaciers could threaten the lives of the animals inhabiting the polar region. The rising sea level could also lead to the death of fish. Moreover, the change in temperature is understood to have caused the migration of some species, their extinction, and even their death. The environment is seen to be suffering as well. That is, ozone layer is damaged, there is now too much carbon dioxide in the atmosphere, naupaw na ang bukid (the forests are being denuded), mabaho na ang simoy ng hangin (the air smells horrible), and land, water, and air are now polluted. There is environmental devastation as well as depletion of the earth's resources. The earth is, thus, in a bad shape.

### **The Feeling Evoked by Climate Change**

Discussions about climate change also lead to questions like can we control climate change? C or statements like nakakatakot (scary) or nakakakaba kung anong mangyayari (makes one feel afraid of what happens next). Thus, the thought of climate change makes people feel scared. Believing that disastrous events like typhoons, flash floods, and landslides are caused by climate change, people are now frightened and are experiencing anxiety because of the danger that climate change poses. Then there is also that feeling of misgivings because people do not know when a disaster would occur and worse, how much damage it would cause. The idea that any catastrophe could occur in a blink of an eye, is uncontrollable, inevitable, and may no longer be within their capacity to manage makes people experience fear and uncertainty.

### **Climate Change: A Call for Advocacy**

Conversations about climate change eventually led to a plea to help save the earth. So much damage has been ensued on the environment because of the abusive behaviors of human beings, thus, the cry now is this: huwag na nating hayaang magpatuloy ang climate change (let us not allow climate change to continue). It is believed that understanding Mother Nature and putting a halt to human beings' destructive behaviors can definitely help protect the environment. Helping save the earth may be done, according to the participants, by planting more trees, keeping the environment clean, proper disposal of waste (e.g., segregation), putting an end to mining activities, discontinuing illegal logging, and taking care of the plants and animals. The call is for people to love Mother Earth, to help palambuon yang kanaton kapaligiran (bring progress to the environment), and most importantly, huwag magpabaya (not to be neglectful).



The appeal is, thus, for people to become environment advocates as the earth [nagsustiner ng kanato kinabuhi] (is the one sustaining our life).

The social representations of climate change are reflective of the ideas that people have about the social issues which was produced out of their daily exchanges,<sup>21,25</sup> the impact of the media,<sup>27</sup> and even the influence of their culture.<sup>28</sup> For instance, the beliefs that the world is about to end and that climate change marks the coming of Judgment Day also reflect the shared beliefs and values of the people. These shared beliefs typically demonstrate Filipino's religious faith. Trying to put the blame on human beings' behaviors is also reflective of how the group makes attributions of the things that they are now going through. Social Representation Theory posits that it is through interactions that social understanding of an issue is constructed and insights are attached to various factors that are ascribed to the culture of the group. The use of the term, *buang*, in explaining their understanding of climate change also shows that the participants use metaphor to symbolize the phenomenon of climate change. Here, they turn the abstract term that is climate change into something that is as concrete as an individual with a mental disorder.<sup>22,23</sup> Doing so helps them capture the very heart of their experience with the phenomenon, making it easier for them to understand what is happening, and then fuse this new idea into the frame of their common sense.<sup>21</sup> Social representations of climate change include the emotions that are roused when the phenomenon is discussed. For instance, people do get scared at the thought of climate change and the possibility of its consequences that may already be beyond people's power to cope with. This shows that social representation is also affective •besides being cognitive.<sup>29</sup>

With the result of the study, it is easy to see that if we were to develop and implement policies on climate change mitigation and adaptation, it would be best to anchor them on people's social understanding of the phenomenon. Knowing people's social meanings of climate change would give a glimpse of where they are coming from and thus, making it easier to know the kind of policies to create as well as how best to carry them out. For instance, as it is the belief of the participants that the root cause of climate change is the irresponsible behavior of human beings, the program of actions to be crafted could be something that points to modification of human behaviors. These behavior modifications may focus on preventive actions such as use of renewable energy and energy conservation; developing in people resilience to the changing climate; as well as empowering people against the impacts of climate change. Their call for advocacy stating, *huwag na nating hayaang magpatuloy ang climate change* (let us not allow climate change to continue) can also be brought into play. It does pay to listen to the wisdom of the common people, not just experts, because as Steyaert and colleagues<sup>30</sup> have stated, solutions to environmental issues are constructed by those concerned and those affected themselves. This study has gathered data on how climate change is socially understood by college students. The research output could still be enhanced, however, with another study which

probes deeper into how the problem on climate change, as people see it and as how they discuss it in their everyday interactions with one another. It is also interesting to look into how changes in climate are understood by specific groups such as farmers or fishers whose livelihood is very much affected by variations in weather patterns.

### **ACKNOWLEDGEMENTS**

This study was fully supported and funded by the Research Development and Extension of Davao Oriental State College of Science and Technology, City of Mati, Davao Oriental, Philippines.

### **LITERATURE CITED**

- IPCC (2007). Climate change 2007: Synthesis report, Cambridge, UK: Cambridge University Press.
- Carey JL Global warming: Faster than expected? Sci Am. 2012.
- Whitmarsh L, Seyfang G, O'neill S. Public Engagement with carbon and climate change: To what extent is the public Dcarbon capable?
- Claussen E. Climate change: Science, strate gies, and solutions. Foreword. In E. Claussen Ed. Arlington, VA: Pew Center on Global Cli mate Change; 2001. 5
- O'Brien KL, Leichenko RM. Double exposure: Assessing the impacts of climate change within the context of economic globalization. Global Environ Change. 2000; 10: 221-232.6
- Nicholls RJ, Natasha M, Lowe JA, Brown S, Vellinga P, de Gusmao D, Tol RSJ. Sea-level rise and its possible impacts given a Dbeyond 400C world' in the twenty-first century: PhilTrans. 2011; 369: 161-181.
- Parry ML, Rosenzweig C, Iglesias A, Livermore M, Fischer G. Effects of climate change on global food production under SRES emissions and socio-economic scenarios. Global Environ Change. 2004; 14 (9): 53-67. 9
- Hughes L. Climate change and Australia: Trends, projections, and impacts. Austral Ecology. 2003; 28: 423-443.
- IOcotton P. Avian migration phenology and climate change. National Academy of National Sciences of the United States ofAmerica. 2003; 100(2): 12219Ü 12222.

- Easterling DR, Meehl GA, Parmesan C, Changnon SA, Karl TR, Meams LO. Climate Extremes: Observation, Modeling, and Impacts. *Science* FIOOnlineCJ 2000; 289(5487): 2068-2074.
- Harley CDG, Hughes AR, Hultgren KM, Miner BG, Sone CJB, Thornber CS, Rodriguez LF, Tomanek L, Williams SL. The impacts of climate change in coastal marine systems. *Ecol Lett* DOnlineC2006; 9: 228-241.
- Hunter P. Climate change and waterborne and vector-borne disease. *J Appl Microbiol* online2003•, 94: 37846.
- Patz JM, Campbell-Lendrum D, Holloway T, Foley J. Impact of regional climate change on human health. *Nature Publishing Group aOnline*ü005; 438: 310-317.
- Berrang-Ford L, Ford J, Paterson J. Are we adapting to climate change? *Global Environ Change*. 2011; 21: 25033.
- Berkes F, Jolly D. Adapting to climate change: Social-Ecological Resilience in Canadian Western Arctic Community) ß, *Conserv Ecol* online200t; 5(2).
- Tompson EL, Adger WN. Does adaptive management of natural resources enhance resilience to climate change? *Ecol Soc*. 2004; 9(2).
- Betsill MM. Mitigating climate change in US cities: Opportunities and obstacles. *Local Env*. 2001; 6(4): 393-406.
- Moscovici S. Why a theory of social representations. In K. Deaux C] G. Philogene (Eds.). Cambridge, MA: Blackwell Publishing Inc.; 2001. p 8-35.
- Jodelet, D. (2002). Les représentations sociales dans le champ de la culture. *Social science information*, 41(1), 111-133.
- Wagner W, Duveen G, Farr R, Jovchelovitch S, Lorenzi-Cioldi F, Markova I, Rose D. Theory and method of social representations. *Asian J Soc Psychol*. 1999; 2: 95-125.
- Bauer M, Gaskell G. Towards a paradigm for research on social representations. *J Theor soc Behav*. 1999; 29(2): 163-186.
- Abric JC. Specific processes of social representations. *Paper Soc Representations*. 1996; 5(1): 77-80
- Duveen G. Introduction: The power of ideas. In S. Moscovici El Ch Duveen (Eds.). Cambridge: Cambridge University Press; 2000. p 1-17.
- Moscovici S. Notes towards a description of social representations. *Eur J Soc Psychol*. 1988; 18: 211-250.

- Howarth C, Foster J, Dorrer N. Exploring the potential of the theory of social representations in community-based health research and vice versa? *J Health Psychol.* 2004; 9(2): 229-245.
- Christidou V, Dimopoulos K, Koulaidis V. Constructing social representations of science and technology: The role of metaphors in the press and popular scientific magazines. *Publ Understand Sci.* 2004; 13: 347-362.
- Levin-Rozalis M. Social representations as emerging from social structure: the case of the Ethiopian immigrants to Israel. *Paper Soc Representations.* 2000; 9: 1.1-1.22.
- Echabe A, Guede F, Gonzalez-Castro JL. Social representations and intergroup conflicts: who's smo-king here? *Eur J Soc Psychol.* 1994; 24: 339-355.
- Steyaert P, Barzman M, Nillaud J, Brives H, Hubert B, Ollivier G, Roche B. The role of knowledge and research in facilitating social learning among stakeholders in natural resources management in the French Atlantic coastal wetlands. *Environ Sci Policy* 2007 10: 537-330.