



**CLIMATE CHANGE ACTION  
PROGRAM FOR THE STATE OF  
CHIAPAS, MEXICO**

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## CLIMATE CHANGE ACTION PROGRAM FOR THE STATE OF CHIAPAS, MEXICO

The Climate Change Action Program for the State of Chiapas, Mexico (PACCCH) is a cutting edge initiative that is demonstrating how climate change can be addressed at the sub-national level.

Started officially in 2009 (with early actions taken in 2008), this collaborative effort aims to establish a state-wide framework that enables the development of an integrated plan to address climate change tailored to the unique conditions of Chiapas. It is one of the first sub national initiatives that integrates the framework for activities that will mitigate, or reduce, greenhouse gas emissions with activities that will help people and ecosystems adapt to the environmental changes that have already been set in motion by a changing climate.

Chiapas, a state with immense biological and cultural diversity, is already experiencing the effects of climate change, with changes in temperature and the hydrological balance, and fluctuations in precipitation patterns. As such, key stakeholders have united behind the PACCCH to find a way forward. Social participation and sustainability have served as the foundations of this project from the outset. Federal and state governments, academic and research institutions, as well as civil society all play a key role in the PACCCH. To ensure long term sustainability, the PACCCH works within the political and institutional frameworks, takes economic considerations into account, and strives to develop the local capacity to confront climate change.



This work is substantial and time consuming. It has thus been divided into phases, the first of which is described in detail here. The four main outputs for Phase 1 of the PACCCH are:

1. Create and consolidate a state Intersecretarial Climate Change Commission (ICCCCH) and provide a capacity building program about climate change to key stakeholders;
2. Develop scientific-technical information on climate change in Chiapas including a state-level greenhouse gas inventory, a detailed REDD+ baseline and downscaling of climate change scenarios;
3. Validate and adopt the Climate Change Action Program document by the state of Chiapas and promote it in other states;
4. Publish and promote the PACCCH.

The first phase was funded in large part by the British Embassy with contributions from the Secretariat of Environment Housing and Natural History of the state government of Chiapas (SEMAVIHN), Conservation International (CI), and the Secretariat of Environment and Natural Resources of the federal government (SEMARNAT). Many important milestones have been reached and are described below.

## PHASE 1 OUTPUTS

1 – Create and consolidate a state-level Intersecretarial Climate Change Commission and provide a capacity building program on climate change for key stakeholders.

Supporting and monitoring the development of the political and institutional framework for the Chiapas State Climate Change Program is one of the major facets this work. A large part of these efforts focus on encouraging an active dialogue between the different sectors of the government, including education, housing, environment, economy, tourism, etc. Creating a common understanding of climate change in all sectors of the government is crucial to ensure positive change through joint action in Chiapas, and to allow the state government to respond effectively to climate change. This will also help ensure that the necessary Directives and Regulations are put into place and accompanied by adequate funding.

To ensure the commission is coherent and feasible with the local context, CI, in collaboration with Vera, Carbajal & Sosa (VC&S, an environmental law firm), generated an analysis of the current institutional and policy framework to guarantee that any modifications proposed or decisions made are well-informed by thorough research. This, in turn, will ensure that the changes are feasible and will be sustainable in the long term. On the basis of this analysis, VC&S made suggestions of how climate change could be integrated into the current political process and resulting public policies. The firm also investigated ways to support the participation of civil society, academia and the private sector. Their proposal advised that the work in Chiapas should be designed in a manner that would make it congruent in structure and form with the decisions and processes occurring at the national level. All work in Chiapas will be aligned with Mexico's national work, which in turn is aligned with the work of the United Nations Framework Convention on Climate Change (UNFCCC).

To be successful, the PACCCH must address the needs, challenges and opportunities of all stakeholders. Thus, the PACCCH and ICCCCH are being developed in a manner that enables them to make decisions and take actions that take into account the state's economy and the needs of Chiapanecan society.

Armed with this analysis, the PACCCH is now constructing Chiapas's Intersecretarial Commission on Climate Change. Under the direction of the governor, thirteen government secretariats (or ministries) will work to align public policies to address the challenges climate change is presenting for the state. This effort is facilitated by the Mexican Center for Environmental Law (CEMDA), where an associate is writing the Act that will establish the ICCCCH as a formal governmental body, able to coordinate and provide input to the state and federal development policies.

Another important component of the work is to develop a capacity building program for the key stakeholders and participants of PACCCH, to increase their technical capabilities on climate change policy, science, mitigation and adaptation. The PACCCH's capacity building programs began in 2009 and originally focused on providing training for the SEMAVIHN, the University of Sciences and Arts in Chiapas (UNICACH) and the REDD+ Group of Chiapas, among others, on topics related to climate change science, international policy, the UNFCCC process, the national climate change context and REDD+. The capacity building efforts are being directed by the PACCCH's own academic partners in Chiapas as well as leading scientific experts from all over Mexico, including the Center for Atmospheric Science of the National University of Mexico (UNAM) and the National Institute of Ecology (INE).

Now that strong foundations have been built with the PACCCH partners, capacity building efforts will focus on training representatives from the Secretaries that will form the ICCCCH on various aspects of climate change.

## 2 – Development of the Chiapas' scientific-technical information on climate change

In order for the state government to make a strong commitment to address climate change, it is essential to provide them with the most up-to-date and scientific information available for Chiapas.

**State Level Greenhouse Gas Inventory:** Using the rigorous Intergovernmental Panel on Climate Change (IPCC) guidelines (1996, GPG for land use, land use change and forestry, 2003 and 2006), the state greenhouse gas (GHG) Inventory will determine how much GHG Chiapas emitted in 2005. It is covering all sectors including: energy, industrial processes, waste, agriculture (including livestock), and land use, land use change, and forestry (LULUCF). Preliminary results show that the state contributes approximately 32,727,340 tons of carbon dioxide equivalent (CO<sub>2</sub>e), or 4.82% of all of Mexico's GHG emissions. Land use and land use change, essentially deforestation and forest degradation, contributes the large majority of Chiapas' emissions: 62% of the total state emissions or 20,205,500 tons of CO<sub>2</sub>e. This represents approximately 28.78% of Mexico's emissions from this sector, and demonstrates the key role land use based mitigation strategies, such as REDD+, must play in Chiapas.

To obtain such a detailed level of information, PACCCH partners collaborated closely. The first consortium is between El Colegio de la Frontera Sur (ECOSUR) and El Colegio de Posgraduados (COLPOS), who developed GHG inventories for the LULUCF and Agriculture sectors. Scientists from these well respected academic research centers used the knowledge they obtained while developing the national GHG inventories for these sectors and took advantage of the information collected through more than 35 of experience and field work. Chiapas is one of the first places in the world that has developed Tier 2 and 3 carbon stock estimations. This means that there is very high level of detail and, as such, a lower level of uncertainty. Utilizing the IPCC guidelines and these higher tiers of estimation will enable Chiapas' LULUCF inventory to be included in the national reporting systems that are still to be constructed. In turn, this will allow Chiapas to develop a subnational reporting/accounting system fully compatible with the national system, thus overcoming one of the primary challenges for REDD+ initiatives at the subnational scale.

A second consortium was formed between UNICACH and the Technological University of Tuxtla Gutierrez, (TEC), two of the most important academic institutions in Chiapas. UNICACH and TEC started from scratch, learning how to develop the GHG Inventories for the energy, industrial process and waste sectors. The UNICACH team for the inventory involves local researchers and five research fellows who are advised by national experts from the Atmosphere Center of UNAM. With this, the PACCCH is developing local capacity in all sectors, one of the initiative's most important results to date. Annual capture and emissions for different categories of land use for periods from 1990-2002 and 2003-2008. The black lines indicate the uncertainty in the estimates. Negative fluxes are emissions, positive fluxes represent carbon capture. TF= forested lands, TA = agricultural land y PR = fields. (ECOSUR-COLPOS-Conservación Internacional, 2010)

**State Level REDD+ Baseline:** Developing the REDD+ Baseline entailed determining how much CO<sub>2</sub>e Chiapas has emitted and captured from 1990 to 2008 due to land use change in their forest ecosystems. Employing a business as usual scenario, this information was then used to model how much CO<sub>2</sub>e Chiapas will potentially emit by 2020 due deforestation and forest degradation. To determine this, ECOSUR-COLPOS are using the GHG inventory information mentioned above, and these emissions/ reductions will be projected up to 2020. This permits more precise measuring, reporting and verification systems, which lets Chiapas demonstrate to the world exactly how much it will contribute to reducing emissions from deforestation and forest degradation when a REDD+ strategy is implemented.

**Downscaling of climate change scenarios:** In recent history, Chiapas has experienced difficulty because of extreme weather conditions and events. In 1998, 2005 and 2010, heavy rains caused severe damage to infrastructure, ecosystems, agriculture, and the economy. Tragically, there were even losses to human life. Taking this into account, as well as the belief that Chiapas needs a long term policy in place to prepare for and adapt to climate change, the PACCCH is working to understand what scientific models say about the climate scenarios for Chiapas for the current century. UNICACH, advised by experts from the Atmosphere Center of UNAM, is developing the future climate change scenarios for Chiapas that show how conditions are expected to change. The experts are also interpreting what this implies and what impacts these climatic changes will have. The maps above show the possible scenarios for temperature rise for this century under a high CO2 emissions model over time. In the year 2030, the mean temperature will rise between 0.75 and 1°C, with a dispersion between models of 0.25 and 0.5°C; meaning that the temperature could rise between 0.5 and 1.5 °C. By 2050, the temperature could rise by 1.5 °C, with dispersion between models of 0.25 and 0.5 °C, which means increases between 1.25 and 2 °C. On the other hand, by the end of the century, the mean annual temperature could rise between 3 and 4 °C in Chiapas. This does not mean that in one day it will increase 4 °C, but rather that the annual average could increase by 4 °C, making the state more vulnerable.

3 – Climate Change Action Program document is validated and adopted by the state of Chiapas and promoted in other states.

Given that the state government of Chiapas is one of the key partners of the PACCCH and is involved in the process on a daily basis, it automatically politically validates PACCCH at the state level. Likewise, at the federal level, the SEMARNAT (the federal environmental secretariat) and SEMAVIHN (the state-level environmental secretariat) have partnered both technically and financially to address climate change. As SEMARNAT is providing resources to SEMAVIHN, the former receives frequent updates from the latter, greatly decreasing the need of the PACCCH to report separately to the federal government for validation of its activities.

The scientific-technical information is currently being validated by the National Institute of Ecology (INE) to assure congruence with the national level-methodology and standards. As other states, such as Tabasco and Campeche, begin to develop their own climate change programs, many have shown interest in the PACCCH and want to learn from the process undertaken in Chiapas. In response to the interest, the process of constructing the PACCCH, as well as its scientific advances have been presented in two state forums and many workshops to key actors and the general public.

#### 4. Publication and outreach of the PACCCH

As important as the scientific information being developed is the publication and dissemination of the information and results of the PACCCH to the broader public. It is essential to inform to civil society of the process and outcomes so that they understand and can participate and in solutions. This outreach is being done with an actively updated web page [www.cambioclimaticochiapas.org](http://www.cambioclimaticochiapas.org), workshops, radio talks, events, and youth activities. One very successful activity was the Youth Parliament on Climate Change, during which young people from across the state presented a declaration of Youth of Chiapas on Climate Change to SEMARNAT, explaining how youth can contribute to addressing climate change.

#### CHALLENGES AND LESSONS LEARNED

**Participation and Ownership:** Developing this program has been complex because of the need to actively and effectively engage multiple stakeholders. The importance of creating a common understanding among key actors over time cannot be underestimated. In addition, it is integral that the stakeholders take ownership over the process. To achieve this, they need to have been included in the process from the beginning of the planning stage.

**Timing and Political Context:** Getting the timing right is of critical importance because the decisions needed to address climate change should be aligned with all the other necessities of the state. It is integral to continue to make the PACCCH feasible politically by ensuring that economic considerations and the well-being of the people are taken into consideration.

**Building Capacity:** The major challenges encountered were building the various technical teams and developing their capacity, given that the concepts and details of all climate change components are complex; local capacity was low at the start.

**Creating local capacities is critical for the long term success of the PACCCH.** This creates sustainability and increases the commitment of the local stakeholders to the process. This increased capacity will allow stakeholders to accept and support the process as well as understand how they can play an active role in the plans developed.

**Science Based:** When developing a program of such magnitude, good intentions are simply not enough. Having a sound scientific base gives the PACCCH the credibility it needs to obtain buy in from the various stakeholders in the region. It also allows them to develop plans that will be most effective and efficient in mitigating climate change and adapting its effects.

**Flexibility:** Finally, it is necessary to remain flexible and adapt to the evolving political problems and issues as they surface. Given the changing economic and political environment, programs like the PACCCH need to continue to evolve and its leaders need the vision to see possibilities and utilize the program to catalyze wider initiatives. **Links to National Level:** When developing a sub-national climate change action program it is important to ensure that the process, methodologies used and decisions made are compatible with the national context, so that the state level actions and information can be integrated into the national framework and accountability process.

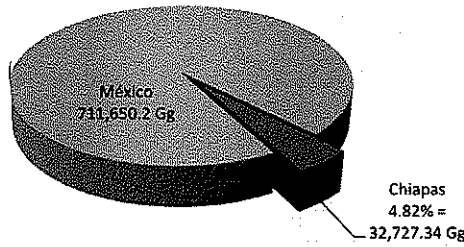
#### MOVING FORWARD

As described above, the completion of Phase 1 of the PACCCH will result in the establishment of the Intersecretarial Commission on Climate Change, development of the state's scientific data (greenhouse gas inventory, REDD+ baseline, and future climate scenarios), and the validation of the Climate Change Action Program. Even though Phase 1 is nearly completed, there is still plenty of work to be done. Future plans include:

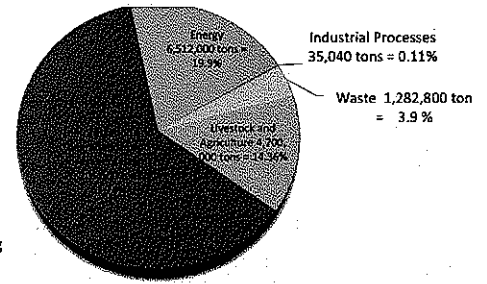
- Develop and implement a complete mitigation strategy focusing on land use, land use change and forestry, and the agriculture, waste and renewable energy sectors;
- Develop and implement an ecosystem based adaptation strategy that focuses on sustainable forest management and improving land use practices;
- Link the ecosystem based adaptation strategies and REDD+ based mitigation strategies by implementing the REDD+ initiatives in the most vulnerable forest ecosystems;
- Start pilot initiatives at the municipal level;
- Strengthen the institutional and policy framework to implement climate change strategies;
- Support other states (Tabasco and Campeche among others);
- Support the national REDD+ readiness strategy;
- Create a south-south capacity building platform for Measuring, Reporting, and Verification (MRV) as part of the REDD+ process

Current funding permits the design and initiation of the PACCCH. Further financial support is necessary to fully integrate this institutional framework into the development agenda of the state of Chiapas and allow for increased outreach with other stakeholders. It will also permit us to complete the rest of scientific work necessary as inputs for the PACCCH, and, most importantly, translate the scientific work into tangible initiatives aimed to mitigate and adapt to climate change. To date, PACCCH is the only state level initiative in Mexico supporting a participatory and inclusive consolidation process for a climate change strategy. Serving as a sub-national pilot, it is the first climate change action program that has been successful (due to its science base and political relevancy) and had buy-in from all necessary parties. Including both mitigation and adaptation components as well as the creation of the institutional framework and capacity necessary to address climate change, the PACCCH is laying the foundation for long term sustainability in Chiapas.

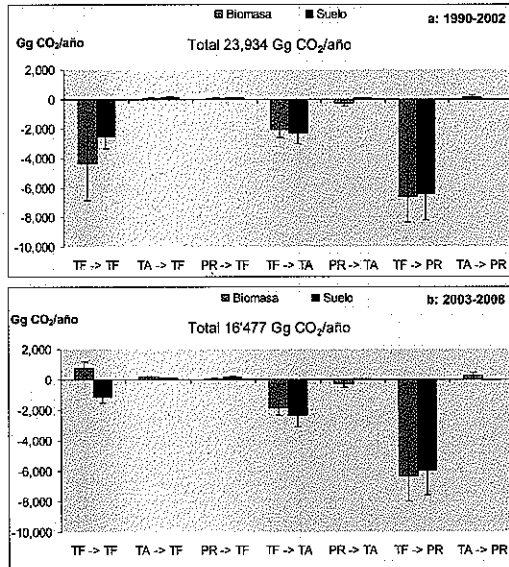
**GHG Emissions of Chiapas compared to Mexico**  
(preliminary information)



**GHG Emissions (tons) by Sector for Chiapas**  
(preliminary information)

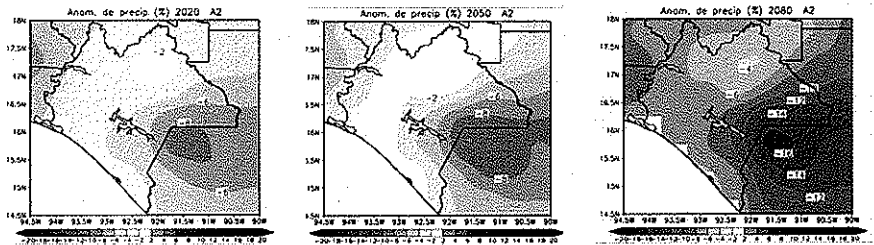


**LULUCF Reference level (1990-2008)**



Annual capture and emissions for different categories of land use for periods from 1990-2002 and 2003-2008. The black lines indicate the uncertainty in the estimates. Negative fluxes are emissions, positive fluxes represent carbon capture. TF= forested lands, TA = agricultural land, PR = fields. ECOSUR-COLPOS-Conservación Internacional, 2010

**Potential precipitation anomalies in percentage for decades 2020, 2050 and 2080 under A2 global emissions scenarios**



**Potential temperature anomalies in °C for decades 2020, 2050 and 2080 under A1B global emissions scenarios**

