HOLISTIC CLIMATE COMMUNICATION AND EDUCATION IN MUNICIPAL SETTINGS

Case Study Final Report

Honduras

This research was conducted by

Asociación Hondureña De Comunidades En Desarrollo

This research was made possible with funding from

MECCE
MONITORING AND EVALUATING CLIMATE COMMUNICATION AND EDUCATION PROJECT

SEPN
SUSTAINABILITY AND EDUCATION POLICY NETWORK

Holistic Climate Communication and Education in Municipal Settings | Honduras Case Study[1]

Executive Summary

Honduras is a nation located in Central America, composed of about 10 million inhabitants. It is thought that its low level of industrialization reduces its greenhouse gas emissions. However, the country has been intensely affected by climate change and variability, including coastal erosion, crop failures, disruption of roads and highways, flooding and landslides on urban hillsides. In the late twentieth and early twenty-first century, a greater awareness of the risks developed after the impact of Hurricane Mitch (1998), tropical storms Alpha, Beta and Gamma (2005-2006), and more recently, the impacts followed in less than a week by Hurricane Eta and tropical storm Iota, in 2020. The increase in preparedness and timely reaction processes has reduced the number of deaths but not the economic and productive impacts.

The recognition of the problem has given way to a process of raising studies, such as inventories of greenhouse gases, the impact of climate change on agriculture, legal regulations, the development of public policies such as the Climate Agenda of Honduras, the Environmental Policy of Honduras, programs and projectsIn all these legal initiatives and policies, both programmatic and budgetary, environmental education and communication components have been included.

Environmental education in Honduras has focused on mainstreaming education from first to ninth grade, with content on biodiversity and conservation of natural resources, risk management, including chemical risks, and intersectionally of climate change. At the middle and higher levels, it has been decided that environmental education should be a subject itself, included in the humanistic scientific baccalaureate in preparation for university and as an optional in the natural sciences. Honduras does not yet have a master's program in environmental education.

Thus, after 25 years of socio-educational interventions, our research team carried out this case study in the nine municipalities that make up the conurbe (a large area, often around a city, where towns join together as they grow) that surrounds the capital city, with two types of well-differentiated communities, Tegucigalpa and Comayagüela. These communities form the Municipality of the Central District, which hyper-urbanized in much of its territory and the rest of the municipalities are of rural character and with an economy based on food production.

Mixed methods were used in this study such as quantitative surveys, qualitative interviews and focus groups. We surveyed a representative sample distributed in strata and substrata for the territory of the conurbe with 341 surveys and 11 in-depth interviews with public officials of the education sector. Participatory methods, such as quantitative surveys, qualitative interviews and focus groups, involve active engagement of individuals in the research process, allowing for their perspectives and insights to contribute to the research's findings and conclusions directly. This approach fosters collaboration, inclusivity, and a richer understanding of the subject matter. The case study found that between 70 and 85% of the population consulted considers that education on climate change is important. However, they are unsure if schools are developing in this direction. From the perspective of teachers and

[1] The views in the report are not necessarily endorsed by the MECCE Project, which funded the research. This report was republished in 2025 following additional copy editing to increase the report's clarity.

educational authorities, schools have begun using environmental resources as community teaching materials for learning, with urban and micro-watershed reforestation, forest fire control and reducing greenhouse gas emissions being important activities. Honduras has four methodological guides, three for application of environmental education at the basic level and one for the basic and middle levels, containing topics and activities related to climate management. However, only one of them was known by 100% of the teachers surveyed. The rest are known by the pedagogical technical assistants and the district directorates of education despite being resources that are available. Although this knowledge has been consolidated, these guides are limited in scope and are not enough to acquire an awareness that the citizen is co-responsible for the exercises of adaptation and mitigation of climate change, with actions to be carried out at home, such as in productive activities and services (workshops, industries, agriculture, and livestock).

Thus, the case study identified a need to deepen inter-institutional coordination processes between the different Secretariats to insert themes, transversalize the curriculum, and promote the application of methodological guides to generate changes in behaviours, learning, and adoption of practices in their programs. In all this, it is necessary to train teachers, including trainers of trainers, with the creation of a master's degree in environmental education for sustainable development and, at the level of the State of Honduras, with the formulation and management of a public policy of environmental education and communication for sustainable development with emphasis on climate change and adaptation.

CCE Initiative

In Honduras, the processes of environmental education or for sustainable development has been developed under two schemes, introducing environmental education classes in the curricula of secondary or higher education, in a process that was first for the level of higher education from 1995, after the approval of the General Law of the Environment and then for secondary education, the approval of the Fundamental Law of Education in 2012, and the Law of Education and Environmental Communication and Health in 2009. The other process that has occurred is through thematic insertion or curricular transversalization, where environmental issues are introduced, for example, in the contents of social sciences and natural sciences, to enrich the student experience.

Other processes through which the population has benefited are non-formal environmental education and programs and projects executed by Secretariats of State such as the Ministry of Education (SEDUC), Ministry of Agriculture and Livestock (SAG), Ministry of Health (SESAL), Institute of Forest Conservation, Protected Areas and Wildlife (ICF). Other examples include the Secretariat of Natural Resources and Environment (Mi Ambiente) and state universities such as the National Autonomous University of Honduras (UNAH), the Francisco Morazán National Pedagogical University (UPNFM), the National University of Agriculture (UNAG) and National University of Forest Sciences (UNACIFOR).

The mass media, through radio, television and the internet, also develops environmental communication actions, which are considered informal environmental education. One of the first tasks to overcome when services are being promoted is to improve human and institutional capacities, including environmental education or sustainable development, where attitudinal changes are promoted concerning nature in order to change the mental structure that man must conquer nature, dominate it, under the approach of imperial ecology proposed by Francis Bacon in the nineteenth century.

The social context of the country is informed by 25 years of socio-educational intervention at the level of formal environmental education (30 years at the university level, 19 years at the level of basic education and 11 years at the middle level). There also exists informal education

through the training actions developed by programs and projects implemented for the agricultural sectors, livestock, renewable energy, tourism, promotion of entrepreneurship, and informal environmental education through mass media, such as radio, television and internet.

In a study developed by Banegas et al. 2021, it was found that 85% of those who are trainers of trainers in initial teacher education do not have knowledge about climate change. Only 15% of university teachers have developed accurate knowledge about climate change. This is a product of disciplinary adherence to careers in natural and social sciences. Although the subject of environmental education is an elective of the natural sciences, the educational space is insufficient to guarantee that teachers in training at the Francisco Morazán National Pedagogical University, that is, university students and graduates have accurate knowledge of environmental education for sustainable development and therefore train children and youth in basic and secondary education centers. For this reason, this casee study proposed improvement actions to incorporate optional classes in the area of natural sciences, such as climate change and integral risk management and at the postgraduate level to create a Master's program in Environmental Education for Sustainable Development with an orientation in education for climate change and education for integral risk management.

Other CAP studies in Risk Management carried out by Banegas et al. in 2014 and 2017, show similar realities as products of the scarce deepening of transversal education. The Department of Education and Environmental Communication and Health (DECOAS) in the Ministry of Education (SEDUC) was created in 2009, a product of the approval of the Law of Education and Environmental Communication and Health. The UDEAS, in the Departmental Directorates were created in 2015 and activated in 2016, so the arrival of the methodological guides and the learning strategies began to be implemented only in 2017, although they were developed from 2006 to 2012. Both studies initially show the ignorance of climate risks as a confluence of socially constructed vulnerability, attributing instead the incidence of these phenomena to divine punishments (56%), which represents an important challenge in being able to develop knowledge, attitudes and correct practices in risk management and climate change, where it is necessary to promote greater efforts to appropriate the available resources and improve the already available on the phenomenon of climate change, the causes, effects and consequences, but also the solutions available and with the possibility of being adopted.

Therefore, efforts have been made to teach, communicate, sensitize and raise awareness about climate change. However, progress has not been made towards the full implementation by citizens of sustainable practices at home and in productive activities. Future researchers in this field could address the differentiated effectiveness of the impacts of programs and projects on the generation of knowledge, attitudes and correct practices on climate change and sustainable practices adopted at home and in productive activities, including agriculture, industry and services.

The expansion of the CAP studies on climate change will allow recognition of gaps differentiated by territories and thereby accumulate the information base to carry out evidence-based advocacy actions to promote the creation, approval and implementation of a public policy in environmental education for sustainable development, with a focus on climate change and risk management, since sectoral policies contain elements of environmental education. However, it has not been possible to implement them at the level of coordination mechanisms between the State institutions governing the sectoral (health, education, environment, forest conservation) and SEDUC, universities and non-formal alternative education centres.

Case Study Methods

This case study describes the knowledge, attitudes and practices on management and adaptation to climate change in the conurbe of Tegucigalpa, and it was carried out in 9 municipalities that make up the conurbe surrounding the capital city. The case study covers two large representative areas, a hyper-urbanized community composed of the cities of Tegucigalpa and Comayagüela, which make up the Municipality of the Central District and the area made up of rural municipalities, mainly based on an economy of food production and ecotourism, composed of the municipalities of Lepaterique, Ojojona, Santa Ana, San Buena Ventura, Tatumbla, San Antonio de Oriente, Santa Lucia and Valle de Ángeles. Together, these areas make up the green belt of the city of Tegucigalpa, where food and other ecosystem services are produced.

The main objective of the case study was to assess the knowledge, attitudes and practices possessed by adolescents, youth and adults by 2023. The assessment focused on climate change at the level of causes, impacts, adaptation measures, mitigation or their synergies, as influenced by their participation in non-formal and informal educational processes that addressed these topics. The team that conducted the research is the Honduran Association of Developing Communities (AHCODESS), in association with the Agency for Development and Sustainable Environmental Management (ADEGEA).

A central question of the case studywas what knowledge, attitudes and correct and incorrect practices adolescents, young people, and adults possess in 2023 about climate change at the level of causes, impacts, adaptation measures, mitigation or their synergies, as influenced by their being direct and indirect beneficiaries of formal, non-formal and informal educational processes in which these issues were addressed?

Derived from this central question are some research sub-questions, which we answer with the development of this case study.

1. What are the knowledge, attitudes, and practices in the target population about climate change and risk management disaggregated by municipality, occupation, age, and gender?

2. How do institutional and human strengths and capacities influence and act as barriers to adopting knowledge, attitudes, and good practices in the target population on climate change and risk management disaggregated by municipality, occupation, age and gender?

3. What improvements can be adopted by the community of institutions that are linked to the promotion of a culture of adaptation to climate change to improve their socio-educational interventions?

To answer the research questions, we used mixed quantitative and qualitative methods: quantitatively structured surveys, interviews, and qualitative focus groups. A representative sample distributed in strata and substrata for the territory of the conure was engaged with 341 surveys, calculated based on the estimated population for the nine municipalities, according to projections by the National Institute of Statistics, with 95% confidence and 5% error, and distributed in subsamples by population weights, age group, and gender. In addition, 11 in-depth interviews with public officials in the education sector were obtained.

Participants in this study included 341 people between 12 and over 60 years of age, distributed in the nine municipalities that made up the sample, which is part of the department of Francisco Morazán in Honduras, Central America. The municipality with the highest

representation in the sample is Distrito Central, with a total of 73 people, followed by Tatumbla, with 38 people and Valle de Ángeles, with 41 people. Other municipalities, such as San Antonio de Oriente, San Buenaventura, and Santa Lucia, also have a significant presence in the sample, with 44, 32, and 34 people, respectively. On the other hand, municipalities such as Lepaterique, Ojojona, Santa Ana, and Santa Lucia have lower representation in the sample, with 31, 29, 28, and 32 people, respectively.

Most people surveyed are in the age range of 7 to 12, representing 30.57% of the sample. The age group of 12 to 18 represents 22.86% of the sample. The 18- 30 age group accounts for 21.71% of the sample, while the 31-60 age group accounts for 17.43%. Finally, the age group of those over 60 represents 7.43% of the sample. The most common occupation in the sample was student, representing 56.57% of the sample. This is followed by merchants, who represent 24.57% of the sample. Food producers represent 11.71% of the sample, while teachers represent 7.14%.

The most common educational level in the sample is the basic education II cycle, with a total of 91 people, followed by secondary education with 83 people and the basic education III cycle with 68 people. Other educational levels, such as bachelor's degree and university technician, have a significant presence in the sample, with 41 and 34 people, respectively. On the other hand, the educational levels of basic education I cycle and postgraduate have a lower representation in the sample, with 25 and 8 people, respectively. This research will guide the design and redesign of transversal education proposals on climate change in the national education system and environmental socio-educational intervention projects.

Case Study Findings

Between 70 and 85% of the consulted citizens consider it very important to deepen environmental education schemes in the face of climate change, and 5- 20% consider it important. This allows us to visualize that there is a positive predisposition to the possibility that the Curriculum and pedagogical mediations may contain these elements. As for whether the issue of climate change is currently being discussed in schools, between 84-88% recognize that this issue is addressed in educational institutions, and 11-15% of the citizens consulted consider that they are not sure if it is addressed or not, so this can give the certainty that the programs and projects of the Secretariats of State and NGOs are arriving with the message to children, young people and adults.

The processes of environmental education or sustainable development with a focus on climate change and adaptation are lived according to the conditions of the context where the teaching-learning process is developed, making use of community resources as an open laboratory for the generation of significant learning. This includes actions related to nature, such as afforestation and reforestation processes in parks, public gardens in urban areas (18-25%), and micro-watersheds in rural areas (12-25%), actions for the control of forest fires (6-16%), which not only emit greenhouse gases but are a great danger to the water security of communities.

Educational campaigns are undoubtedly one of the ways in which environmental educational knowledge is disseminated and harmonized with national celebrations such as Arbor Day, Earth Day and others, where campaigns are made for the rational use of resources such as water and energy but also campaigns focused on the collection of waste at the source, both

common waste and hazardous waste (batteries, electrical and electronic equipment). These are undoubtedly propaedeutic and initial elements in the development of an environmental and, above all, climate-responsible citizen culture, which in the future can be deepened and sophisticated, for example, through role plays, analysis of the local reality on responsible consumption and other participatory techniques that can promote changes that are necessary for the development of collective environmental awareness.

The Honduran State, with the support of international cooperation—primarily from OFDA, DIPECHO EU, USAID, UNDP, and projects carried out by INGOs and local NGOs—has been advancing the integration of environmental themes into educational processes. These resources, validated by small groups of teachers, are now available as online materials through the Educatrachos platform (http://www.educatrachos.hn). Thanks to digital democratization, they are accessible to all citizens, with a particular focus on use by teachers and students in basic and secondary education. A guide known by district leaders and their pedagogical technical assistants, but not classroom teachers, is the methodological guide for the environmentally sound management of chemicals, which fluctuates between 28 and 38% recognition as an educational material intended for those who teach natural sciences at the basic and intermediate level. Classroom teachers only recognize the existence of the methodological guide for risk management for basic education, which is aimed at teachers of the basic education level from 1 to 9 grade, and that has learning activities for both social sciences and natural sciences educational spaces. As a result of this finding, it is possible to identify the need to generate training of trainers and cascade training workshops. Climate Action Plan (CAP) studies on climate change and adaptation are scarce.

No intensive use has been made of the resources for thematic mainstreaming of climate change that are available online, in the educational platform of the SEDUC, so that both DECOAS, at the central level and the UDEAS at the decentralized departmental level, must deepen instructions and a cascade training mechanism, aimed at teacher training, and with it that information can flow to children and youth.

The citizens exhibit basic knowledge about climate change, not denying the existence of the problem, but they ignore several issues related to its causes, effects and consequences. These include a lack of awareness of the increase in the frequency and intensity of extreme weather phenomena. Temperature seems to be the most commonly warned by citizens as one of the easily noticeable effects. There is a high level of awareness, with over 50% of citizens carrying out actions toward the rational use of resources, responsible consumption, and involvement in the reduction of greenhouse gas emissions. Examples include control of forest fires, backyard burns and clandestine dumps, promoting better management of solid waste.

There are important weaknesses in the adoption of sustainable practices in the home and the extractive sectors such as agriculture and livestock. The effectiveness of potential actions is recognized, but there is a reduced commitment to their adoption, with the exception of mitigation actions, especially energy efficiency and autonomous photoelectric generation.

Therefore, it is necessary to consolidate the efforts developed by different institutions linked to the management and management of climate change and to coordinate with the education sector and its institutions through the management of a public policy in environmental education for sustainable development, with an emphasis on climate change and adaptation.

Psychosocial Learning Dimension

The effects and consequences of climate change are identified mainly based on daily experience and comparison with the past. For example, the increase in temperature was identified by 51-64%, while the increase in the frequency and intensity of extreme weather events was identified by 2-8%. Despite the meteorological evidence, these phenomena are not internalized by citizens or expressed in their perceptions.

Some of the sustainable practices identified by citizens are the prevention and control of forest fires (17-19%), followed by selective waste collection and the reduction of energy and water consumption. The use of sustainable transport, such as the use of bicycles (12-14%), seems to be a consequence of campaigns developed within the framework of sustainable transport initiatives and the substantial increase of people who practice eco sports and mountain sports. In Tegucigalpa in 2023, the Mayor's Office has declared the temporary closure of Boulevard Morazán for the practice of walking and the use of bicycles as a determined promotion for the generation of healthy lifestyle habits based on physical activation.

> *"Waste collection and separation became an initiative at home, driven by my son who learned about it at school. Initially, it was challenging and tedious to separate plastic, bottles, and paper, but later, we realized that our garbage bags fit better as bottles took up a lot of space. Now, we've embraced it as a positive action and a way to save money." (Focus Group)*

> *"I'm not from Tegucigalpa; I'm from Ceiba, so I'm used to using a bicycle as my mode of transportation. When I moved to the neighborhood, I brought my bike with me, and many kids would watch me ride it to work. Over time, I noticed that they started asking their parents to buy them one, and many parents actually did." (Focus Group)*

> *"Burning for cultivation had always been a practice passed down through generations until one time we went too far, resulting in a serious wildfire. It was then that we learned not only about its harmful impact on the environment but also that there are alternative, less polluting ways of clearing land." (Focus Group)*

Action-Learning Dimension

Climate change and adaptation practices: Just as knowledge leads to a positive attitude toward change, attitude serves as a precursor to the implementation and adoption of sustainable practices, which result from education and training. These practices should be consistently incorporated into daily routines, both at home and in productive activities, such as agriculture and livestock management.

With the implementation of public policies, we move from a moment in which the existence of the problems is denied to a moment where the existence of the problems is assumed, and public policies are designed. However, these are not part of a third moment where public policies are concretized.

Although significant progress has been made in raising awareness about climate change and improving attitudes among citizens, this has not necessarily translated into the widespread adoption of sustainable practices, particularly at home—where individuals have the autonomy to make decisions and implement climate change adaptation measures. Only 19 to 33% of citizens believe that sustainable practices are being applied in their homes or in productive activities. The majority remain undecided or do not perceive such practices as being implemented in society. These practices encompass both adaptation and mitigation efforts, as well as their combined synergies.

In the case of agriculture, practices that citizens indicate have greater effectiveness include the use of plant varieties resistant to drought or excess moisture (34-41%), which demands greater efforts of plant genetic improvement by the SAG. Other less effective practices include the use of irrigation systems (26-31%). Deepening of sustainable agricultural practices (PAS) that should be intensified and diversified is only identified by 34-35% of citizens.

Climate Justice

Regarding the implementation and perceived effectiveness of sustainable livestock practices, the citizens consulted consider implementing waste management systems on farms as a preferential action (24-26%). This is perhaps due to the influence of the actions promoted by the BIOGAS Program. Another identified action is the establishment of water reservoirs (16-19%) and planting trees in the pasture (16-20%). This is a sample of many of the sustainable practices that are promoted through the projects and are permeating different age groups through informal environmental education.

> *I remember living in Choluteca, and those familiar with Choluteca know how hot it can get there. We faced serious issues because our crops were drying up due to the drought. One day, while going through the newspaper, I saw an advertisement about water reservoirs that explained their purpose and benefits. So, we took out a loan and purchased one. Since that day, we started filling it during the rainy season, and we never suffered from water scarcity again. (Farmer)*
>
> *I had my doubts about planting scattered trees in the pastures, as I had never heard of that before, and I tend to be quite conservative when it comes to trying unfamiliar things. I was concerned about the impact on the livestock and grazing patterns. However, I decided to give it a try based on the advice I received. I can tell you that when I began to see the improvement in the shade provided by the trees and the enhancement of soil quality, I wasn't just convinced, but several of my friends did the same thing. (Farmer)*
>
> *I am extremely pleased with my water reservoir. I don't face water problems anymore, and my animals don't go thirsty or die due to water shortages. Additionally, I can cultivate throughout the year without any issues. (Farmer)*

Regarding non-formal environmental training on sustainable practices and adaptation to climate change, between 15-31% of respondents have been trained, with the age group least benefiting from it being people over 60 years of age. The age groups of young people and adults are important focuses of State and international projects. 53% of those between 18 and 60 years old report that they have been trained.

Finally, after examining some climate change adaptation measures implemented at home, such as in productive activities, and their adaptation-mitigation synergies, we proceeded to identify practices known, practiced and adopted by citizens to mitigate global climate change by reducing greenhouse gas emissions. The purchase of efficient appliances is reported by 37-43%, which identifies that education for sustainable consumption begins to generate positive effects. In addition to having accessible eco-efficient products on offer in shops, this is evidence of the necessary link between sustainable production and consumption. The use of LED bulbs is reported by 38-41%, partially explained by state actions initiated from 2008 to the present to change public and home lighting for more efficient and less polluting systems. The installation of solar panels is reported by 19-23%. This is explained by the increase in the electricity market for photoelectric installations and the announced electricity supply crisis in 2023. This is a product of the incidence of ENOAS El Niño, which has caused an increase in civil investments in photoelectric installations.

Sharing Learnings Across Geographies

The greatest learnings from the case study "Knowledge, attitudes and practices on management and adaptation to climate change in the conurbe of Tegucigalpa" include the following:

1. In order to promote education and communication on climate change, political will is needed from educational authorities, integrated by the Ministry of Education. These include Universities, Professional Technical Education Centers or Non-Formal Alternative, with NGOs, programs and projects of Ministries such as those of Natural Resources, Environment, Forest Conservation, Entrepreneurship, and Public Finance. Complementarity approaches are required to form a robust process of environmental education and communication for sustainable development with a focus on climate change and adaptation.

2. Governments and the State are aware of the problems posed by climate change and variability, its causes, effects, and impacts, and the need to improve human and institutional capacities to face climate change, from adaptation and mitigation. It is necessary to formulate public policies at the central and decentralized State level on issues of environmental education and communication for sustainable development with a focus on climate change and adaptation to promote greater coordination of efforts and avoid duplication of efforts.

3. For citizens to adopt climate-sustainable practices, they must go through a process of awareness in assuming that the problem of climate change is part of the trinomial State (regulator and auditor), Economy (Private sector, producer and service provider) and citizenship (consumers and incidents in the State to make appropriate market regulation decisions.) They must not deny the problem or transfer responsibility exclusively to manufacturers and the regulatory body and assume citizen responsibilities at home and at work. Above all, we must orient ourselves towards a climate-sustainable citizen culture through responsible consumption, which forces production towards more sustainable and climate-smart standards.

4. By moving from the denial of the climate problem to the construction of actions related to climate management, Honduras must concretize but also harmonize the legal framework with the political and programmatic framework. We propose the creation and management of environmental education and communication for sustainable development with a focus on climate change and adaptation.

5. Having a public policy on education and environmental communication for sustainable development with a focus on climate change and adaptation can activate mechanisms that allow the officialization and intensive use of different pedagogical mediations. In this way, a global climate culture can be achieved, which guarantees the security of the local population and their livelihoods and contributes towards the goal of humanity to have a more stable climate which does not threaten our civilization.

6. Environmental education and communication for sustainable development that focuses on climate change and adaptation should not only be a topic of teachers who teach natural sciences. It is also a topic that can be addressed in different disciplines, including social sciences since it is a citizenship education in a subject of postmodernity. It is also applicable in technical education in which the production and provision of services must be permeated from the design of new products, processes and services with sustainable and climate-smart production actions.

7. The use of spaces for community participation in the education sector or collaborative work between educational centers seems to be a good way to disseminate learning and develop coaches of trainer processes (TOT), and facilitate that teachers can appropriate pedagogical mediations already available where the curricular insertion and the practice of a didactic based on community resources is facilitated, to generate significant learning about climate change and adaptability and thereby generate safer, more resilient communities and applying principles of production and service provision in a sustainable way.

8. Educational centers must begin to add environmental management in educational centers. They must make the principles that we teach, such as the rational use of resources such as water, electricity, chemicals, waste management and the protection of local biodiversity, including the planting of public and private spaces, where the campaigns that have been observed are strengthened, a part of an institutional agenda in order to to make them sustainable.

9. The education sector must coordinate with sectors affected by climate change. Cultural practices and works for adaptation to climate change must be developed so that in educational spaces, we can talk about good climate-smart practices that we can develop in homes, in productive sectors such as agriculture, livestock, food production and the provision of services such as tourism. There is great potential for thematic insertion in secondary education, both in the Humanist Scientific Baccalaureate, for example, the Professional Technical Baccalaureates, in their different specialties and university education.

10. To provoke a change that is significant in the long term in the processes of education and environmental communication for sustainable development with a focus on climate change and adaptation, it is necessary to influence the initial training of teachers. Professionalizing and specializing teachers is important, both in teacher update courses, as in the creation of a postgraduate degree at the master's level or specialty in Environmental Education for Sustainable Development with orientations in education in climate change and variability and education in integral risk management.

11. The public budget of the State must be labelled so that budget lines can be identified that are invested in mitigation processes such as adaptation to climate change. It must be communicated which lines correspond to environmental education and communication for sustainable development with a focus on climate change and adaptation. This will facilitate decision-making that is taken in public management on this issue and verify how to comply with public policy regarding the subject.

Impacts of the Case Study

The development of the case study: "Knowledge, attitudes and practices on management and adaptation to climate change in the conurbe of Tegucigalpa" has allowed us to understand the logic of environmental education and communication for sustainable development with a focus on climate change and adaptation in Honduras. Above all, the development has allowed us to identify the advances, challenges, and dysfunctions that have not allowed citizens to develop and adopt climate-sustainable practices at home and work in productive and service activities.

This learning, without a doubt, will be of great importance to the work done by NGOs and through International Cooperation. Especially considering the studies of knowledge, attitudes

and practices from the initial phase in the survey of baselines, technical studies of extant projects, monitoring, follow-up and evaluation. Support provided to the education sector at the decentralized and decentralized level as at the central level should also be informed by this learning.

Our current goal as an organization is to promote the formulation and management of a public policy in environmental education and communication for sustainable development with a focus on climate change and adaptation at the central and decentralized levels, to support better and more coordination efforts in order to achieve a more effective and sustainable climate education.

The main implications of our case study will be developed in the medium and long term. Through this case study, evidence-based advocacy actions will be built where we will seek to share the results of this work through thematic Congresses, publications in indexed journals, as well as dialogues with the State and with civil society organizations. Our aim is to seek the joint construction and management of a public policy in education and environmental communication for sustainable development with a focus on climate change and adaptation, from which the following can be derived:

1. More coordinated efforts between institutions and their programs. For example, through the creation of an inter-institutional working table or committee on environmental education and communication.

2. Updates to the Curriculum in basic, secondary and higher education, guarantee the thematic insertion of climate change and adaptability as a central theme.

3. Designing, updating and deepening the use of pedagogical mediations.

At the regional level, an action plan for advocacy should be established with the Departmental Directorate of Education of Francisco Morazán and the Departmental Unit of Education and Environmental Communication and Health, its Municipal Directorates and its district directorates, which are contemplated in the Municipality of the Central District. This must be done in order to recognize the challenges, limitations, and weaknesses that need to be strengthened to have a more effective climate education process.

At the intergovernmental level, it is necessary to begin to venture as an institution into the Central American Commission on Environment and Development (CCAD) of the Central American Integration System (SICA) and begin working with intergovernmental organizations such as the United Nations Environment Program (UNEP) to recognize the leading role of climate education in the construction of a new society. Work should also be done in regional positions before the Conference of the Parties to the United Nations Conference on Climate Change.

The learnings developed throughout our case study allow us to recognize the possibilities and potentialities as a technical management instrument for the environmental management of educational centers and for the management of development projects that have in their goals and components the theme of education and communication for climate change.

In the environmental management of educational centers, which emerges as a new dimension of educational management, the use of CAP surveys is proposed in this case of the issue of climate change and adaptability as a protocol for the development of baselines, monitoring, follow-up, evaluation and learning, which can be easily transferable to the Ministry of Education. Universities, NGOs, and professional technical education centers can be used as a criterion for monitoring scalability processes in the reference territory in other regions of the country and be shared to be used in the Mesoamerican region.

Applicability and Scaling of the CCE Initiative

Honduras is politically divided into nine departments and 298 municipalities. This case study focuses on the department that includes the capital city, Tegucigalpa, specifically the Municipality of the Central District, along with eight neighboring municipalities. These surrounding areas are closely linked to the capital through the supply of goods and environmental services, including food production and distribution. Additionally, there are significant demographic dynamics, such as daily migration, as these municipalities function as small dormitory towns for Tegucigalpa. The capital also engages in substantial economic exchange with these surrounding territories, forming an interconnected urban region.

This point could be of great importance to guide other case studies to be developed in other areas of Honduras, where methods and techniques of environmental education and communication have been tested and appropriated. For example, another area of interest is the city of San Pedro Sula, located in the department of Cortés, forming a conurbation which covers territories such as the municipalities of Omoa, Puerto Cortés, Choloma, La Lima, San Manuel, Villanueva, and Pimienta. Honduras is the only country in Central America that has two conurbation centers.

Honduras also has other intermediate cities with important populations and socio-educational interventions, which could be monitored in education and communication for climate change. These include Ocotepeque, Ocotepeque; Santa Rosa, La Entrada and San José, Copán; Thank you, Lempira; Santa Barbara, Macuelizo in Santa Barbara; Opatoro, La Esperanza in Intibucá; La Paz, Marcala in La Paz; El Progreso, Olanchito in Yoro; Tela and La Ceiba in Atlántida; Tocoa and Trujillo in Colón; Siguatepeque, Comayagua in Comayagua; San Esteban, Catacamas, Juticalpa in Olancho; El Paraíso, Danlí en El Paraíso; Amapala, San Lorenzo and Nacaome in Valle; Choluteca, Pespire, San Marcos de Colon in Choluteca; Roatan and Utila in Bay Islands.

Additionally, due to the nature of the case study, it could be replicated in cities and territories in Mexico, Guatemala, El Salvador, Nicaragua, and Costa Rica, which make up an idiosyncrasy and share social, economic, and language conditions, and share similar problems and with fairly common tested solutions.

This research was conducted by

Asociación Hondureña De Comunidades En Desarrollo

This research was made possible with funding from

MECCE MONITORING AND EVALUATING CLIMATE COMMUNICATION AND EDUCATION PROJECT

SEPN SUSTAINABILITY AND EDUCATION POLICY NETWORK

Recommended Citation: Banegas Barahon, L.L., Rivera Barahona, R.,Ri vera Barahona, E.M., & Rivera Barahona, J.D. (2025). Holistic Climate Communication and Education in Municipal Settings. MECCE Project Funded Case Study. Retrieved from https://mecce.ca/publications/holistic-cce-municipal-settings.