

# DATA & METHODS REPORT

## JALISCO JURISDICTIONAL SUSTAINABILITY PROFILE

This form references data and methods used for the reporting of indicators of the jurisdictional sustainability profile of Jalisco, Mexico, in *The State of Jurisdictional Sustainability* published by Earth Innovation Institute and the Center for International Forestry Research, in 2018. Find more at the report website <https://earthinnovation.org/state-of-jurisdictional-sustainability> and <http://gcfimpact.org>.

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**Indicator:** Deforestation

The Annual deforestation area (2002-2015) reported in the plot corresponds to forest loss calculated by CONAFOR based on INEGI land use land cover maps and statistical analysis.

**Source:** National Institute of Statistics, Geography and Informatics (INEGI) and National Forestry Commission (CONAFOR), Mexico.

**Temporality:** 2002 to 2017.

**Methods:** Spatial and statistical analysis of INEGI LULC maps. Mexico has adopted a forest definition that includes primary forest, secondary forest as well as herbaceous and shrubby vegetation for its FREL and IRE proposals. The complete set of classes accounted by CONAFOR to estimate forest cover and deforestation on the LULC INEGI maps is presented in the table at the end of the document. Further to the spatial analysis of INEGI maps, CONAFOR adjusted the deforestation figures based on statistical analysis of the accuracy and uncertainty of INEGI maps of each state. The deforestation shown in the map corresponds to the spatial analysis of areas that transitioned from forest classes to non-forest classes over the period 1985-2014. Six versions of the INEGI LULC maps have been produced with reference years 1985, 1993, 2002, 2007, 2001, and 2014. INEGI maps are based on the visual interpretation of Landsat image, have a 250,000 representation scale and a minimum mapping unit of 25 hectares.

**URL:** <http://www.inegi.org.mx/geo/contenidos/recnat/usosuelo/>

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**Indicator:** Forest cover map

Forest cover shown in the map corresponds to remaining forest in 2014 as mapped by the LULC INEGI maps using the forest classification scheme presented in the table at the end of this document.

**Source:** National Institute of Statistics, Geography and Informatics (INEGI) LULC maps, Mexico.

**Methods:** spatial analysis of forest lands in the INEGI version 6 map using the forest classification scheme defined by Mexico for its FREL and IRE proposals (see classification scheme at the end of this document).

**Temporality:** 2014.

**Methods: URL:** <http://www.inegi.org.mx/geo/contenidos/recnat/usosuelo/>

**Indicator: State forest reference emission level**

Forest Reference Levels are benchmarks for assessing a country's performance in implementing REDD+ activities. FRELs are voluntarily constructed and formally submitted to the UNFCCC (<https://redd.unfccc.int>). The Mexican FREL/FRL is based on historical deforestation during the periods 2000-2010.

**Source:** National Forestry Commission (CONAFOR), Mexico.

**Temporality:** 2000-2010.

**Methods:** The average deforestation FREL line shown in the plot is derived from the performance criteria defined by Mexico in its FREL for the period 200-2010.

**URL:** <https://redd.unfccc.int/submissions.html?country=mex>

**Indicator: Average annual emissions from deforestation (Million tons CO<sub>2</sub> per year)**

This indicator represents the average carbon dioxide (CO<sub>2</sub>) emissions from deforestation activities considering the carbon pools defined by the FREL submitted by the National Forestry Commission (CONAFOR) to the UNFCCC, namely: above-ground biomass and below-ground biomass. Average emissions are calculated using activities from the period 2010-2015.

**Source:** Deforestation area extent derived from CONAFOR-INEGI estimation as explained above. Carbon emission factors derived from the Mexican FREL.

**Temporality:** Average of yearly emissions for the period 2010-2015.

**Methods:** Average emissions calculated by multiplying the estimated deforestation by CONAFOR with the average carbon density of each pool. Reduction from carbon atomic weight to CO<sub>2</sub> equivalent emissions using a factor of 44:12.

**Indicator: Drivers of deforestation**

Identifies proximate drivers of deforestation and forest degradation in the jurisdiction. Proximate drivers are direct human actions (i.e. agriculture, mining, cattle ranching, land and resource uses). Natural causes such as floods, droughts and pests are also considered.

**Source:** Jurisdictional LED-R survey undertaken by CIFOR and Earth Innovation Institute in Governors' Climate and Forest Task Force member and other jurisdictions.

**Temporality:** Survey conducted in 2018.

**Methods:** LED-R Survey implemented in the state based on a questionnaire administered by a designated enumerator to an expert or group of experts in the state.

**Indicator: Main economic activities**

Indicates the main economic activities in the state based on economic output.

**Source:** Jurisdictional LED-R survey undertaken by CIFOR and Earth Innovation Institute in Governors' Climate and Forest Task Force Member Jurisdictions. Based on the regional accounts system of the National Institute of Statistics, Geography and Informatics (INEGI).

**Temporality:** Survey conducted in 2018

**Methods:** LED-R Survey implemented in the state based on a questionnaire administered by a designated enumerator to an expert or group of experts in the state.

**Indicator:** Human development index

This index is a summary measure of average achievement in key dimensions of human development: life expectancy, education and income. Values close to 0 indicate lower human development while values close to 100 higher achievement across the 3 considered dimensions.

**Source:** United Nations Development Programme (UNDP), Mexico.

**Temporality:** 2012

**Methods:** The human development index is obtained as the geometric mean of the three sub-indices of dimensions that comprise the index: life expectancy, education and income.

**URL:** <http://www.mx.undp.org/content/mexico/es/home/library/poverty/indice-de-desarrollo-humano-para-las-entidades-federativas--mexi.html>

**Indicator:** Gross domestic product (GDP)

The Gross domestic product (GDP) of the jurisdiction is an inflation-adjusted measure that reflects the value of all goods and services produced by an economy in a given year, expressed in base-year prices, and is often referred to as constant price. The indicators card reports the most recent GDP in dollars. The plot presents a series of yearly GDP observations in local currency (Mexican Pesos).

**Source:** National Institute of Statistics, Geography and Informatics (INEGI), Mexico.

**Temporality:** 2003-2016, Base year 2013.

**Methods:** Data downloaded directly from the INEGI website.

**URL:** <http://www.inegi.org.mx/sistemas/bie/?idserpadre=10200070#D10200070>

**Indicator:** GINI of income coefficient

The Gini coefficient is used as an indicator of the socio-economic equity. Values close to 0 indicate greater equality of income while values close to 1 greater inequality.

**Source:** The Organization for Economic Co-operation and Development (OECD)

**Temporality:** 2014

**Methods:** Data downloaded directly from the national report pdf.

**URL:** <http://www.oecd.org/cfe/regional-policy/Mexican-States-Highlights-English.pdf>

**Indicator:** Population

Indicates the estimated population in the state in 2018.

**Source:** National Institute of Statistics, Geography and Informatics (INEGI), Mexico.

**Temporality:** 2018

**Methods:** The projection is based on the 2010 Demographic Census of National Institute of Statistics, Geography and Informatics, Mexico.

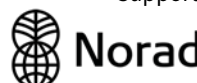
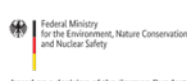
**Indicator:** Rural and urban population

Proportion of population living in rural and urban areas.

**Source:** National Institute of Statistics, Geography and Informatics (INEGI), Mexico.

**Temporality:** 2010

Technical Team



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Classes used by CONAFOR for the identification of forest lands in the INEGI LULC maps. The scheme follows the forest definition adopted by Mexico for its FREL and IRE proposals.

| KEY CONAFOR | KEY INEGI MAP | Class name                                      |
|-------------|---------------|---|
| BCO/P       | BA            | Bosque de Oyamel Primario                       |
| BCO/P       | BB            | Bosque de Cedro Primario                        |
| BCO/P       | BJ            | Bosque de Tásate Primario                       |
| BCO/P       | BP            | Bosque de Pino Primario                         |
| BCO/P       | BPQ           | Bosque de Pino-Encino Primario                  |
| BCO/P       | BS            | Bosque de Ayarín Primario                       |
| BCO/P       | MJ            | Matorral de Coníferas Primario                  |
| BCO/P       | VSA/BA        | Bosque de Oyamel Secundario Arbóreo             |
| BCO/P       | VSA/BB        | Bosque de Cedro Secundario Arbóreo              |
| BCO/P       | VSA/BJ        | Bosque de Tásate Secundario Arbóreo             |
| BCO/P       | VSA/BP        | Bosque de Pino Secundario Arbóreo               |
| BCO/P       | VSA/BPQ       | Bosque de Pino-Encino Secundario Arbóreo        |
| BCO/P       | VSA/BS        | Bosque de Ayarín Secundario Arbóreo             |
| BCO/S       | VSA/BA        | Bosque de Oyamel Secundario Arbustivo           |
| BCO/S       | VSA/BB        | Bosque de Cedro Secundario Arbustivo            |
| BCO/S       | VSA/BJ        | Bosque de Tásate Secundario Arbustivo           |
| BCO/S       | VSA/BP        | Bosque de Pino Secundario Arbustivo             |
| BCO/S       | VSA/BPQ       | Bosque de Pino-Encino Secundario Arbustivo      |
| BCO/S       | VSA/BS        | Bosque de Ayarín Secundario Arbustivo           |
| BCO/S       | VSA/MJ        | Matorral de Coníferas Secundario Arbustivo      |
| BCO/S       | VSh/BA        | Bosque de Oyamel Secundario Herbáceo            |
| BCO/S       | VSh/BB        | Bosque de Cedro Secundario Herbáceo             |
| BCO/S       | VSh/BJ        | Bosque de Tásate Secundario Herbáceo            |
| BCO/S       | VSh/BP        | Bosque de Pino Secundario Herbáceo              |
| BCO/S       | VSh/BPQ       | Bosque de Pino-Encino Secundario Herbáceo       |
| BCO/S       | VSh/BS        | Bosque de Ayarín Secundario Herbáceo            |
| BCO/S       | VSh/MJ        | Matorral de Coníferas Secundario Herbáceo       |
| BE/P        | BQ            | Bosque de Encino Primario                       |
| BE/P        | BQP           | Bosque de Encino-Pino Primario                  |
| BE/P        | VSA/BQ        | Bosque de Encino Secundario Arbóreo             |
| BE/P        | VSA/BQP       | Bosque de Encino-Pino Secundario Arbóreo        |
| BE/S        | VSA/BQ        | Bosque de Encino Secundario Arbustivo           |
| BE/S        | VSA/BQP       | Bosque de Encino-Pino Secundario Arbustivo      |
| BE/S        | VSh/BQ        | Bosque de Encino Secundario Herbáceo            |
| BE/S        | VSh/BQP       | Bosque de Encino-Pino Secundario Herbáceo       |
| BM/P        | BM            | Bosque Mesófilo de Montana Primario             |
| BM/P        | VSA/BM        | Bosque Mesófilo de Montana Secundario Arbóreo   |
| BM/S        | VSA/BM        | Bosque Mesófilo de Montana Secundario Arbustivo |
| BM/S        | VSh/BM        | Bosque Mesófilo de Montana Secundario Herbáceo  |
| EOTL/P      | MK            | Bosque de Mezquite Primario                     |
| EOTL/P      | VPN           | Palmar Natural Primario                         |
| EOTL/P      | VSA/MK        | Bosque de Mezquite Secundario Arbóreo           |
| EOTL/P      | VSA/VPN       | Palmar Natural Secundario Arbóreo               |
| EOTL/S      | BI            | Bosque Inducido                                 |
| EOTL/S      | VPI           | Palmar Inducido                                 |
| EOTL/S      | VSA/MK        | Bosque de Mezquite Secundario Arbustivo         |
| EOTL/S      | VSA/VPN       | Palmar Natural Secundario Arbustivo             |
| EOTL/S      | VSh/MK        | Bosque de Mezquite Secundario Herbáceo          |
| EOTL/S      | VSh/VPN       | Palmar Natural Secundario Herbáceo              |
| MXL/P       | MC            | Matorral Crasicaule Primario                    |
| MXL/P       | MET           | Matorral Espinoso Tamaulipeco Primario          |
| MXL/P       | MKX           | Mezquital Xerófilo Primario                     |

|       |          |   |
|-------|----------|---|
| MXL/P | ML       | Chaparral   |
| MXL/P | MRC      | Matorral Rosetófilo Costero Primario                      |
| MXL/P | MSC      | Matorral Sarcocaula Primario                              |
| MXL/P | MSCC     | Matorral Sarco-Crasicaule Primario                        |
| MXL/P | MSM      | Matorral Submontano Primario                              |
| MXL/P | MSN      | Matorral Sarco-Crasicaule de Neblina Primario             |
| MXL/P | VSA/MSM  | Matorral Submontano Secundario Arbóreo                    |
| MXL/S | VSa/MC   | Matorral Crasicaule Secundario Arbustivo                  |
| MXL/S | VSa/MET  | Matorral Espinoso Tamauhuico Secundario Arbustivo         |
| MXL/S | VSa/MKX  | Mezquital Xerófilo Secundario Arbustivo                   |
| MXL/S | VSa/ML   | Chaparral Secundario Arbustivo                            |
| MXL/S | VSa/MRC  | Matorral Rosetófilo Costero Secundario Arbustivo          |
| MXL/S | VSa/MSM  | Matorral Sarcocaula Secundario Arbustivo                  |
| MXL/S | VSa/MSCC | Matorral Sarco-Crasicaule Secundario Arbustivo            |
| MXL/S | VSa/MSM  | Matorral Submontano Secundario Arbustivo                  |
| MXL/S | VSa/MSN  | Matorral Sarco-Crasicaule de Neblina Secundario Arbustivo |
| MXL/S | VSh/MC   | Matorral Crasicaule Secundario Herbáceo                   |
| MXL/S | VSh/MET  | Matorral Espinoso Tamauhuico Secundario Herbáceo          |
| MXL/S | VSh/MKX  | Mezquital Xerófilo Secundario Herbáceo                    |
| MXL/S | VSh/MRC  | Matorral Rosetófilo Costero Secundario Herbáceo           |
| MXL/S | VSh/MSM  | Matorral Sarcocaula Secundario Herbáceo                   |
| MXL/S | VSh/MSCC | Matorral Sarco-Crasicaule Secundario Herbáceo             |
| MXL/S | VSh/MSM  | Matorral Submontano Secundario Herbáceo                   |
| MXL/S | VSh/MSN  | Matorral Sarco-Crasicaule de Neblina Secundario Herbáceo  |
| SC/P  | MKE      | Mezquital Tropical Primario                               |
| SC/P  | MST      | Matorral Subtropical Primario                             |
| SC/P  | SBC      | Selva Baja Caducifolia Primaria                           |
| SC/P  | SBK      | Selva Baja Espinosa Caducifolia Primaria                  |
| SC/P  | SMC      | Selva Mediana Caducifolia Primaria                        |
| SC/P  | VSA/MKE  | Mezquital Tropical Secundario Arbóreo                     |
| SC/P  | VSA/SBC  | Selva Baja Caducifolia Secundaria Arborea                 |
| SC/P  | VSA/SBK  | Selva Baja Espinosa Caducifolia Secundaria Arborea        |
| SC/P  | VSA/SMC  | Selva Mediana Caducifolia Secundaria Arborea              |
| SC/S  | VSA/MKE  | Mezquital Tropical Secundario Arbustivo                   |
| SC/S  | VSa/MST  | Matorral Subtropical Secundario Arbustivo                 |
| SC/S  | VSA/SBC  | Selva Baja Caducifolia Secundaria Arbustiva               |
| SC/S  | VSA/SBK  | Selva Baja Espinosa Caducifolia Secundaria Arbustiva      |
| SC/S  | VSA/SMC  | Selva Mediana Caducifolia Secundaria Arbustiva            |
| SC/S  | VSh/MKE  | Mezquital Tropical Secundario Herbáceo                    |
| SC/S  | VSh/MST  | Matorral Subtropical Secundario Herbáceo                  |
| SC/S  | VSh/SBC  | Selva Baja Caducifolia Secundaria Herbácea                |
| SC/S  | VSh/SBK  | Selva Baja Espinosa Caducifolia Secundario Herbáceo       |
| SC/S  | VSh/SMC  | Selva Mediana Caducifolia Secundario Herbáceo             |
| SP/P  | SAP      | Selva Alta Perennifolia Primaria                          |
| SP/P  | SAQ      | Selva Alta Subperennifolia Primaria                       |
| SP/P  | SBP      | Selva Baja Perennifolia Primaria                          |
| SP/P  | SBQ      | Selva Baja Espinosa Subperennifolia Primario              |
| SP/P  | SBQP     | Selva Baja Subperennifolia Primaria                       |
| SP/P  | SMP      | Selva Mediana Perennifolia Primaria                       |
| SP/P  | SMQ      | Selva Mediana Subperennifolia Primaria                    |
| SP/P  | VSA/SAP  | Selva Alta Perennifolia Secundaria Arborea                |
| SP/P  | VSA/SAQ  | Selva Alta Subperennifolia Secundaria Arborea             |
| SP/P  | VSA/SBP  | Selva Baja Perennifolia Secundaria Arborea                |
| SP/P  | VSA/SBQ  | Selva Baja Espinosa Subperennifolia Secundaria Arborea    |
| SP/P  | VSA/SBQP | Selva Baja Subperennifolia Secundaria Arborea             |
| SP/P  | VSA/SMP  | Selva Mediana Perennifolia Secundaria Arborea             |

|       |          |  |
|-------|----------|--|
| SP/P  | VSA/SMQ  | Selva Mediana Subperennifolia Secundaria Arborea         |
| SP/S  | VSA/SAP  | Selva Alta Perennifolia Secundaria Arbustiva             |
| SP/S  | VSA/SAQ  | Selva Alta Subperennifolia Secundaria Arbustiva          |
| SP/S  | VSA/SBP  | Selva Baja Perennifolia Secundaria Arbustiva             |
| SP/S  | VSA/SBQ  | Selva Baja Espinosa Subperennifolia Secundaria Arbustiva |
| SP/S  | VSA/SBQP | Selva Baja Subperennifolia Secundaria Arbustiva          |
| SP/S  | VSA/SMP  | Selva Mediana Perennifolia Secundaria Arbustiva          |
| SP/S  | VSA/SMQ  | Selva Mediana Subperennifolia Secundaria Arbustiva       |
| SP/S  | VSh/SAP  | Selva Alta Perennifolia Secundaria Herbácea              |
| SP/S  | VSh/SAQ  | Selva Alta Subperennifolia Secundaria Herbácea           |
| SP/S  | VSh/SBP  | Selva Baja Perennifolia Secundario Herbáceo              |
| SP/S  | VSh/SBQ  | Selva Baja Espinosa Subperennifolia Secundario Herbáceo  |
| SP/S  | VSh/SBQP | Selva Baja Subperennifolia Secundario Herbáceo           |
| SP/S  | VSh/SMP  | Selva Mediana Perennifolia Secundario Herbáceo           |
| SP/S  | VSh/SMQ  | Selva Mediana Subperennifolia Secundario Herbáceo        |
| SSC/P | SBS      | Selva Baja Subcaducifolia Primaria                       |
| SSC/P | SMS      | Selva Mediana Subcaducifolia Primaria                    |
| SSC/P | VSA/SBS  | Selva Baja Subcaducifolia Secundaria Arborea             |
| SSC/P | VSA/SMS  | Selva Mediana Subcaducifolia Secundaria Arborea          |
| SSC/S | VSA/SBS  | Selva Baja Subcaducifolia Secundaria Arbustiva           |
| SSC/S | VSA/SMS  | Selva Mediana Subcaducifolia Secundaria Arbustiva        |
| SSC/S | VSh/SBS  | Selva Baja Subcaducifolia Secundario Herbáceo            |
| SSC/S | VSh/SMS  | Selva Mediana Subcaducifolia Secundario Herbáceo         |
| VHL/P | BG       | Bosque de Galería Primario                               |
| VHL/P | PT       | Vegetación de Peten Primario                             |
| VHL/P | SG       | Selva de Galería Primaria                                |
| VHL/P | VG       | Vegetación de Galería Primario                           |
| VHL/P | VM       | Manglar Primario   |
| VHL/P | VSA/BG   | Bosque de Galería Secundario Arbóreo                     |
| VHL/P | VSA/PT   | Vegetación de Peten Secundario Arbóreo                   |
| VHL/P | VSA/SG   | Selva de Galería Secundaria Arborea                      |
| VHL/P | VSA/VM   | Manglar Secundario Arbóreo                               |
| VHL/S | VSA/BG   | Bosque de Galería Secundario Arbustivo                   |
| VHL/S | VSA/PT   | Vegetación de Peten Secundario Arbustivo                 |
| VHL/S | VSA/SG   | Selva de Galería Secundaria Arbustiva                    |
| VHL/S | VSa/VG   | Vegetación de Galería Secundario Arbustivo               |
| VHL/S | VSA/VM   | Manglar Secundario Arbustivo                             |
| VHL/S | VSh/BG   | Bosque de Galería Secundario Herbáceo                    |
| VHL/S | VSh/PT   | Vegetación de Peten Secundario Herbáceo                  |
| VHL/S | VSh/SG   | Selva de Galería Secundario Herbáceo                     |
| VHL/S | VSh/VG   | Vegetación de Galería Secundario Herbáceo                |
| VHL/S | VSh/VM   | Manglar Secundario Herbáceo                              |