



**CALIFORNIA-MEXICO
Memorandum of Understanding on
Climate Change & the Environment**

2016 Progress Report



Table of Contents

Introduction	1
Executive Summary	3
Cooperation on Climate Change	6
Cooperation on Air Quality	9
Cooperation on Clean Vehicles	11
Cooperation on Wildfires	14
California-Baja California Cooperation on Solid Waste.....	19
Final Comments.....	20

California-Mexico Memorandum of Understanding on Climate Change and the Environment

2016 Progress Report

Introduction

In July 2014, California's Governor Edmund G. Brown Jr., Mexico's Ministry of Environment and Natural Resources Undersecretary Rodolfo Lacy, and Mexico's National Forestry Commission General Director Jorge Rescala Pérez signed the Memorandum of Understanding (MOU) to Enhance Cooperation on Climate Change and the Environment.¹ By signing this agreement, the three leaders agree to promote and carry out cooperative activities related to environmental issues including climate change, human and environmental health, air quality, wildfires, and transportation, according to their respective competencies and based on principles of equality, reciprocity, information exchange, and mutual benefit.

The California-Mexico MOU is one of several international agreements that California and Mexico have pursued that address the sources and impacts of global climate change.² Progress has been made on climate-related agreements between California and Mexico during 2016.

- The newly established Jalisco Energy Agency, the State of Jalisco, and the California Energy Commission signed an MOU in Guadalajara on August 31, 2016, to promote clean energy policies and programs.
- In 2016, the Mexican states of Michoacán and Tabasco signed the Under2 MOU (now known as the Under2 Coalition), joining Mexico City and the Mexican states of Baja California, Chiapas, Hidalgo, Jalisco, México State, Quintana Roo, and Yucatán. By joining the Under2 Coalition subnational entities demonstrate their commitment to the Under 2 MOU, a global climate agreement to limit emissions to 80 to 95 percent below 1990 levels, or below two metric tons of CO₂-equivalent per capita, by 2050. By the end of 2016, 165 jurisdictions representing 33 countries and six continents have signed or endorsed the Under 2 MOU. This coalition originated from a partnership between California and Baden-Württemberg, Germany, and expanded to represent more than a billion people and more than a third of the global economy today.
- In 2016, the State of Jalisco chaired the Governors' Climate and Forests Task Force (GCF), a group of 35 states and provinces (including California) collaborating to promote low emissions rural development and reduced emissions from deforestation and land use (REDD+). In 2016, GCF accepted Yucatán as the sixth Mexican member state. (Other states include Campeche, Chiapas, Jalisco, Quintana Roo, and Tabasco). The GCF set several priorities for 2016 to 2020, including helping jurisdictions improve capacity to regulate land use change; receiving pay for performance incentives and other financing for activities; working collaboratively to reduce the impact of commodities production; and helping civil society, indigenous, and forest communities actively engage in efforts to improve forest conservation.
- California and the Ministry of Energy of Mexico have an energy-related MOU to encourage and promote technical bilateral cooperation and joint implementation of programs and activities in the fields of low carbon energy, clean technologies, biofuels, and energy efficiency. The California Transportation Agency and the Mexico Transportation Ministry have an MOU on the Port of Entry. The California Department of Food and Agriculture has an MOU with the Secretariat of Agriculture, Livestock, Rural Development,

¹ The original MOU text is available at the Governor of California's website: https://www.gov.ca.gov/docs/7.28_Climate_MOU_Eng.pdf. SEMARNAT's web page: <http://www.semarnat.gob.mx/temas/agenda-internacional/frontera-norte>.

² More information and copies of current MOUs signed between California and Mexico can be found on the California Climate Change website: http://www.climatechange.ca.gov/climate_action_team/partnership.html

Fisheries and Food of Mexico. The State of California, the State of Chiapas, Mexico, and the State of Acre, Brazil, have an MOU on environmental cooperation, with a focus on forestry information sharing as it relates to Cap-and-Trade.

The California-Mexico MOU on Climate Change and the Environment signed in 2014 is a four-year effort with four priority action areas: climate change, air quality, clean vehicles, and wildfires. In addition to the four priority action areas, California and Mexico are strengthening cooperation on solid waste management. The overall objective of the MOU is to strengthen the capacity of both governments to cope with the challenges of climate change and to protect and preserve natural resources.

The MOU called for a Joint Action Plan³, established in April 2015 to identify activities and create goals that would address the four priority action areas. The following table provides a summary of the Joint Action Plan's overarching goals, which are based on the principles of equality, reciprocity, information exchange, and mutual benefit. These goals and principles remain constant throughout the duration of the MOU.

Working groups formed under each priority action area report internally on progress every quarter. The specific goals of the working groups, as well as their activities, deliverables, and progress to date are presented in the tables that follow. Every calendar year, each working group is asked to reevaluate and measure progress to date through a progress indicator system, which is provided later in this report. Progress is classified as "No Progress," "Initial Progress," "Moderate Progress," "Significant Progress," and "Deliverable Achieved" (see Progress Key). This public report is released annually to describe the advances and accomplishments the working groups have made in the preceding year.

³ The Joint Action Plan is available on the CalEPA Borer Affairs Program Publications webpage: <https://calepa.ca.gov/wp-content/uploads/sites/34/2016/10/Border-Publications-2015yr-JActionPlan.pdf>

Executive Summary

In 2016, the Climate Change Working Group continued to make progress on exchanging information and experience on topics such as measurement, reporting, and verification (MRV) of greenhouse gas (GHG) emissions data, Cap-and-Trade Program design issues, and forestry-related climate efforts. The group made progress on their goal of cooperating to share training for verification bodies or for the verification process through participation in biweekly teleconference meetings and in-person workshops and meetings. This contributes to the group's overarching goal of working towards the development of rigorous MRV to support carbon pricing or other regulatory mechanisms, including potential linkage of carbon markets. In mid-February, Mexico's Secretariat of Environment and Natural Resources, Secretaría del Medio Ambiente y Recursos Naturales (SEMARNAT) held a workshop in Mexico with support from the Environmental Defense Fund (EDF) with a focus on MRV issues. Mexico's National Forestry Commission, Comisión Nacional Forestal (CONAFOR), and the California Air Resources Board (CARB) met in Sacramento on October 20-21 to continue the information exchange, including topics such as data collection, MRV, safeguards efforts underway in Mexico, and a field visit to UC Berkeley's Blodgett Demonstration Forest to discuss applied MRV. CARB also shared California's offset program requirements and verification training materials as part of the ongoing technical information exchange. The Climate Change Working Group efforts and discussions in 2017 will include program representatives from Québec and Ontario, both of which have MOUs with SEMARNAT that are similar in content and intent to the California-Mexico MOU.

The primary accomplishments of the Air Quality Working Group in 2016 include the commencement of a two-year study of fine particulate matter (PM_{2.5}) in Mexicali, certification of Secretaría de Protección al Ambiente (SPA) calibration equipment, continued laboratory support of the SPA air monitoring sites by analyzing their particulate samples (PM₁₀) from their network, donation of surplus air monitoring equipment to SPA, and participation in recurring trans-border air quality meetings. The group made progress in their goal to improve auditing of the Baja California air quality monitoring network, which contributes to their overarching goal to improve the comparability of data collected in Mexico and California. Progress was also made on coordinating Mexico-California air quality planning efforts for airsheds along the border, and sharing technical

knowledge and information needed to support development of robust air quality planning and mitigation efforts.

CARB also worked with SPA to initiate a joint, two-year United States Environmental Protection Agency (U.S. EPA) funded study of PM_{2.5} in Mexicali, Baja California. At the conclusion of the study, all air monitoring equipment will be donated to Baja California's SPA and become their property. The California Environmental Protection Agency (CalEPA) formally donated surplus air monitoring equipment to SPA, which CARB delivered to the border in March 2015, and successfully crossed into Mexico in December 2016. Throughout 2016, representatives from California and Mexico participated in several trans-border air quality meetings. CARB continues to support the Baja California air monitoring network with PM₁₀ sample analysis from the SPA Network. In November 2016, SEMARNAT started the development of the Program for Air Quality Improvement in Baja California (ProAire Baja California) that will result in a statewide strategy to reduce air pollution and strengthen air quality management – hopefully by mid-2017.

The Air Quality Working Group's main goal for 2017 is to enhance cooperation on air quality planning and emission mitigation efforts and to establish a schedule for this work. The primary obstacle to closer cooperation within the areas of air quality planning and emissions mitigation is a lack of regular, organized communication. One potential solution is to establish a regular schedule of conference calls and face-to-face meetings, similar to the approach taken within the area of air monitoring. Another option would be to put these issues on the agendas of existing cross-border environmental meetings. Within the framework of the Pro-Aire Baja California, SEMARNAT will seek to reactivate and strengthen the participation of a binational air quality task force for San Diego and Tijuana.

In 2016, the Clean Vehicles Working Group continued in its commitment to help SEMARNAT update its standards for criteria and greenhouse gas emissions to align with US standards by 2025. CARB staff is working with SEMARNAT, the International Council on Clean Transportation (ICCT), and Centro Mexicano de Derecho Ambiental (CEMDA) to define and develop the necessary documents and analyses needed. Representatives from SEMARNAT traveled to Sacramento for two days in September for in-depth training on California's On Board Diagnostic (OBD II) program

and the use of the OBD system in the California Smog Check program. This resulted in the completion of one of the working group's key deliverables, the design of the Emergency Mexican Official Standard 167 (NOM-EM-167-SEMARNAT-2016). This established emissions inspections using the OBD system.

Another key accomplishment in 2016 was the completion of necessary modeling for Mexico's fuel economy standards. Norma Oficial Mexicana 163 (NOM-163-SEMARNAT-ENER-SCFI-2013) is in process of completing its modification, contributing to the goal of furthering Mexico's progress on the use of new technologies and strategies for the reduction of vehicular emissions. CARB staff and representatives from Mexico City also discussed technical aspects of California's approval procedures for alternate fuel retrofit systems.

For 2017, the Clean Vehicles Group is looking to regroup after some staffing changes, and to coordinate closely on the steps needed to further progress on key goals. These include as a high priority the completion of the steps necessary for SEMARNAT to publish updated new vehicle standards. The group will also assess progress to date in completing the training elements included in the MOU, and will develop a plan and timeline to meet remaining training needs.

In 2016, the Wildfires Working Group made progress in several areas. On April 25-29, 2016, eight CONAFOR participants attended the S-130/S-190 Wildfire Suppression Training Course in Tecate, Baja California. Led by California Department of Forestry and Fire Protection (CAL FIRE) instructors, this course provided 71 Mexican firefighters with entry-level wildland firefighting training, as well as an introduction to wildland fire behavior and personal safety. On July 19, the working group provided a Spanish-translated copy of the California Governor's Office of Emergency Services (Cal OES) FIRESCOPE Wildland Urban Interface (WUI) Structure Protection guide to CONAFOR. Lastly, CAL FIRE, in partnership with CONAFOR, hosted the International Wildland Firefighting training on October 24 through November 4, 2016, in Ensenada, Baja California. Firefighters, along with government officials, representing local, state, and federal agencies from Baja California Sur, Baja California South, Sonora, and Sinaloa attended the training, which consisted of 80% classroom instruction and 20% fieldwork.

The Wildfires Working Group has established next steps for 2017. Both Cal OES and CONAFOR are committed to achieving the goal to observe an Incident Management Team in the field and have made this a priority for 2017. CONAFOR has identified three individuals that can rapidly deploy to California and observe an incident. Cal OES will monitor and select the fire that will be best suited to provide training. In addition, they have identified Spanish-speaking interpreters and will develop protocols, a day-to-day itinerary, agenda, as well as provide other training opportunities. Capacity development is the working group's second priority and will be accomplished by providing Incident Command System (ICS) training to Mexican technical personnel. The goal is to provide "train-the-trainer" opportunities to several Mexican personnel whereby once they obtain the training, they can become instructors in Mexico. This training will also provide an opportunity for individuals to observe incident management teams in ICS real time. In addition, Cal OES will offer hands-on training and exercise with wildfire simulation. This wildfire simulation demonstration and exercise will utilize Geographic Information System (GIS) information to create 3-D simulations that can be used for wildland fire scenarios, hazardous materials incidents, and flooding, among other emergencies. Overall, the Wildfire Working Group continues to work toward achieving its work plan goals.

While management of solid waste streams was not included in the Joint Action Plan of the MOU, both California and Mexico recognize the importance of coordination in this area, and have begun expanding their activities related to solid waste in the California-Mexico border region. In 2016, the California-Mexico Border Relation Council's Solid Waste Working Group (SWWG) funded two demonstration projects that helped improve waste and waste tire problems in the border region. The Sonoran Institute removed 3,800 cubic meters of solid waste from three drains: Tula, Mexicali and Colector del Norte, and WILDCOAST collected 15,000 tires and moved them to a storage site. In 2016, the SWWG worked on completing the Solid Waste and Waste Tire Strategic Plan and plans to present it to the Council at its meeting in January 2017. Upon completion of the Plan, California and Mexico will have an opportunity incorporate the recommendations laid out in the document into the work under the MOU. This could include the formal establishment of an additional working group on waste, with its own goals and deliverables.

CALIFORNIA MEXICO MOU JOINT ACTION PLAN OVERARCHING GOALS	
Climate Change	<ol style="list-style-type: none"> 1. Work toward development of rigorous measurement, reporting and verification to support carbon pricing or regulatory mechanisms, including potential linkage of carbon markets. 2. Share knowledge, development, and technology experience that enables economic growth while addressing climate change, including reductions in short-lived climate pollutants. 3. Share information and experience on interaction between forestry and the climate, including the potential for sector-based offset credits from reduced deforestation.
Air Quality	<ol style="list-style-type: none"> 1. Coordinate air quality planning efforts for airsheds along the border. 2. Share technical knowledge and information needed to support development of robust air quality planning and mitigation efforts. 3. Improve the comparability of data collected in Mexico and California.
Clean Vehicles	<ol style="list-style-type: none"> 1. Update and design the Mexican vehicle emission standards for greenhouse gas (GHG) and smog pollution based on California’s standards. 2. Advance Mexico’s efforts on compliance and enforcement of environmental standards for vehicles. 3. Contribute to Mexico’s progress on the use of new technologies and strategies for the reduction of vehicular emissions (such as strategy for freight transportation, emissions inventories for mobile sources, vehicular emissions diagnosis and maintenance, on-board diagnostics (OBD) for vehicle inspections, clean and low-carbon fuels, and strategy for the import of used vehicles into Mexico).
Wildfires	<ol style="list-style-type: none"> 1. Foster cooperation for wildfire assistance through the strengthening of technical and institutional capacities on fire management.

Cooperation on Climate Change

In 2016, the Climate Change Working Group continued to make progress on exchanging information and experience on topics such as measurement, reporting, and verification (MRV) of greenhouse gas (GHG) emissions data, Cap-and-Trade Program design issues, and forestry-related climate efforts. Much of the discussion between Mexico's natural resources agency, SEMARNAT, and the California Air Resources Board (CARB) is regarding California's existing programs to address climate change, including questions surrounding policy choices and the implementation of California's Mandatory Greenhouse Gas Reporting Regulation (MRR) and Cap-and-Trade Program. Because both CARB and SEMARNAT agree that a robust MRV framework is a necessary precursor to developing any carbon-pricing program, the working group focused first on MRV.

To advance Mexico's MRV framework, CARB and SEMARNAT discussed California's requirements for MRV and exchanged information on each organization's emissions reporting programs. In mid-February, SEMARNAT held a workshop, with support from the Environmental Defense Fund (EDF), in Mexico focusing on MRV issues. CARB's Greenhouse Gas Reporting section manager, as well as a lead staff from the GHG verification section, attended the workshop on behalf of California. The workshop covered multiple topics related to MRV—including the regulatory requirements and procedures for implementing the Mandatory Greenhouse Gas Reporting Program in California. The workshop also included presentations on Mexico's carbon pricing and carbon tax policies.

In addition, CONAFOR has been participating in the working group discussions. CONAFOR and CARB have exchanged information throughout the year on California's forestry offsets protocol under the Cap-and-Trade Program, the potential for sector-based offset crediting under California's Program, and CONAFOR described its forestry

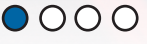


program efforts throughout Mexico. CONAFOR and CARB met in Sacramento on October 20-21, 2016, to continue the information exchange. The two-day meeting covered several topics, including data collection, MRV, safeguards efforts underway in Mexico, and a field visit to UC Berkeley's Blodgett Demonstration Forest to discuss MRV on the ground. CARB also shared California's offset program requirements and verification training materials as part of the ongoing technical information exchange. The Nature Conservancy (TNC) and EDF assisted with the logistics of the meeting and accompanied the CONAFOR delegation for part of the trip.






In the latter part of the year, as part of the Climate Change Working Group's regular, biweekly conference calls, the working group discussed MRR, the Renewable Portfolio Standard (RPS), and the limited role of Renewable Energy Credits (REC) within California's Cap-and-Trade program, as well as other Cap-and-Trade design issues. CARB Program also shared substantial information about its regulatory development process, guidance materials, and process for stakeholder engagement. As part of the ongoing discussion on the development and implementation of California's Cap-and-Trade Program, and in support of Mexico's plan to launch a national emissions trading system, the working group will continue to devote time on these regular conference calls to share technical information on key elements of a Cap-and-Trade Program, including mechanisms for setting emission caps, distribution of allowances, and determining emissions thresholds for industries, as well as lessons learned from program implementation. The working group will also continue to engage CONAFOR in discussions related to climate and forestry.

PROGRESS ON CLIMATE CHANGE

Climate Change Overarching Goal 1	Working Group Activities	Deliverables	Progress
Work towards development of rigorous MRV to support carbon pricing or regulatory mechanisms, including potential linkage of carbon markets.	Share lessons learned on construction and design (as reporting tools) and data management tools (technical cooperation).	1. Possibility to align Mexico's registry system with California's Annual GHG Reporting System. This possibility, while discussed, is not currently considered a necessary deliverable. 2. Information sharing. 3. Workshop.	● ● ○ ○
	Consider standardization of algorithms of quantification methodologies in order to calculate emissions.	1. Information Sharing. This activity has been folded into general discussions of how quantification methodologies work in both California and Mexico.	○ ○ ○ ○
	Pursue standardization of verification parameters for emission reports.	1. Information sharing	● ○ ○ ○
	Cooperate to share training for Verifying Entities, or for process verification and/or validation.	1. Information sharing. Share training materials, including sample verification examinations.	● ● ○ ○

Climate Change Overarching Goal 2	Working Group Activities	Deliverables	Progress
Share knowledge, development, and technology experiences that enable economic growth while addressing climate change, including reductions in short-lived climate pollutants.	Develop specific recommendations for the design of effective tools for pricing carbon in Mexico and California.	Results and recommendations of analysis due within reasonable time frame.	● ○ ○ ○
	Determine cap threshold and an emissions permit distribution system.	1. Share information on how California has developed its cap in every sector. 2. Discuss external training. 3. Potential future workshops.	● ○ ○ ○
	Exchange technical assistance and experiences for the construction of a Carbon Market.	1. Sharing information	● ● ○ ○
	Improve capacity of staff of the ministry, through the exchange of information and experiences on vulnerability assessments to climate change in different sectors, as well as the design, implementation and monitoring of measures to adapt to climate change.	1. Possible transfer and development of technology. 2. Share experiences of successful projects to adapt to climate change in the region, monitoring and evaluation tools, development of climate change scenarios, early warning systems, preventive care approach to disaster management and conservation of ecosystems to new climate conditions.	○ ○ ○ ○
	Look to create opportunities for biomass energy and biomass energy plants to replace fossil fuels.	Share with bioenergy working group the opportunity of eventual support from this cooperation.	○ ○ ○ ○

Climate Change Overarching Goal 3	Working Group Activities	Deliverables	Progress
<p>Share information and experience on interaction between forestry and the climate, including the potential for sector-based offset credits from reduced deforestation.</p>	<p>Discuss methodologies with the potential of producing offsets for both regions.</p>	<ol style="list-style-type: none"> 1. Exploration of methodologies from California. 2. Analyze methodologies in order to include them into an eventual Mexican accreditation system. 3. Share information about CONAFOR's efforts 4. Potential workshops. 	
	<p>Explore the inclusion of offsets from Mexico in the California market.</p>		
	<p>Collaboration of programs on forest management and reducing emissions from deforestation and forest degradation, with a view to incentivizing forest carbon approaches.</p>	<ol style="list-style-type: none"> 1. Establish a Core Team. 2. Review existing Governors' Climate and Forests Task Force documentation. 3. Hold technical meetings. 4. Determine whether CA could help develop interest in sub-national/regional linking within Mexico (i.e., Chiapas, Yucatan, Quintana Roo, and Jalisco efforts) to include sectoral offsets in CA market. 5. Encourage exchanges between Mexican and CA universities. 6. Examine possibility of linkage between national and sub-national policies. 	

Progress Key	No Progress	
	Initial Progress	
	Moderate Progress	
	Significant Progress	
	Deliverable Achieved	

Cooperation on Air Quality

The primary accomplishments of the Air Quality Working Group in 2016 include the commencement of a two-year study of fine particulate matter of 2.5 micrometers and smaller (PM2.5) in Mexicali, the certification of calibration equipment belonging to Baja California's Secretariat of Environmental Protection (SPA), continued laboratory support for SPA air monitoring sites through analysis of particulate samples from their network, a donation of surplus air monitoring equipment to SPA, and participation in recurring trans-border air quality meetings.

CARB worked with SPA to initiate a joint, two-year study funded by the U.S. EPA of (PM2.5) in Mexicali, Baja California. At the conclusion of the study, all air monitoring equipment will be donated to the SPA and become SPA property. The study continuously measures PM2.5 at two schools in Mexicali, and chemical and elemental constituents of PM2.5 at one of those locations. Monitoring began in April 2016 and data from the new Mexicali monitors are currently being streamed to the SPA website. Meteorological measurements are also included in the field campaign. Real-time data is being made available through the SPA web page and the U.S. EPA "AIR Now" website. Hourly PM2.5 mass and meteorological data have been submitted to the U.S. EPA's Air Quality System, an air quality repository, from April 2016 through October 2016. These data are now available to all stakeholders. In addition, 53 PM2.5 speciation samples were taken in 2016 and analyzed by CARB's laboratory. To date, \$252,038, or 52 percent of the contract, has been authorized for payment.

The California Environmental Protection Agency (CalEPA) formally donated surplus air monitoring equipment to SPA, which CARB delivered to the border in March 2015. The equipment successfully crossed into Mexico in December 2016 after the resolution of customs issues. SEMARNAT has also provided SPA with resources for air monitoring including equipment, spare parts, and related supplies.

CARB continues to support the Baja California air monitoring network with particulate matter of 10 micrometers and smaller (PM10) sample analysis from the SPA Network. CARB received and analyzed 355 PM10 mass samples from Baja California and performed ionic speciation on 60 of those samples in 2016. A gradual transition to the new SPA lab is planned in 2017.

Throughout 2016, representatives from California and Mexico participated in several trans-border air quality meetings. CARB staff participated in monthly conference calls held by the U.S. EPA, SPA, and the National Institute of Ecology and Climate Change (INECC) regarding the status of the SPA Air Monitoring Network and the Mexicali PM2.5 Study. CARB staff also participated in the Air Quality Task Force meetings held in Mexicali and Calexico on May 12, 2016 and Dec. 8, 2016 with representatives of the U.S. EPA, SPA, Imperial County Air Pollution Control District (APCD), the City of Mexicali, non-governmental organizations, and members of the public. CARB staff participated in the U.S.-Mexico Air Quality meeting in Tijuana on June 1, 2016, with representatives of U.S. EPA, SEMARNAT, INECC, SPA, San Diego County APCD, and Imperial County APCD.

In November 2016, SEMARNAT started the development of the Program for Air Quality Improvement in Baja California, ProAire Baja California. It includes a diagnosis of state and municipal air quality management tools, in order to plan the statewide strategy to reduce air pollution and strengthen air quality management. It is expected that the ProAire program for Baja California will be published by mid-2017.

The main goal for 2017 is to enhance cooperation on air quality planning and emission mitigation efforts, and to establish a schedule for this work. On September 23, 2016, a teleconference was held between senior CARB and SEMARNAT management to discuss the broader aspects of air quality planning and the role that legislation, science, and policy play in the process. The group agreed to develop a list of potential training topics by breaking down the planning process into more specific areas. CARB and SEMARNAT will then review the list and, based on current strengths and needs, develop a focused training program. Potential training topics may include legislative mandates, development of emission inventories, regional air quality modeling, assessment of potential mitigation strategies, regulation writing, and adoption and enforcement of regulations.

PROGRESS ON AIR QUALITY

Air Quality Overarching Goal 1	Working Group Activities	Deliverables	Progress
Coordinate Mexico-California air quality planning efforts for airsheds along the Mexico-California border.	Coordinate development and implementation of Baja California ProAire and California air quality planning efforts.	Information sharing and coordination	● ● ○ ○

Air Quality Overarching Goal 2	Working Group Activities	Deliverables	Progress
Share technical knowledge and information needed to support development of robust air quality planning and mitigation efforts.	Implement emissions reporting system for Baja California.	Information sharing	● ● ○ ○
	Strengthen Baja California air toxics regulations.	Information sharing	● ● ○ ○

Air Quality Overarching Goal 3	Working Group Activities	Deliverables	Progress
Improve the comparability of data collected in Mexico and California.	Strengthen the air quality monitoring network in Baja California.	Provide training and information sharing on various technical aspects of air quality monitoring including field operations, quality control activities, and data management and reporting.	● ● ● ○
	Capacity building and improved understanding of cross-border air quality and emissions sources.	Enhance air monitoring stations in Mexicali with continuous PM2.5 monitors and a PM2.5 speciation sampler. These monitors will be used in a two-year PM2.5 study of the Mexicali/ Imperial County region.	● ● ● ○
	Improve auditing of the Baja California air quality monitoring network.	Provide training on how to conduct performance audits of air monitoring instruments and samplers.	● ● ○ ○

Progress Key	No Progress	○ ○ ○ ○
	Initial Progress	● ○ ○ ○
	Moderate Progress	● ● ○ ○
	Significant Progress	● ● ● ○
	Deliverable Achieved	● ● ● ●

Cooperation on Clean Vehicles

In 2016, SEMARNAT continued its commitment to updating its standards for criteria and greenhouse gas emissions to align with US standards by 2025. CARB staff is working with SEMARNAT and the International Council on Clean Transportation (ICCT) to define and develop the necessary documents and analyses needed. Modeling needed for the development of Mexico's fuel economy standards, Norma Oficial Mexicana 163 (NOM-163-SEMARNAT-ENER-SCFI-2013), has been completed. Draft standards for both criteria and greenhouse gas emissions have been prepared, but they have not yet been formally proposed. The formal proposal of the new standards was expected in the first half of 2016, but had been delayed.

Representatives from SEMARNAT traveled to Sacramento for two days in September to participate in an in-depth training on California's On Board Diagnostic (OBD II) program and the use of OBD system in the California Smog Check program. The Bureau of Automotive Repair (BAR) assisted CARB staff in conducting the training. The group visited a local Smog Check station and watched testing demonstrations at BAR's headquarters. The training also covered how equipment for vehicle inspections is designed and used in the Smog Check program, how California addresses program fraud, and how California's Smog Check database is designed.

CARB staff and SEMARNAT's representatives also discussed technical aspects of California's approval procedures for alternate fuel retrofit systems. Mexico City is interested in expanding the number of alternate fueled vehicles operating in the City, and is basing their approval process on the procedures that California has developed and implemented.

Mexico designed the Emergency Mexican Official Standard 167 (NOM-EM-167-SEMARNAT-2016), establishing pollutant emission levels for in-use motor vehicles to be used in inspection and maintenance (I/M) programs in Mexico City and the states of Hidalgo, Mexico State, Morelos, Puebla and Tlaxcala. The rule also includes test methods for certification to these standards, specifications for equipment used in the certification process, and specifications for equipment used to remotely measure emissions. SEMARNAT published the standard in the Official Journal on June 7, 2016. This standard is designed to incorporate the use of vehicle OBD systems in the inspection process carried out by the Verification Centers and Verification Units. Vehicle manufacturers have been implementing OBD systems into new vehicles sold in Mexico for approximately the last 10 years.

For 2017, the Clean Vehicles Working Group is looking to regroup after some staffing changes, and to coordinate closely on the steps needed to further progress on key goals. These include as a high priority the completion of the steps necessary for SEMARNAT to publish updated new vehicle standards. The group will also assess progress to date in completing the training elements included in the MOU and will develop a plan and timeline to meet remaining training needs.

PROGRESS ON CLEAN VEHICLES

Clean Vehicles Overarching Goal 1	Working Group Activities	Deliverables	Progress
Update and design the Mexican vehicle emission standards for GHG and smog pollution based on California's standards.	Improve the Mexican regulatory requirements for vehicular criteria pollutant emissions: Develop the standards for light vehicle emissions in 2015 and beginning of 2016 and the standards for heavy duty vehicles in 2016 and 2017 (for new and in-use vehicles including motorcycles).	1. Mexican Official Norms drafts and Regulatory Impact Study.	● ● ○ ○
Clean Vehicles Overarching Goal 2		Deliverables	Progress
Advance Mexico's efforts on DGFAUT (Directorate General of Environmental, Urban and Tourist Promotion or Dirección General de Fomento Ambiental, Urbano y Turístico) compliance and enforcement of environmental standards for vehicles.		2. Publication of an "Emission Standards Equivalence Guide" [via DGFAUT].	● ● ○ ○

Progress Key	No Progress	○ ○ ○ ○
	Initial Progress	● ○ ○ ○
	Moderate Progress	● ● ○ ○
	Significant Progress	● ● ● ○
	Deliverable Achieved	● ● ● ●

PROGRESS ON CLEAN VEHICLES

Clean Vehicles Overarching Goal 3	Working Group Activities	Deliverables	Progress
Contribute to Mexico's progress on the use of new technologies and strategies for the reduction of vehicular emissions (e.g. strategy for freight transportation, emissions inventories for mobile sources, vehicular emissions diagnosis and maintenance, OBD for vehicle inspections, clean and low-carbon fuels and strategy for the import of used vehicles into México).	Develop an integrated strategy on freight transportation for improving SEMARNAT's Clean Transportation Program: Learn from California's experience about the implementation of measures to prevent and control the emission in this sector.	Collaboration with SEMARNAT staff who will visit California to discuss the freight trucks program and exchange experiences.	○ ○ ○ ○
	Exchange training and experience on the elaboration of an emissions inventory for vehicular and off road mobile sources.	Development of a methodology for the emissions inventory estimation for vehicular and off road sources for Mexico.	○ ○ ○ ○
	Exchange training and experience on methods to ensure compliance with mobile source standards.	Collaboration between California and Mexican technical personnel [DGFAUT].	● ● ● ●
	Establish a workgroup to define the environmental criteria for the import of used vehicles into Mexico.	1. Environmental Criteria for the definitive import of used vehicles into Mexico. 2. Collaboration between California and Mexican personnel on options for strategy development for imported vehicles and mitigation of their environmental impact in Mexico.	● ○ ○ ○
	Provide training on the OBD Systems: Exchange training and experience for the application of OBD as part of Vehicle Emissions Verification Programs.	Criteria and technical specifications for the reliable use of OBD systems during the process of Vehicular Emissions Verification.	● ● ● ●
	Exchange experience related to strategies for introducing and promoting the use of alternative fuel and vehicular technologies.	Work Document that includes California's experience to promote the production and use of alternative vehicular fuel and technologies.	● ● ○ ○

Progress Key	No Progress	○ ○ ○ ○
	Initial Progress	● ○ ○ ○
	Moderate Progress	● ● ○ ○
	Significant Progress	● ● ● ○
	Deliverable Achieved	● ● ● ●

Cooperation on Wildfires

In 2016, the Wildfire Working Group—comprised of the California Governor’s Office of Emergency Services (Cal OES), the California Department of Forestry and Fire Protection (CAL FIRE), and Mexico’s CONAFOR—advanced its action plan and corresponding efforts to enhance wildfire suppression and capacity development through training opportunities. The working group held several teleconference meetings early in the year to identify Cal OES and CAL FIRE training opportunities in which CONAFOR officials could participate. A training list, which supports the working group’s Action Plan, was finalized on May 16. This list identified and categorized training opportunities into five priority levels according to CONAFOR’s preference.

For 2016, the working group focused on coordination efforts and activities identified in Priority Levels 1 and 2, which included various training courses and materials, a wildfire simulation demonstration and exercise, and an Incident Management Team (IMT) Field Observation. On April 25-29, 2016, eight CONAFOR participants attended the S-130/S-190 Wildfire Suppression Training Course in Tecate, Baja California. Led by CAL FIRE instructors, this course provided 71 Mexican firefighters with entry-level wildland firefighting training, as well as an introduction to wildland fire behavior and personal safety.

On July 19, the working group provided a Spanish-translated copy of the Cal OES FIRESCOPE Wildland Urban Interface (WUI) Structure Protection guide to CONAFOR. This guide provides a general overview of strategies and guidelines for fire behavior forecasting and tactics, as well as structure protection and triage. In addition, CAL FIRE provided its comprehensive WUI Operating Principles to CONAFOR, a document which provides an in-depth overview of WUI operating policy and tools to reduce the impacts of WUI fires.

CAL FIRE, in partnership with CONAFOR, hosted the International Wildland Firefighting training on October 24 thru November 4, 2016, in Ensenada, Baja California. Firefighters, along with government officials representing local, state, and federal agencies from Baja California, Baja California Sur, Sonora, and Sinaloa attended the training, which consisted of 80% classroom instruction and 20% fieldwork. CAL FIRE provided 10 instructors, four from the Riverside Unit and six from the San Diego Unit. CONAFOR provided seven instructors, including the Northwest Region Chief. Topics and instruction included Atmospheric Pressure, Topography, Introduction to Fire Behavior, Fire Prevention, Fire Investigation, ICS, Communication, Aviation, Firefighter Safety and Survival, Firing Devices, and Finance.

As reflected in the Wildfire Working Group Action Plan, one of CONAFOR’s goals was to observe an Incident Management Team (IMT) Field Observation. However, this type of training is best offered during an actual wildfire and towards the culmination of the incident. Therefore, proper planning efforts are required, such as identifying the Mexican firefighters in advance that would observe the IMT, as well as ensuring their passports and visas are current. In September 2016, California experienced many devastating fires including the Soberanes Fire in Monterey County. Cal OES saw this as an opportunity for CONAFOR to observe and shadow an IMT in the field, while combating this fire. Unfortunately, although CONAFOR was invited to observe this incident, they too were experiencing fires and challenges and were therefore unable to participate. Both Cal OES and CONAFOR are committed to achieving the goal of having CONAFOR staff observe an Incident Management Team in the field and have made this a priority for 2017.

PROGRESS ON WILDFIRES

Wildfires Overarching Goal 1	Working Group Activities	Deliverables	Progress
Wildfire Suppression	To exchange human resources and materials to collaborate on wildfire suppression within the Baja CA -California border region.	Share best practices, expertise, and technical assistance to Mexican wildfire firefighters through international exchange programs, site visits, and training courses to further improve the suppression of wildfires.	● ● ● ○
Wildfires Overarching Goal 2	Working Group Activities	Deliverables	Progress
Capacity Development	Provide Incident Command System (ICS) training to Mexican technical personnel in California.	Train several Mexican trainers (train-the-trainer) on ICS and provide the opportunity to observe the incident management teams on ICS during real time.	● ● ● ○
		Training and working alongside to establish a history of successfully working together in an effort to establish future joint activities.	● ● ○ ○

PROGRESS ON WILDFIRES

Wildfires Overarching Goal 2 (Cont.)	Working Group Activities	Deliverables	Progress
Capacity Development	Participation of technical personnel on fuel management methods (mechanical, prescribed burns and others): Mexican trainers to participate on prescribed burning to expand their technical knowledge and enhance their experience in fuel management.	For Mexican Leader's Program (One time):	
		<ol style="list-style-type: none"> 1) Sharing experiences/lessons learned to establish a prescribed burning program. 2) Strategy of social communication. 3) Cost analysis of a prescribed burning and fuel management program. 4) Requirements to establish an equipment and technical training program. 5) Other fuel management methods to reduce fuel loads on forest. 	● ○ ○ ○
		For Mexican trainers (each year):	
		<ol style="list-style-type: none"> 6) Review plans for natural resource management and fire management plans. 7) Review and formulation of burning plans and objectives. 8) Participation of Mexican technicians with prescribed fire brigades of CA. 9) Participation of Mexican technicians with fuel management brigades of CA. 	● ○ ○ ○

Progress Key	No Progress	○ ○ ○ ○
	Initial Progress	● ○ ○ ○
	Moderate Progress	● ● ○ ○
	Significant Progress	● ● ● ○
	Deliverable Achieved	● ● ● ●

PROGRESS ON WILDFIRES

Wildfires Overarching Goal 2 (Cont.)	Working Group Activities	Deliverables	Progress
Capacity Development	Provide training for utilization and operation of water tenders and fire engines, as well as water pump mechanics.	Exchange lessons learned between CAL FIRE technicians and Mexican Leader Program:	
		1) Process to establish a fire engine program for fighting fires and prescribed burn. 2) Policies and procedures in short, medium and long term to run a fire engine program (including decision-maker's actions before, during and after fire season). 3) Developing capacities strategy in México under the concepts used by CALFIRE. 4) What the decision makers must do before, during, and after fire season.	● ○ ○ ○
		For Trainers:	
		5) Allow Mexican trainers to participate in fire engine use courses in CA. 6) Train several Mexican trainers on fire engine use in real time. 7) Process to establish preventive and corrective fire engine maintenance program (including what crew engines must do before, during and after fire season).	● ○ ○ ○

Progress Key	No Progress	○ ○ ○ ○
	Initial Progress	● ○ ○ ○
	Moderate Progress	● ● ○ ○
	Significant Progress	● ● ● ○
	Deliverable Achieved	● ● ● ●

PROGRESS ON WILDFIRES

Wildfires Overarching Goal 2 (Cont.)	Working Group Activities	Deliverables	Progress
Capacity Development	Exchange technical information about Emergency Operations Centers, dispatching protocols and mobilization, and statistics management, inter-institutional coordination, among others.	1) Providing technical information and exchange on emergency operation centers, dispatching protocols, and mobilization. 2) Statistics management, hardware and software, communications protocols, and inter-agency coordination. 3) Visit CA emergency operation centers to share lessons learned.	● ○ ○ ○
Wildfires Overarching Goal 2 (Cont.)	Working Group Activities	Deliverables	Progress
Capacity Development	Conduct joint training regarding Wildland Urban Interface issues.	For Mexican Leader Program: 1) Development of the Urban Interface Strategy, implementation, policies and procedures 2) Provide training for Mexican trainers on how to develop educational actions on wildland urban interface issues. 3) Process to develop fire severity zone maps. 4) Share lessons learned on interagency coordination for law enforcement, wildfire prevention engineering, owner's participation, and wildland hazards/building codes.	● ● ○ ○
		For trainers: 1) Train several Mexican trainers on: a) Procedures for fighting fires on Wildland urban interface zones. b) Safety issues for fighters, owners and public.	● ● ○ ○
Wildfires Overarching Goal 3	Working Group Activities	Deliverables	Progress
Equipment	Equipment and tools donations	Support Mexican Fire Program with equipment, hand tools and Personnel Protective Equipment through CA surplus donations.	● ○ ○ ○

California-Baja California Cooperation on Solid Waste

While the issue of management of solid waste streams was not included in the Joint Action Plan of the MOU, both California and Mexico recognize the importance of coordination in this area. In recent years, California and Baja California have begun expanding their activities related to solid waste in the California-Mexico border region. In 2015, the California-Mexico Border Relations Council (CMBRC) established the Border Region Solid Waste Working Group (SWWG), pursuant to California Senate Bill 83 (Committee on Budget and Fiscal Review, Chapter 24, Statutes of 2015). The SWWG was tasked with developing and coordinating long-term solutions to the problems associated with waste tires, solid waste, and excessive sedimentation in the California-Mexico border region.

SB 83 also appropriated \$300,000 to support the CMBRC. The SWWG made spending recommendations to the CMBRC for these funds, which included projects led by WILD Coast and the Sonoran Institute. WILD Coast is working to recover thousands of waste tires before they have a chance to cross the border into California, then shred the collected waste tires and recycle them by selling them for tire-derived products. The Sonoran Institute is working to remove solid waste from portions of five drains in Mexicali and provide environmental education in local schools on the importance of maintaining sanitary drains. WILD Coast and the Sonoran Institute began work in 2016 and will complete their projects in 2017.

In 2016, the Sonoran Institute removed 3,800 cubic meters of solid waste from three drains: Tula, Mexicali, and the Collector del Norte. The organization is on track to meet the target of 6,000 cubic meters removed. The project is benefiting from collaboration among many government agencies and groups including CalEPA, CalRecycle, Imperial County Health Department, Calexico Public Works, Comite Civico del Valle, Calexico New River Committee, the International Boundary and Water Commission, City of Calexico, and the Colorado River Regional Water Quality Control Board. Approximately 1,500 students and adults received instruction through the education component, which includes participation in environmental education conferences.

In 2016, WILD Coast also made significant progress on their project. Through 2016, 15,000 tires were collected and moved to a storage site. A successful two-month lobbying effort convinced a waste tire collector to pursue partnerships with remanufacturing companies rather than use the collected tires for fuel. WILD Coast established a partnership with PASA, a private sector company that has invested in a tire shredder in Tijuana. PASA is currently working to identify clients and customers for its shredded tire product. WILD Coast, government agencies from Mexico and California, and the private sector are continuing to collaborate successfully to accomplish project goals. News of the project's success is traveling throughout the region and Mexicali officials have expressed interest in the progress of this Tijuana-based pilot project.

In July of 2016, the CMBRC reconstituted the SWWG, creating a smaller group to develop a California-Mexico Border Solid Waste and Waste Tire Strategic Plan. The group held a series of four workshops, the first of which took place in August 2016. The August workshop focused on market drivers of waste tires and other solid waste at the border. Presenters included a representative from SPA Baja California, a representative from U.S. EPA, and a representative from San Diego State University working on the update to the 2009 Tire Flow Study. Subsequent workshops, held during the fall of 2016, discussed:

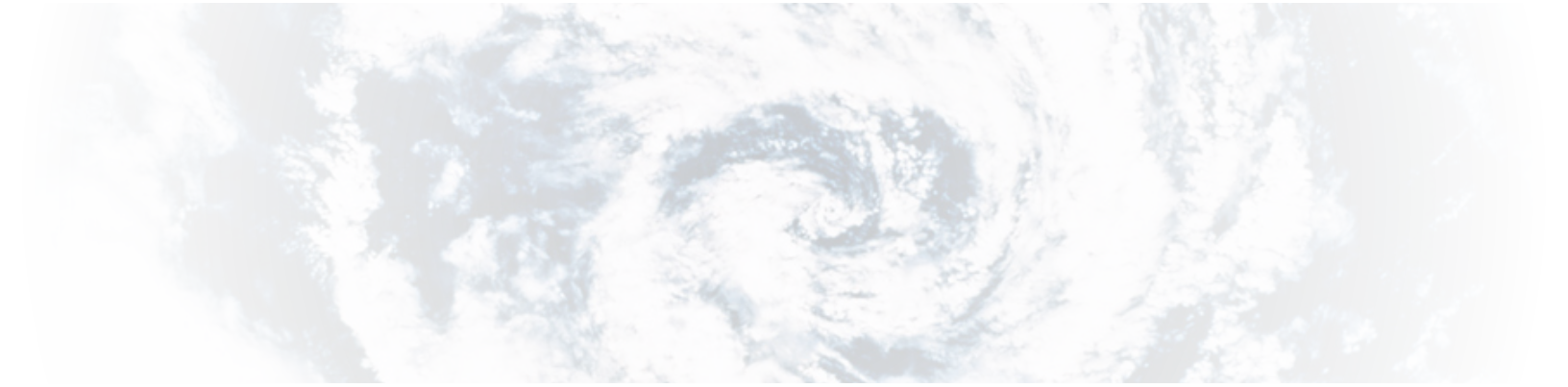
- Leveraging and enhancing cooperation across borders and levels of government;
- Sustainable funding mechanisms for addressing waste tires and solid waste; and
- Sedimentation drivers, their interaction with other waste streams, and possible solutions.

The workshops were an opportunity to share information and inform the working group's Strategic Plan. The SWWG will work to complete the Strategic Plan and present it to the CMBRC at its meeting in January 2017. Upon completion of the Plan, California and Mexico will have an opportunity to incorporate the recommendations laid out in the document into the work under the MOU. This could include the formal establishment of an additional working group on waste, with its own goals and deliverables.

Final Comments

This annual report summarizes the work carried out under the California-Mexico MOU during 2016, as reported by the various working groups. Each working group made progress towards one or more identified goals. They also identified challenges as well as steps to overcome these challenges and continue progress in 2017.

Overall, the MOU continues to serve as a positive forum for binational collaboration between California and Mexico on important environmental issues, enhancing the understanding and technical capacity on both sides of the border and facilitating the groups' work towards greater harmonization in important policy areas. In 2016, each of the four working groups made significant progress towards goals and deliverables. With challenges and resolutions identified, each group will continue to work over the next two years of the MOU toward fully achieving the goals and deliverables of the Joint Action Plan.



CREDITS

Compilation & Editing:
California Environmental Protection Agency

Translation:
Trans-Lang Interpreting and
Translation Services

2016