

Communication Platforms and Perspectives on Climate Change among Layer Farmers in San Jose, Batangas, Philippines

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Abstract— *Communication plays a vital role in a developing society as it could be used for developing of perspectives. This study aimed to analyze the communication and perspectives on climate change among layer farmers in San Jose, Batangas, Philippines. Descriptive research design in a quantitative approach, along with distributed survey questionnaires to the respondents in the said municipality were utilized to answer the research objectives. Systematic random sampling was used to get the sample size of the layer farmers. Statistical tools such as frequency/percentage, weighted mean and Pearson's correlation were also used. The layer farmers were greatly exposed in interpersonal communication platforms. Demonstration, meetings, seminars and trainings were of less extent. Radio, television and cellphones were widely used by the layer farmers, while very few had access on the internet. Furthermore, they agreed on food security, water sufficiency, ecological and environmental stability, human security and knowledge and capacity development. However, they moderately agreed on climate-smart industries and services, and sustainable energy. Findings also showed that there is a significant relationship between the layer farmers' perspectives to the communication platforms they were exposed to.*

Keywords— *mass media, interpersonal, environment.*

I. INTRODUCTION

Climate change is any change of climate patterns due to natural variability or a result of direct and indirect human activities (IPCC, 2007). It is one of the most risky environmental, social and economic threat humanity is facing. Based from the National Framework Strategy on Climate Change (NSFCC) from 2010-2022, the root causes of climate change comes from the direct and indirect human activities that produce greenhouse gases started during the mid-20th century. Drastic changes in climate such as more

intense tropical cyclones, severe changes in amount and pattern of rainfall, rising of sea levels and global rising of temperature are the effects of climate change. All these effects will cause the destruction of the ecosystem, the destruction of the river basins, marine systems and the biodiversity (CCC, 2010).

The Philippines, as an archipelago and a developing country in Asia is not spared from the effects of climate change. In fact, the country ranked highest globally in terms of vulnerability to tropical cyclones occurrence and ranked third in terms of people who are exposed to such seasonal events. Recently, the Climate Change Vulnerability Index (CCVI) was released indicating the sixteen (16) of the one hundred seventy (170) extremely vulnerable countries to climate change; and of these 16 countries, the Philippines ranked sixth (6th) (Maplecroft, 2010).

There are reasons why the country is so much affected by the said phenomenon; among these is the high percentage of residents engaging in agricultural and economic activities on coastal areas. The country also relies on the agriculture as a source of employment and income generation. Moreover, the country is also dependent on the natural resources available, making it doubly vulnerable to the punitive impact of climate change (DA-BAR, 2011).

Climate trends shows that the Philippines has exhibited an increasing temperature with observed mean temperature of 0.65°C or an average 0.01°C of annual increase from 1951 to 2010. Respectively, the last fifty years comprehended that daytime and nighttime temperatures have increased by 0.36°C and 0.1°C. Moreover, the analysis of the tropical cyclone passage using a thirty-year running mean over Luzon, Visayas and Mindanao shows that the number of cyclones slightly increased in Visayas during the period of 1971 to 2000 compared to the years 1951 to 1980 and 1960 to 1990

(PAG-ASA, 2011). In line with this pervasive threat, the National Climate Change Action Plan (NCCAP) has identified seven strategic priority areas to effectively deal with climate change. Among these areas are food security, water sufficiency, ecological and environmental stability, human security, climate-smart industries and services, sustainable energy and knowledge and capacity development (CCC, 2011).

The pervasive effects of climate change pose a serious threat to the agricultural sector and food security. The performance of the agricultural sector will be affected due to significant changes in temperature, rising of sea levels and occurrence of extreme weather conditions. Severe flooding, soil erosion and occurrence of pest and diseases are also expected to happen damaging the poultry and livestock. Generally, climate change is viewed as one of the major factors that contribute to the debility of food security; it postures a threat in the aspect of food security that may lead to hunger, malnutrition and other associated societal problems (DA-BAR, 2011).

The poultry industry is one of the most progressive sectors in terms of Philippine agriculture. The Bureau of Agricultural Statistics (2013) confirms the poultry subsector has contributed fourteen percent (14%) to the agricultural production with chicken as the largest production. One of the renowned agribusiness areas is the municipality of San Jose, Batangas, mainly known for its layer and swine industry; likewise it gradually develops the production of lanzones, coffee, and black pepper. Most of its workforces are engaged in farming.

Presently, there are 215 poultry farm registered in San Jose, Batangas and it is dubbed as the Egg Basket of the Philippines, producing five million eggs daily (Bernardo, 2014). However, it has been reported that natural disasters like typhoons and different animal disease outbreak had threatened the production of chicken and egg products. On August 2014, typhoon Glenda, which barreled across Luzon caused damage on chicken and egg products. Climate change is every one's issue and it is experienced globally. San Jose, Batangas is never an exception in suffering the pitfalls of climate change.

Communication plays more than a number of tasks in a developing country (Quebral (2012). It is used for sharing of knowledge and developing of perspectives that may be used to inform people with regard to the current events, important occasions, jeopardies, opportunities, and the alterations in the community, the region, the country, and the world. It also provides talks and forums in order to discuss the issues affecting the community.

Communication may also be a process which emphasizes that there is always a change. The researchers

were motivated to study communication and perspectives on climate change among the layer farmers as an endeavour for development. This study identified communication platforms used by the layer farmers in transmitting messages and perspectives development particularly on climate change. This study may serve as a basis research material in addressing the necessities of the layer farmers due to climate change though translating this research into an agricultural extension program.

Furthermore, as communicators and catalysts of change, the researchers have thought the inadequacy of useful information the society on the alarming issue of climate change and the unawareness in moral responsibility towards the environment and its associated aspects. Hence, the researchers have come up to this study to be aware and disclose the needs of the layer farmers due to the great threat brought by the phenomenon. This study highlighted the importance of egg production to the agricultural productivity, conceptualized ideas on how communication may enhance individual action and widen the perspectives of the layer farmers and hopefully, resulting to healthy layer farming towards a better and greater yield through agricultural extension.

II. RESEARCH OBJECTIVES

This research analyzed the communication and perspectives on climate change among layer farmers in San Jose, Batangas, Philippines. Specifically, it analyzed the extent of the layer farmers' exposure on communication platforms in developing perspectives on climate change; the perspectives of the layer farmers on climate change along with food security, water sufficiency, ecological and environmental stability, human security, climate-smart industries and services, sustainable energy, and knowledge and capacity development; and the relationship between the level of perspectives of the layer farmers with the communication platforms they are exposed to.

III. MATERIALS AND METHODS

The municipality of San Jose, Batangas, Philippines has 32 barangays, with a total of 213 poultry farms. The whole town is heavily engaged in layer farming. The researchers employed the descriptive design of research in a quantitative approach. There were 68 layer farmer layer farmers chosen through systematic random sampling. Most of them were 21-30 years old (27 or 39.7%), male ((42 Or 61.8%), married (27 or 39.7%), high school graduate (25 or 36.8%) and engaged to layer farming for 1-5 years (23 or 33.8%). Their responses were gathered through a survey questionnaire, the major data gathering instrument of this research. A 4-point scale was used to measure the extent of

communication platforms the layer farmers were exposed to through a 4-point scale: very great extent (4 or 3.50-4.00), great extent (3 or 2.5-3.49), less extent (2 or 1.5-2.49) and no extent (1 or 1.0-1.49). In addition, for the perspectives of the layer farmers were strongly agree (4 or 3.50-4.00), agree (3 or 2.5-3.49), moderately agree (2 or 1.5-2.49) and disagree (1 or 1.0-1.49). Statistical tools like frequency/percentage, weighted mean, and Pearson's correlation were employed in treating and analyzing the numerical research data.

IV. RESULTS AND DISCUSSION

1. Perspectives of the layer farmer-layer farmers on climate change along with food security; water sufficiency; ecological and environmental stability; human security; climate-smart industries and services; sustainable energy; and knowledge and capacity development.

Food security. The layer farmers agreed on food security as an area that is highly affected by climate change (2.76). They undergo training on how to take good care of the flock as well as the eggs. Also, since food is people's basic need, they ensure that they have clean food so it will not harm their health.

Table.1: Perspectives of Layer-Farmers on Food Security

Perspectives on Food Security	Weighted Mean	Verbal Interpretation
1. Changing climatic conditions are projected to affect the food security locally and globally.	3.03	Agree
2. Food security exists when all people have enough access to sufficient, clean and nutritious food.	3.03	Agree
3. Emergence of new pest and diseases may invade each region due to rapid changes in temperature and humidity	2.34	Moderately Agree
4. The productivity of crops and livestock may decline due to high temperatures.	2.47	Moderately Agree
5. Usage of heat tolerant livestock breeds and adaptation on diet patterns of animals which are affected by heat stress conditions will help avoid the decline of food production.	2.94	Agree
COMPOSITE MEAN	2.76	Agree

The layer farmers agree on how the changing climatic conditions affect the food security locally and globally and that food security also exists when all people have enough access to sufficient, clean, nutritious food (3.03). They have encountered strong typhoons and it affected the supply of food. However, the layer farmers moderately agreed that the emergence of new pests and diseases may invade each region due to rapid changes in temperature and humidity (2.34). Due to lack of exposure to communication platform activities where they can gain information such as seminars, they are not aware that climate change causes this kind of epidemic.

This could be further elucidated by the Climate Change Commission (2011) that a large proportion of damages caused by climate-related disasters are borne by

agriculture every year. Data show that damages in livestock and poultry are usually caused by strong typhoons which occur from September to November. This affects the food production making it critical to secure food supplies.

Water sufficiency. The layer farmers proved that they perceive climate change to be relative to water sufficiency (2.68). They agreed on the importance of water and the ways to keep a sufficient water supply. Water is everyone's basic need, and in layer farming, it is much needed too. They use water in cleaning the poultry cages. They also maintain the water supply among their chicken to avoid dehydration. These could be some reasons why having enough water supply is of great importance. .

Table.2: Perspectives of Layer Farmers on Water Sufficiency

Perspectives on Water Sufficiency	Weighted Mean	Verbal Interpretation
1. Lower lake and river levels threatens the capacity of hydroelectric plants	2.09	Moderately

while high temperatures may mean water is too warm to cool coal and nuclear plants causing brownout.		Agree
2. Due to warmer climate more evaporation will occur in different bodies of water that would cause shortage in water.	2.91	Agree
3. The systems used to move water supplies need energy which contributes to climate change.	2.40	Moderately Agree
4. Water conservation is the simplest and most basic practice that will help to maintain the water sufficiency.	2.96	Agree
5. There will be a shortage in water if not properly used especially during El Niño which is one of the impacts of climate change.	3.04	Agree
COMPOSITE MEAN	2.68	Agree

There will be shortage of water if not properly used especially during El Niño (3.04); it is considered as one of the impacts of climate change. El Niño has been experienced by the layer farmers and it caused the increase in number of mortality of layer chicken compared to the previous year and this is due to high temperature. Water supply is needed to avoid mortality of chickens. However, the layer farmers have moderately agreed that the lower lake and river levels are threatening the capacity of hydroelectric plants, and high temperature means water is too warm to cool coal and nuclear plants which may cause brownout (2.09). This could be possible because only few of the layer farmers had the chance to attend communication platforms activities; and mostly they are not about climate change, instead, they focus on different layer farming practices.

The interpretations analyzed above could be strengthened by the National Climate Change Action Plan

(NCCAP) for 2011 to 2028 saying that water insufficiency is already felt in many areas of the country at certain season. This is due to aggravation of water quality due to pollution from untreated domestic sewage, industrial waste water, agricultural and rural run-offs. The changes in water supply and quality because of climate change will certainly affect both food and human security.

Ecological and environmental stability. The layer farmers agreed that in terms of ecological and environmental stability is affected by the climate change (2.62) because most of them have understanding on the importance of having a sustainable growth in the environment. As a layer farmer, it is their duty to take care of the health of the chickens which is a part of ecosystem. It means that they are aware and exposed to this field through experience.

Table.3: Perspectives of Layer Farmers on Ecological and Environmental Stability

Perspectives on Ecological and Environmental Stability	Weighted Mean	Verbal Interpretation
1. Human well-being is highly dependent on ecosystems and the benefits they provide.	2.57	Agree
2. Maintaining healthy and stable ecosystems is a necessity.	2.47	Moderately Agree
3. Deforestation and illegal logging are causes of unstable ecosystem.	3.01	Agree
4. The widespread of environmental degradation had caused many endemic species and others to become endangered.	2.65	Agree
5. Global climate change greatly affects the shifting of habitat of animals.	2.41	Moderately Agree
COMPOSITE MEAN	2.62	Agree

They agreed that deforestation and illegal logging causes unstable ecosystem (3.01), while they only agreed moderately on how global climate change greatly affects the shifting of habitat of animals (2.41). It could be connected to the actions of some barangays in San Jose, Batangas,

conducting tree-planting projects, clean and green, “*tapat ko, linis ko*”, which served as source of information of the layer farmers on illegal logging and deforestation.

According to CCC (2010), the two underlying risks drivers of climate are the loss of forest cover and the

continuous degradation of coastal and marine resources. The country has 27.5 million hectares in the late 1500s but now, it only has 7.2 million hectares of forest lands which is equivalent to only 24.27 percent land area. This has been attributed by the combined ill effects of illegal logging and unplanned land conversion. Moreover, 800 kinds of plants and animal species are already extinct which is considered critical since Philippines is also globally important in terms of biodiversity-dependent adaptation.

Human security. Layer farmers agreed that they do understand the significance of maintaining the human security as it is threatened by climate change (3.01). Their experiences due to climate change prove the pervasiveness of its effects to humans especially to them as layer farmers; not that it can only take away their livelihood and source of income but also their life.

Table.4: Perspectives of Layer Farmers on Human Security

Perspectives on Human Security	Weighted Mean	Verbal Interpretation
1. Human security is the state where the rights of the Filipino family and individuals, especially the poor and vulnerable, are protected and promoted through access to education, health, housing, and social protection, while ensuring environmental sustainability.	3.12	Agree
2. Human security is affected by climate change due to strong natural disasters	2.87	Agree
3. Human security will be maintained if human do adaptation and mitigation practices to counter climate change	2.82	Agree
4. Due to climate variability, human's health is affected.	3.16	Agree
5. In order to maintain human security, people shall have enough perspectives and capacity to counter climate change.	3.10	Agree
COMPOSITE MEAN	3.01	Agree

Stating that the variability of climate change affects human's health, it is perceived that the layer farmers agreed on this matter (3.16). This could possible because they encounter frequent changes on climate conditions and it causes different diseases to both humans and animals. On the other hand, human security will be maintained if individuals do adaptation and mitigation practices to counter climate change (2.82) means that the layer farmers are engaged in adaptation and mitigation measures to combat climate change.

It is also stated in National Framework Strategy on Climate Change (NSFCC) from year 2010-2022, the country is vulnerable to different climate change-related hazards such as increase in endemic morbidity and mortality due to diarrheal diseases, exacerbation and toxicity of cholera due to higher coastal water temperature and enlarging habitat of water-borne and vector-borne diseases. In addition, CCC (2011) stated that disaster risk management is not enough to lessen the impacts of climate change. Instead, climate change adaptation should be the

complementary action in order to fight the expected severe effects of this phenomenon.

Climate-smart industries and services. The layer farmers moderately agreed on climate-smart industries and services (2.14). It could mean that few layer farmers know what climate-smart industries and services are and its relation to climate change. There is lack of communication material and programs that may inform the layer farmers about such matter that is why they remain to have a moderate understanding about this.

The layer farmers moderately agreed on cleaner production technology and practices lessen the effects of climate change (2.49). Some layer farms are still small and do not have updated technology utilized in layer farming. They moderately agreed on green services pertaining to consumed and produced goods and rendered services for environmental benefits (1.93) because there could be lacking in communication platforms that could reach them and give them information.

Table.5: Perspectives of Layer Farmers on Climate-smart Industries and Services

Perspectives on Climate-smart Industries and Services	Weighted Mean	Verbal Interpretation
1. Cleaner production technology and practices lessen the effects of climate	2.49	Moderately

change.		Agree
2. Climate-smart industries and services pertain to businesses that use environment friendly services.	2.03	Moderately Agree
3. Agriculture also contributes to the emission of greenhouse gas, particularly methane which was produce from livestock digestion process and stored animal manure.	2.19	Moderately Agree
4. Green services pertain to consumed and produced goods and rendered services for environmental benefits.	1.93	Moderately Agree
5. Low carbon emissions and high mitigation business practices has a large impact in countering climate change.	2.04	Moderately Agree
COMPOSITE MEAN	2.14	Moderately Agree

The Manila Declaration recognized that employing green growth strategies on government policies and program, as well as, greening of industries are an integral measure in addressing the threats of climate change (CCC, 2011). It defines green services as the consumed and produced goods and services for the sake of environmental benefits. This means employing strategies using low carbon level and putting more efforts in terms of mitigation practices.

Sustainable energy. Most of the layer farmers moderately agreed on the importance of sustainable energy

amidst the climate change (2.48) due to few communication platforms available to reach and give them information. Most of them agreed that energy conservation and efficiency can lessen the emission of greenhouse gas (2.57) because there were some advertisements about conservation of electricity and its positive effects. Most of them moderately agreed on the process of greening transportation through switching to lower carbon fuel that can lessen the carbon dioxide and causes the warming temperature (2.29) because there are only few solar-powered transportations here in the Philippines; the municipality of San Jose, Batangas is not employing yet this kind of transportation.

Table.6: Perspectives of Layer Farmers on Sustainable Energy

Perspectives on Sustainable Energy	Weighted Mean	Verbal Interpretation
1. The energy used to power, heat, and cool our homes, businesses, and industries is the single largest contributor to global warming.	2.56	Agree
2. Renewable energy helps to reduce the pollution and contributes in mitigating climate change.	2.43	Moderately Agree
3. Greening transportation through switching to low-carbon fuels reduces the amount of carbon dioxide that causes the warming of temperature.	2.29	Moderately Agree
4. Energy conservation and efficiency can lessen the emission of greenhouse gas.	2.57	Agree
5. Environmentally sustainable transport which uses cleaner fuels can help in maintaining sustainable energy.	2.54	Agree
COMPOSITE MEAN	2.48	Moderately Agree

This could be explained by the study of Goldman et al., (2012) that energy efficiency is one of the most important tools to avoid climate change by reducing the use of fossil fuels. Greenhouse gases, especially carbon dioxide caused by burning fossil fuels, can certainly be worse in the next decades. Warmer temperatures and its impacts on weather patterns will require extensive planning and mobilization. Energy conservation and efficiency can both

help to lessen the amount of greenhouse gases which causes climate change.

Knowledge and capacity development. Most of the layer farmers agreed in this area of climate change (2.99). For them, it is important to perceive the alarming climate change issue. They experienced a strong typhoon that almost drive out their farms, too high temperature that

caused death of some of their chickens and experienced diseases due to varying climate condition.

Most of them agree that climate change is the most pervasive threat humanity is facing (3.25). They have personally experienced natural disasters like strong

typhoons that have affected their everyday living. The layer farmers agreed that mitigation has the potential to reduce climate impacts (2.75) because they are gradually practicing some mitigating measures to combat climate change.

Table.7: Perspectives of Layer Farmers on Knowledge and Capacity Development

Perspectives on Knowledge and Capacity Development	Weighted Mean	Verbal Interpretation
1. Climate change is the rapid changes in climate over a period of time.	3.22	Agree
2. Climate change is the most pervasive threat humanity is facing.	3.25	Agree
3. Perspectives in adaptation practices can reduce damage of individuals.	2.96	Agree
4. Mitigation has the potential to reduce climate change impacts.	2.75	Agree
5. Mitigation and adaptation practices can contribute to the development of more resilient societies.	2.79	Agree
COMPOSITE MEAN	2.99	Agree

A study of The Planning Institute of Jamaica (2012) shows that 82.6 percent of the layer farmers claimed that when they heard the term “climate change” it is similar to variation of global climate, temperature and weather patterns. In terms of practices, layer farmers recommended

some action to prevent or at least lessen the effect of climate change such as proper garbage disposal (10 %), community support (6.4 %) and planting trees (4.2 %) while others also recommended conducting major educational campaign (10.5 %).

Table.8: Summary of Perspectives of Layer Farmers on the Seven Areas of Climate Change

Areas of Climate Change	Composite Mean	Verbal Interpretation
Food Security	2.76	Agree
Water Sufficiency	2.68	Agree
Ecological and Environmental Stability	2.62	Agree
Human Security	3.01	Agree
Climate-smart Industries and Services	2.14	Moderately Agree
Sustainable Energy	2.48	Moderately Agree
Perspectives and Capacity Development	2.99	Agree
GRAND COMPOSITE MEAN	2.67	Agree

The layer farmers agreed on the results of food security, water sufficiency, ecological and environmental stability, human security and knowledge and capacity development. This could be possible because these were the areas which they had access to different communication platforms. However, there were two areas of climate change which were found out to be moderately agreed by the layer farmers; these are climate-smart industries and services and sustainable energy. This has been due to few communication initiatives and platforms; tools which may educate them how these areas can contribute to climate change. Generally, the layer farmers agree on all aforementioned areas of climate change.

It is never enough to just communicate or talk about climate change. In the past decades, people just talked about climate change but they do not create a sense of

urgency on how to combat it. Perspectives about climate change are not enough to have the desired change. People must put an action to it. But as long as here are barriers to action, nothing will happen, and perspectives we have will be useless (Moser, 2007).

2. Extent of the layer farmers' exposure on platforms of communication in developing perspectives on climate change

The layer farmers develop perspectives and practices on climate change through communication platforms in a great extent (2.61). This proves that communication plays a vital role in humans' everyday life, not only to an individual or groups of people, but also to institutions and industries like business to name one. Through communication, they were able to learn essential

information and measures towards climate change adaptation and mitigation. It is through communication that they were able to discuss with their co-layer farmers the

matters with regard to climate change and other social aspects.

Table.9: Extent of the layer farmers' exposure on platforms of communication in developing perspectives on climate change

Item	Weighted Mean	Verbal Interpretation
1. Interpersonal Communication		
1. Face to face conversation.	3.60	Very Great Extent
2. Conversation among family members and friends.	3.63	Very Great Extent
3. Conversation among other layer farmers.	3.44	Great Extent
4. Informal conversation among residents.	2.40	Less Extent
2. Small Group Communication		
5. Demonstration	1.94	Less Extent
6. Meeting	2.34	Less Extent
7. Seminar	2.24	Less Extent
8. Training	2.22	Less Extent
3. Mass Media		
9. Leaflets, flyers and brochures	2.00	Less Extent
10. Magazines/journals	1.90	Less Extent
11. Newspaper	1.99	Less Extent
12. Radio	2.72	Great Extent
13. Television	2.87	Great Extent
4. New Media		
14. Cellphone messaging	3.50	Very Great Extent
15. Telephone or cellphone calls	2.99	Great Extent
16. Internet	1.93	Less Extent

It can be observed that most of the layer farmers' way of developing perspectives and practices about climate change were through conversation among family members and friends. They were likely to talk to their respective family members more often than any of the other platforms. Face-to-face conversation is interpreted to a very great extent and conversations with their co-worker or co-layer farmers to great extent. These three communication platforms are all categorized under interpersonal communication. The layer-farmers use interpersonal communication frequently. They prefer this kind of communication because they are all comfortable in communicating interpersonally. They can easily understand each other through interpersonal communication and the more important thing here is they feel and observe the reactions of someone they are talking to. A study that supports this result was the study of Arrieta and Tusi in 2014. Their study sought to determine the adaptation practices used by farmers and the communication platforms they utilize in exchanging information about climate change. The result showed that interpersonal communication was exercised in information sharing about climate change.

Moreover, the layer-farmers of San Jose also showed frequent use of radio, television and cellphone messaging in gaining information. They watch television in their house and listen to the radio in the layer farms for weather and news updates. They also utilize cellphone messaging in exchanging information especially when they update their bosses with regard to the status of the layer farms.

This was supported by the study of Temba et al. (2016) about how the farmers of Municipality of Morogoro in Tanzania utilize Information Communication Technologies (ICTs) in improving their chicken production. Majority of the farmers in used television, radio and mobile phones in developing perspectives. The Tanzanian farmers seldom use internet, magazines, journals, books and flyers, like the less extent of utilization of the layer-farmers from San Jose on the said platforms. Most of the layer farmers rarely use magazines and journals as communication platforms (1.90) because they seldom receive this kind of communication platform and no one disseminate such to them. Moreover, subscription to print media like broadsheets is costly.

Table.10: Summary of the extent of the layer farmers' exposure on communication platforms in developing perspectives on climate change

Communication Platforms	Weighted Mean	Verbal Interpretation
Interpersonal	3.26	Great Extent
Small Group	2.18	Less Extent
Mass Media	2.29	Less Extent
New Media	2.80	Great Extent
Grand Composite Mean	2.63	Great Extent

Layer farmers' exposure to communication platforms is of great extent (2.63) in developing perspectives on climate change. This is very possible because one cannot not communicate; everything an individual does is a message. Through communication, people were able to influence others and this leads them to interaction which is obviously a communication situation. (Watzlawick, 1967 cited by Muijres, 2015).

It could be noted that interpersonal communication leads among the platforms utilized by the layer farmers in a great extent (3.26) because communication is a present feature of human interaction (Muijres, 2015). New media is likewise is utilized also in a great extent (2.80) because it could be about collaborating, networking, sharing, and

generating knowledge and content. It is also easier and convenient to access and provide information, and communicate via social media in particular (Gupta, 2015). Small group communication (2.18) and mass media (2.29) were utilized in a less extent because the layer farmers were not required to attend such demonstration, meetings, seminars, and trainings. On the other hand, mass media are costly to purchase especially the newspapers and magazines (Medina and Jamias, 2019).

3. Relationship between the layer farmers' perspectives and the communication platforms they are exposed to.

Table.10: Relationship between the layer farmers' perspectives and the interpersonal communication platforms they are exposed to

Perspective Variables	p-values	Computed r-values	Decision on Ho	Verbal Interpretation
1. Food Security	.42	.099	Failed to Reject	Not Significant
2. Water Sufficiency	.47	-.089	Failed to Reject	Not Significant
3. Ecological and Environmental Stability	.59	.067	Failed to Reject	Not Significant
4. Human Security	.995	-.001	Failed to Reject	Not Significant
5. Climate-smart Industries and Services	.58	-.069	Failed to Reject	Not Significant
6. Sustainable Energy	.73	-.043	Failed to Reject	Not Significant
7. Perspectives and Capacity Development	.16	.17	Failed to Reject	Not Significant

It can be seen that the perspectives level of the layer farmers along the seven areas of climate change has no significant relationship with the interpersonal platforms of communication they are exposed to. This means that the exposure of the layer farmer-layer farmers in interpersonal communication platforms had no connection in the development of their perspectives. They do casual talks with their co-layer farmers and it could be not fully about

climate change and their adapting practices. This could be supported by the study of Alo (1994) cited by Sirait (2016) that interpersonal communication happens anywhere and anytime, an ongoing process, has a specific purpose, generating a relationship, creating and exchanging meaning, something that is learned, can predict anything, and frequently and can be started with making mistakes.

Table.11: Relationship between the layer farmers' perspectives and small group communication platforms they are exposed to

Perspective Variables	p-values	Computed r-values	Decision on Ho	Verbal Interpretation
1. Food Security	.095	.20	Failed to Reject	Not Significant
2. Water Sufficiency	.01	.31	Reject	Significant
3. Ecological and Environmental Stability	.000	.42	Reject	Significant
4. Human Security	.12	.19	Failed to Reject	Not Significant
5. Climate-smart Industries and Services	.000	.43	Reject	Significant
6. Sustainable Energy	.002	.37	Reject	Significant
7. Perspectives and Capacity Development	.059	.23	Failed to Reject	Not Significant

It came out that perspectives on water sufficiency, ecological and environmental sustainability, climate smart industries and services and sustainable energy had significant relation had significant relationship with the small group communication platforms they are exposed to. This explains that the mentioned variables are perceived to be of great importance in developing layer farmers' perspectives, developed through small group communication platforms. Demonstrations, meetings, seminars, and meetings could be of less extent, but they are aware that these platforms are important because they know they could update their knowledge and skills if they would have the chance to attend and participate in such kinds of non-formal education platforms. This could be sustained by

the study of Bonito (2002) that participation in small groups is a complex process, influenced by the competencies, abilities, and behavior of both self and other as well as by the dynamic nature of discussion and the static features of the task.

On the other hand, food security, human security, and perspectives and capacity development were perceived to be not significant by the layer farmers in developing their perspectives because food and human security could be not a problem to them. They also thought that their perspectives on climate change are enough, more so, have developed their capacities in layer farming already as it was passed to them by their parents and elders in the community.

Table.12: Relationship between the Layer Farmers' Perspectives and Mass Media Communication Platforms they are exposed to

Perspectives Variables	p-values	Computed r-values	Decision on Ho	Verbal Interpretation
1. Food Security	.02	.29	Reject	Significant
2. Water Sufficiency	.000	.41	Reject	Significant
3. Ecological and Environmental Stability	.000	.53	Reject	Significant
4. Human Security	.07	.22	Failed to Reject	Not Significant
5. Climate-smart Industries and Services	.000	.48	Reject	Significant
6. Sustainable Energy	.001	.41	Reject	Significant
7. Perspectives and Capacity Development	.01	.31	Reject	Significant

The results above mean that the more they are exposed to mass media communication platforms like television, radio, leaflets, brochure and magazines, the better development of their perspectives would be. Since these kinds of communication platforms, specifically radio and television were available in almost every household, they are highly-exposed to it making them depend on mass media communication platforms for news and social information, one of could be about climate change. This could be upheld

by Klapper's (1960) conclusion cited by Curran, et. al. (2002) and Macnamara (2005) that mass communications ordinarily do not serve as a necessary and sufficient cause of audience effects, instead that mass media were more likely to reinforce existing attitudes than change them or create new attitudes. It became known as Klapper's law of minimal consequences and triggered limited effects view of mass media.

Table.13: Relationship between the Layer Farmers' Perspectives and New Media Communication Platforms they are exposed to

Perspectives Variables	p-values	Computed r-values	Decision on Ho	Verbal Interpretation
1. Food Security	.02	.29	Reject	Significant
2. Water Sufficiency	.08	.22	Failed to Reject	Not Significant
3. Ecological and Environmental Stability	.005	.34	Reject	Significant
4. Human Security	.03	.27	Reject	Significant
5. Climate-smart Industries and Services	.005	.34	Reject	Significant
6. Sustainable Energy	.001	.40	Reject	Significant
7. Perspectives and Capacity Development	.02	.27	Reject	Significant

The results above mean that they are well exposed to cellphone messaging, phone calls and internet which gives information about climate change. Cellphones are user-friendly and very handy nowadays that even those layer farmers who may have less education could use it and be able to communicate with their families and layer farming business related individuals like their suppliers. It is very accessible also that they could easily be reached by such information. This could be supported by Temba's et al., (2016), findings which proved that the accessibility of information and communication tools affects the improvement of chicken production. It was indicated that majority of the farmers used television, radio and mobile phones in developing extension information while there were just few who have accessed in internet. The more they are exposed to these communication platforms, the more they would become well informed and perceptive to new ideas..

V. CONCLUSIONS

The layer farmers perceived and agreed on the importance of food security, water sufficiency, ecological and environmental stability, human security and perspectives and capacity development as these areas of climate change seems to be basic and but vital to people's lives and to the layer farmers as well. This result also implies that communication platforms could be a great opportunity for all people in the community to develop their perspectives. Climate smart industries and services and sustainable energy could the first two topics to be focused since they just only had a moderate agreement on the said variables.

In general, there was great extent on the layer farmers' exposure on communication platforms in developing perspectives on climate change. Specifically, it came out that they were exposed to interpersonal and new media in a great extent, and less extent of exposure to small group and mass media. The layer farmers may prepare

themselves also on the possible paradigm shift in terms of exposure to communication platforms as the world's technology today keeps on advancing. New discoveries, knowledge, and ideas are introduced in the world market everyday and this may affect the layer farming industry in some other ways.

Lastly, it could be noted that there were significant relationships between the layer farmers' perspectives and the communication platforms they are exposed to, but there were also some variables which came out to be not significant. Perspective is a subjective matter to tackle about. It may imply that diversity is possible and it happens in communication. People perceive and construct meanings uniquely from each other, and what should be done is understanding and careful processing of everyday information that we receive, one example is on climate change.

VI. RECOMMENDATIONS

The layer farmers, the agricultural officers LGU-San Jose, Batangas, and other sincerely concerned stakeholders on layer farming industry may sit down and plan to conduct more demonstrations, meetings, seminars and trainings with regard to climate change. They may adopt, apply and combine the concepts of top-down and bottom-up approaches in communication planning so that every group of the participating stakeholders may be heard and considered. It is expected that through the concerted and sustainable efforts like conducting non-formal educational communication programs, projects, and activities may raise awareness and eventually knowledge of people more particularly the layer farmers on climate change and its possible effects to the layer farming industry.

A sustainable communication campaign using various communication platform tools like flyers, magazines and brochures may be produced and distributed to people by the Municipal Agricultural Office of San Jose, Batangas containing information about adaptation and

mitigation practices to contribute in educating the people and at least continuously lessen if not solve the effects of climate change and eventually to promote sustainable development of communities as a whole. An ethical and responsible utilization of these communication platforms in developing layer farmers' awareness, knowledge, and perspectives shall also be taken into consideration.

Layer farmers shall willingly participate on future projects that may be held for them. Moreover, they may cooperate well, put their perspectives into action and share what they have learned to other layer farmers. Community development participation shall be encouraged so that sustainability of social development endeavors may be ensured. Academic institutions like SUCs may collaborate with the municipality so that more activities may be upheld for the layer farmers to be more active in taking care of our agricultural industries and environment as well.

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