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**| RESEARCH ARTICLE**

## **Implementation of Department of Education Programs, Projects, and Activities on Mitigating the Impact of Climate Change in the Philippines**

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**| ABSTRACT**

This study sought to determine the extent of implementation of Department of Education (DepEd) programs, projects, and activities on mitigating the impact of climate change in one of the schools' divisions in the Philippines. The participants were 120 school heads, 240 teachers, 120 learners, 120 parent-teachers association officers (PTA), 120 *Punong Barangays*, 43 *Sangguniang Bayan* members representing the municipalities in a particular province and 20 schools division personnel. This is a one-shot descriptive-correlational study. The participants were given hybrid questionnaires to measure the level implementation of DepEd in the aspects of programs, projects, and activities to address environmental issues wherein the schools are located. Mean and Pearson's *r* was used to determine the extent of implementation and if there is a significant relationship among the results set at 0.05 level of significance, respectively. The results revealed a very great extent of implementation of DepEd initiatives mitigating climate change through environmental awareness and education. A significant relationship existed between the mean scores on the aspects of DepEd's implementation, which indicated a positive effect on mitigating the impact of climate change within the learning conditions and environments in schools. Having this, an innovation entitled "Sustainable Climate Change Mitigation Intervention Project" was conceptualized to enhance some aspects of these educational solutions to foster climate change and environmental education among child-friendly schools in the Philippines.

**| KEYWORDS**

Climate change, environmental programs and projects, learning conditions, learning environment, environmental awareness and education.

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### **1. Introduction**

Climate Change has been a worldwide concern that needs to be addressed to preserve our Mother Earth for future generations. One way to combat its adverse effect is through proper implementation of the programs, projects, and activities of the governments (United Nations [UN], 2022), most specifically through the Department of Education or DepEd (DO 52, 2011) which is considered as the frontline of the bureaucracy in the Philippines in terms of environmental awareness and education.

In particular, the DepEd has made several steps in order to counter the drastic effects of climate change as an inevitable phenomenon. Several Department Orders (DO) were passed to mitigate the effect of climate change, such as DO No. 52, s. 2011 that focuses on strengthening environmental education in public and private schools, institutionalizing them to lead the role on environmental awareness by education focusing on climate change and by pursuing effective school-based activities that seek to preserve and protect the environment. Among the policies issued by DepEd, the Revitalized Tree planting and Greening Program (DO 57, 1996), the Establishment of the Youth for Environment in Schools (YES) Organization (DO 72, 2003), and Disaster Risk Reduction and Management Coordination and Information Management Protocol (DO DO 21, S. 2015) have emphasized the share

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of the government agency to responding accordingly to the needs and responsibilities of its stakeholders to mitigate the ill-effects of climate change.

The Climate Change and Environmental Education or CCEE (Ittus, 2012), which is the project of the United Nations Children's Emergency Fund or UNICEF, highlights the importance of the child-friendly schools (CFS) approach to promote quality education for every boy and girl. Part of this project is to provide information on how CCEE can be integrated into the design, implementation, and practice of child-friendly schools. Through this, administrators are empowered to scale up and mainstream climate change and disaster risk reduction in the education sector (Bartlett, 2008; DO 21, 2015). This study adhered to the call of UNESCO (2021) regarding the framework and advocacy in making environmental education a core curriculum component in all countries by 2025.

Having a safe climate in schools is a human right. According to the global assessment of Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services or IPBES (2019), there is a magnitude impact of climate change in the next decade and the need to integrate the understanding of this environmental phenomenon to primary and secondary levels of education (United Nations Institute for Training and Research [UNIRT], 2013) will lead to a safe climate which is a vital element of the right to a healthy environment and is absolutely essential to human life and well-being as described by the United Nations Human Rights in 2019. The CCEE, through UNICEF report, revealed that 175 million children would be affected, the elderly, homeless, disabled, persons with respiratory diseases, girls and women are among the most vulnerable. Children and women represent 65 percent of those who will be affected by climate-related disasters every year in the next decade (Save the Children, 2007). Hence, the conduct and dissemination of studies like this can be part of the advocacy of having a CCEE in schools.

The present study looked into the theoretical design of the Institutional Theory tracing its roots to the writings of Max Weber (Lepsius, 2017) on legitimacy and authority that is often used to explain the adoption and spread of formal organizational structures, including written policies and standard practices (David, 2019). Specifically, this research also determined the level of participation and involvement of school heads, teachers, learners, and other stakeholders in the implementation of the different programs, projects, and initiatives of DepEd in mitigating the impact of climate change through education. This, in turn, identified the most effective and meaningful feedback or intervention that is hoped to address problems caused by climate change involving educational or learning conditions.

## **2. Methodology**

This study aimed to determine the extent of implementation of DepEd programs, projects, and activities on mitigating the impact of climate change in a particular Philippine schools division. Based on the findings, a sustainable climate change mitigation intervention project is proposed for the effective implementation of DepEd programs, projects, and activities through CCEE. The participants of the study were the 120 school heads, 240 teachers, 120 learners, 120 parent-teachers association officers (PTA), 120 *Punong Barangays* (local chieftains), 43 *Sangguniang Bayan* (Municipal Officers/ Officials) members in a particular province in the Philippines and 20 schools division personnel. Out of the total population of respondents, a sample size of 783 were identified using probability sampling (Taherdoost, 2020).

This study utilized the one-shot descriptive survey (Jansen, 2010), one of the most common forms of research and, for some research questions—especially descriptive ones—is clearly a strong design (Trochim, 2020). The data analysis software used was the Statistical Package for Social Sciences Statistics version 22. Meanwhile, a survey questionnaire adapted from the YES-O Manual (DO 72, 2003) was used to secure responses to certain statements evaluating the perceptions and responses of the participants. Pearson's *r* was the statistical tool (Schober, Boer, & Schwarte, (2018) employed to determine whether the relationship existed among DepEd programs, projects, and activities related to mitigating climate change in learning conditions and/ or environments.

## **3. Results and Discussion**

### **3.1. Division-wide Implementation of Programs Projects, and Activities on Environmental Awareness and Education**

Generally, participants indicated in their responses a "very high" extent of implementation of DepEd programs (M=4.32), projects (M=4.33), and activities (M=4.28) as indicated in Table 1. It was observed that the initiatives of DepEd on environmental awareness and education focused on its projects with a very high level of implementation in the division level, M= 4.33.

Table 1. Extent of Implementation of DepEd Programs, Projects, and Activities on Mitigating the Impact of Climate Change

Categories	Mean	Description
a. Programs	4.32	Very High
b. Projects	4.33	Very High
c. Activities	4.28	Very High

Legend: Very High=4.21–5.00; High=3.41–4.20; Moderate=2.61–3.40; Low =1.81–2.60; Very Low=1.00–1.80

Indeed, the DepEd has been religious in implementing its programs, projects, and activities as indicated in DO 57, 1996, DO 72, 2003, and DO 52, 2011. Even though children and women will be affected by climate-related disasters every year in the next decade (Save the Children, 2007), the DepEd, as an institution that upholds the rights of children, is on the right track of sharing its responsibility, as a government agency (UN, 2022), in securing a safe climate in schools (UNHR, 2019).

Continuously integrating the Climate Change and Environmental Education or CCEE into DepEd’s implementation of programs, projects, and activities highlight a child-friendly school having a greater impact and wider scope—worldwide.

### 3.2. Tripartite Implementation of Environmental Awareness and Education

Notably, Table 2 shows a significant relationship in the mean results in the extent of implementation of DepEd programs and projects (p=.000), projects and activities (p=.000), and programs and activities (p=.000). This has called for an integrated implementation of environmental awareness and education for a holistic approach in mitigating the threats among the stakeholders of DepEd due to climate change.

Table 2. Significant Relationship among the Extent of Implementation of DepEd Programs, Projects, and Activities

Pearson Correlation	Programs	Projects	Activities
<b>Programs</b>	Correlation Coefficient	.808**	
	Sig. (2-tailed)	.000	
	N	783	
<b>Projects</b>	Correlation Coefficient		.895**
	Sig. (2-tailed)		.000
	N		783
<b>Activities</b>	Correlation Coefficient	.727**	
	Sig. (2-tailed)	.000	
	N	783	

Note: \*\* Correlation is significant at the 0.01 level (2-tailed)

Being true to its mission to integrate the understanding of this environmental phenomenon to primary and secondary levels of education (Iltus, 2012; UNIRT, 2013), the DepEd has contributed to mitigating climate change as a government institution (UN, 2022). Moreover, a multifaceted approach is necessary for DepEd to make environmental education part of its core curriculum (UNESCO (2021). This is exemplified by the significant relationships among the programs, projects, and activities of DepEd in a particular schools division in the Philippines.

Based on a large-scale evaluation of IPBES (2019), the DepEd must consider its CCEE on the frameworks as presented by Bartlett (2008), UNICEF, UNESCO and UN-attached agencies. Having a multi-sectoral and multidimensional understanding of climate change and weaving solutions to address this global concern, the Department should consider climate-related disasters (Save the Children, 2007) into its disaster risk reduction and management coordination and information management protocol.

**3.3. Proposed Programs, Projects and Activities for Climate Change and Environmental Education**

Table 3 presents the researchers proposed programs, projects, and activities to enhance the DepEd’s implementation of Climate Change and Environmental Education or CCEE in schools. This also showed a sustainable cascading of objectives, methods, and target outputs that need a multidimensional system that adheres to the Institutional Theory—explaining the adoption and spread of formal organizational structures, including written policies and standard practices (David, 2019).

Moreover, the researchers as practitioners in the field introduced in Table 3 an action plan entitled “Sustainable Climate Change Mitigation Intervention (SCCMI) Project. The context applied in the project was based on the gathered data in the study.

Table 3. Proposed Programs, Projects, and Activities Toward an Enhanced Environmental Awareness and Education

Project Title	Sustainable Climate Change Mitigation Intervention (SCCMI) Project
Rationale	Human activities are the number one contributing factor of climate change observed and felt nowadays. Life becomes endangered because of the adverse effects brought about by climate change in our environment—workplace and learning spaces. Time will come when this environmental problem is not mitigated; there will be a scarcity of everything, especially our basic needs, especially having a safe climate in schools. Hence, the government has a resilient and sustainable program against climate change.
Objectives	For this reason, we should take part in Climate Change and Environmental Education or CCEE in schools by educating all our stakeholders, especially our learners, by involving them in these SCCMI (DepEd-aligned) Programs, Projects and Activities like tree planting, <i>gulayan sa paaralan</i> (gardening in schools) and proper waste management which could also be applied at the safety of their homes.  To intensify and/or enhance the awareness on environmental concerns and participation of all stakeholders on sustainable climate change mitigation intervention in schools
Methods	<ol style="list-style-type: none"> <li>1. Present the project proposal to the education program supervisor and in-charge of the Youth for Environment Organization (YES-O)</li> <li>2. Seek division memorandum from the Schools Division Superintendent for the division-wide implementation of the specified programs, projects, and activities on CCEE</li> <li>3. Present the project proposal to the Governor or other stakeholders for funding support</li> <li>4. Implement SCCMI Project.</li> </ol>
Target Output/s	Tree Planting, Growing and Caring Project, <i>Gulayan sa Paaralan</i> , Waste Management Program
Persons Involved	Members of the Department of National Defense/ Department of Disaster Risk Reduction Management, Local Government Unit/LGU Personnel, Schools Division Personnel, School personnel and Learners, and Non-Governmental Organizations (NGOs)

**4. Conclusion**

The extent of implementation of the DepEd programs, projects, and activities on mitigating the impact of climate change must be sustained so that the level of implementation status will be resilient in order to create a more conducive learning environment or conditions, especially against hazards and risks that are considered threats to the learners in schools. The Climate Change and Environmental Education or CCEE in schools have to be integrated explicitly in the core curriculum to ensure funding which, in turn, leads to policymaking in the Department of Education-Philippines.

As the findings suggest, a balance of the three aspects of the implementation of the CCEE must be observed by the schools—programs, projects, and activities. To extend this approach to local communities, the learners should be given enough knowledge and awareness on the effects of climate change and how to mitigate them through their active participation. In particular, the researchers’ proposal of Sustainable Climate Change Mitigation Intervention (SCCMI) Project can also be adopted by the Department of Education (DepEd) with the Local Government Unit (LGU), Department of Environment and Natural Resources (DENR), Department of Disaster Risk Reduction Management (DRRM) or Department of National Defense (DND). In this manner,

the objective of the SCCMI Project will be realized as this inter-agency mechanism works hand-in-hand in informing the public of the mitigating measures to combat the adverse effects of climate change.

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