VULNERABILITY OF TAU’T BATU TO CLIMATE CHANGE

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ABSTRACT

This study presents the results of the current situation and vulnerability of the Tau’t Batu to climate change in terms of agricultural yield, common plant diseases/pests, water availability and collected forest products. It used qualitative method of research which is based primarily on survey using the vulnerability index, in-depth interview and direct observation by the researcher in gathering the data needed. The main activity is slash and burn. Other activities like planting other crops and collecting forest products were done. There is a decrease in their harvest from kaingin as well as a decrease in the products collected from their forest. The indicators experienced by the Tau’t Batu are the abrupt changes in the climate and the unpredictability of these changes; unpredictable weather conditions that affect the participants in many ways; rise in temperature, altered rainfall patterns and the rapid increase of pests that damage their crops. As a response, the Tau’t Batu uses their indigenous knowledge for them to cope with the impact of climate change. Other strategies were also developed to mitigate the impact brought by the fast changing climate. It was found out that the Tau’t Batu are highly vulnerable to climate change with the rate of 3.73. Further research study is highly recommended to follow up the current situation of the Tau’t Batu with regards to climate change.

Keywords: Vulnerability, Climate Change, Tau’t Batu, Rizal Palawan, Indigenous People

1. INTRODUCTION

The climate is changing. Future predictions include an increase in the number, frequency and intensity of climatic shocks, along with gradual changes such as temperature increases, sea level rise and alterations in seasonal patterns. Climate change is an extreme and erratic change in the intensity and pattern of the average weather of the region or the earth as a whole (Wood, 2009). It is a naturally occurring phenomenon on earth and the change in the statistical properties of the climate over a long period of time, regardless of its cause. Certain contributors of this phenomenon are greenhouse gases such as water vapor, methane, nitrogen oxides and carbon dioxide. Climate change is likely to have profound effects on both natural and man-made ecosystems.

However, it is important to understand the nature of the risks from climate change, where natural and human systems are likely to be most vulnerable, and what may be achieved by adaptive responses. Indigenous group of people are also those considered to be vulnerable. Moreover, indigenous peoples are among the first to face the direct consequences of climate change, owing to their dependence upon, and close relationship with the environment and its resources. Climate change exacerbates the difficulties already faced by vulnerable indigenous communities, including political and economic marginalization, loss of land and resources, human rights violations, discrimination and unemployment (United Nations Permanent Forum on Indigenous Peoples Issued last 2007).

The Tau’t Batu have experienced the effects of climate change and are already using their traditional knowledge and survival ability to address this phenomenon. Thus, applying traditional knowledge and practices of Tau’t Batu is very important in sustaining and managing the environment. The works of Tauli-Corpuz, V; R. de Chavez, E; Baldo-Soriano; H. Magata; C. Golocan; M. V. Bugtong; L. Enkiwe-Abayao,
and J. Carino, (2009) state that indigenous peoples do not only suffer from climate change but they can also provide solutions to this problem.

In light of climate change effects, the Tau’t Batu has been distinctively positioned to adapt in order to survive and sustain their day-to-day living. They thrived for thousands of years linking with the environment in which their observations, knowledge, activities and practices were developed to be able to deal with those variations. The works of Gallonway, (2008) emphasizes that through their culture transmission of knowledge over thousands of years; indigenous peoples are unique repositories of learning and knowledge on successfully coping with local-level climate change effectively responding to major environmental changes. The purpose of this study is to provoke thought and dialogue by practitioners and policy makers on the issue of vulnerability to climate change and on approaches to vulnerability assessment in policy and in practice.

Assessing vulnerability to climate change is very important nowadays in defining the risks posed by climate change and in order to provide information in identifying measures so that those affected could adapt to climate change impacts. With this, it will enable practitioners and decision-makers to identify the most vulnerable areas, sectors and social groups. In turn, this means that climate change adaptation or mitigation options should be developed and implemented. Due to these reasons, the researcher came up with the study on climate change because when the researcher first went to the place of the Tau’t Batu in 1997 the environment was abundant in terms of trees and green plant species and are very rich in natural resources but since the climate is fast changing their environment seems to be more affected. Moreover, another reason is that it will help in addressing the issues pertaining to the welfare of the said group of indigenous people and to provide insights and knowledge on their present condition as they were considered to be affected by climate change.

**Research Problem**

The study focused on identifying the effect or impact of climate change and the possible mitigation or adaptation responses made by the indigenous group of people, particularly the Tau’t Batu in order for them to cope with the fast changing climate.

With this view, this study was proposed to 1) investigate the indicators of climate change in terms of livelihood activities and farming practices as to agriculture and adaption responses by the Tau’t Batu, 2) determine the vulnerability of the Tau’t Batu in terms of agriculture, plant diseases/pests, water availability and forest products. In addition, the study also aimed to 3) find out the observed effects and changes of climate variation in terms of agriculture, plant diseases/pests, water availability and forest products, and 4) determine other possible adaptation measures of the Tau’t Batu in the four sitios in relation to the changes brought by climate change.

**2. MATERIALS AND METHODS**

**Research Design and Environment**

This study used a qualitative focused ethnography type of design. The researcher followed the guidelines of a focused ethnography which is an applied research methodology that ‘has been widely used in the investigation of fields specific to contemporary society which is socially and culturally highly differentiated and fragmented’ (Knoblauch, 2005) and a useful tool in gaining a better understanding of the experiences of specific aspects of people’s way of life and being (Cruz & Higginbottom, 2013).

The researcher focused the study on the vulnerability of the ethnic group of Tau’t Batu in Rizal Palawan, perhaps one of the least known ethnic minorities in the Philippines. It was limited to determining the
activities of the participants and the perceived changes and their adaptation responses, and the activities being done to cope with these changes.

The locale of the study concentrated only in the municipality of Rizal specifically in barangay Ransang Palawan. The participants were the Tau’t Batu taken from the four sitios identified namely: Ugis, Ubudon, Magtanor, Singnapan.

**Research Procedure**

A series of participant and key informant interviews, immersion, observations were done to gather all the necessary information needed in the study. Documentations with the use of video/audio recording, camera, mobile phones and field notes were conducted to fully document the climate change vulnerability of the Tau’t Batu. Reconnaissance Survey was also considered by the researcher before the gathering of data started. After the data gathered the researcher prepared the verbatim transcripts, developed codes, described and categorized data.

Meanwhile, the researcher used the deductive coding of the topical markers to index the entire set of data, making it easy to locate every place in the data. The data collected were analyzed, transcribed, thematized and coded manually. Moreover, for supplemental analysis to determine the vulnerability of the participants, vulnerability index was used.

**Ethical Considerations**

The researcher obtained informed consent from all those who were directly involved in the research or in the vicinity of the research area. This principle adheres to a larger issue of respect to the participants so that they are not coerced into participation and have access to relevant information prior to the consent. The consent was obtained by the researcher through written consent forms, and necessary elements of consent were identified. These usually include prior information on key elements of research such as purpose, procedures, time period, risks, benefits, and a clause stipulating that participation is voluntary and the participants had the right to withdraw from the study. The researcher assured the participants during the conduct of the study that whatever information’ that was gathered the researcher always maintained ethical considerations of the study. The documents were secured.

**3. RESULTS AND DISCUSSION**

The indicators of climate change which greatly affect the Tau’t Batu in terms of their livelihood activities and farming practices as to agriculture and adaptation are the following: abrupt changes in the climate and the unpredictability of these changes; unpredictable weather conditions, rise in temperature and altered rainfall patterns.

The participants were still using indigenous knowledge in their adaptation practices in terms of agriculture, common plant diseases/pest, water availability and collected forest products. The Tau’t Batu have different livelihood activities. Their main activity is kaingin together with this; they still practice their rituals for a good harvest. They are cultivators that practice multiple cropping cassava as the major source of carbohydrates. For their daily consumption, they depend on agricultural production activities like planting of rice, kamoteng kahoy and other crops in their kaingin. They also plant other crops such as gabi, ube, eggplant, pineapple, banana and peanuts.
Changes were observed by the Tau’t Batu for the past years resulting to decrease in harvest. Pests found in the area were black bugs and tiangaw and these greatly damage their crops planted particularly their kaingin. The learned strategies to lessen the number of pests were used.

The varieties of forest products gathered by the participants include wild durian, wild rambutan, yantok, tabo, and mararing. The participants use pesticides and insecticides which they adopted from the lowlanders also as alternative ways to increase agricultural crop production. Also, they burn kayunggot to drive away pest.

River and springs are the main source of water. The Tau’t Batu is highly vulnerable with the vulnerability rate of 3.73 in terms of agriculture, plant diseases/pests, water availability and collected forest products.

4. CONCLUSIONS

Based on the findings the following conclusions are made:

The Tau’t Batu in Rizal Palawan are affected by the changing of climate in terms of agriculture, common plant disease/pests, water availability and collected forest products because of the indicators of climate change experience by the Tau’t Batu. There was no support given to the participants of the study in order for them to adapt to and mitigate the effects of climate change and in order for them to improve their crop production, pest management, collected forest products and water supply.

The Tau’t Batu’s primary livelihood activities are kaingin, gathering of forest products, seeking food, planting of other crops, and making handicrafts and woodcraft to be sold to the market. There were no changes in the planting and harvesting periods of the Tau’t Batu since they still follow their beliefs, traditions and rituals.

The harvests in the kaingin have decreased due to rapid increase of pests that damaged their crops and this is one of the indications that changes have happened in the area being studied. Moreover, a rainfall pattern alteration that is being observed greatly affects the Tau’t Batu. The amount of forest products gathered by them has also decreased.

There were also manifestations of the influence of lowlanders which somehow helped the Tau’t Batu cope with the decreased production in agricultural crops particularly in driving away pests from their rice plants and other crops planted in their area.

The Tau’t Batu are at risk to the impact of climate change with 3.73 rate. This means that the participants of the study are highly vulnerable in terms of agriculture, plant diseases/pest, water availability and collected forest products.

The indigenous traditional knowledge of the Tau’t Batu is self-developed and relied upon to sustain crop yields to meet their needs.

Livelihood programs can be introduced. Seminars on sustainable agriculture can also be conducted in cooperation with the Department of Agriculture to improve the respondents’ agricultural yield. Trainings, seminars and workshops on Organic Agriculture and Integrated Pest Management (IPM) can also be conducted. In line with this, they may be given a different variety of seeds to enhance agricultural production.
Assistance can be extended by the Municipal government and the local barangay unit to the Tau’t Batu tribes so they could lessen the pest in their crops and for them to improve their way of living as well as enhancement of their agricultural production with improved variety of seeds.

The Tau’t Batu can be encouraged to participate in all aspects of planning, program, implementation, decision making and evaluation of programs regarding climate change and its impact in their community.

A copy of the results of this study may be provided to the local government units (Province of Palawan and the Municipality of Rizal), Palawan Council for Sustainable Development, Non-government Organizations (NGOs) and the National Commission on Indigenous People (NCIP for information. To inform these agencies about the needs of the Tau’t Batu in terms of adaptation strategies that will help them cope with the impact of climate change in their respective areas.

Further studies may be conducted by the Palawan State University Rizal Campus in collaboration with the College of Sciences main campus to conduct further studies on the present conditions of Tau’t Batu particularly on health and personal hygiene.

The Tau’t Batu may be encouraged to participate in climate-change initiatives by using culturally appropriate strategies to develop resilience and adapt to changes.

Contents of the educational booklet that will be proposed may also be shared with the Tau’t Batu to help them cope with the changes

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