

# Climate change effects in the water availability, in the Usumacinta river flow



The Usumacinta basin extends from the Guatemala northeast until the states of Chiapas and Tabasco (Mexico), and it covers a surface of **122 000 km<sup>2</sup>**

The basin is located in the southeast of Mexico, at the geographic coordinates **18.71°-15.22°N** and **94.25°-90.38°O**



The Usumacinta basin is relevant for the ecologic services or environment of direct economic importance, like the carbon volumes in the forest stands, just like the captation and water and the nutrients of the lands from the north of Chiapas and Tabasco



The jungles and forests of the Usumacinta basin are part of the carbon "sinks" of great relevance in Mesoamerica, aspects that can be disturbed with the changes in the availability of water in the zones by climate changes effects

The principals causes of the deterioration in the Usumacinta river basin are due to:



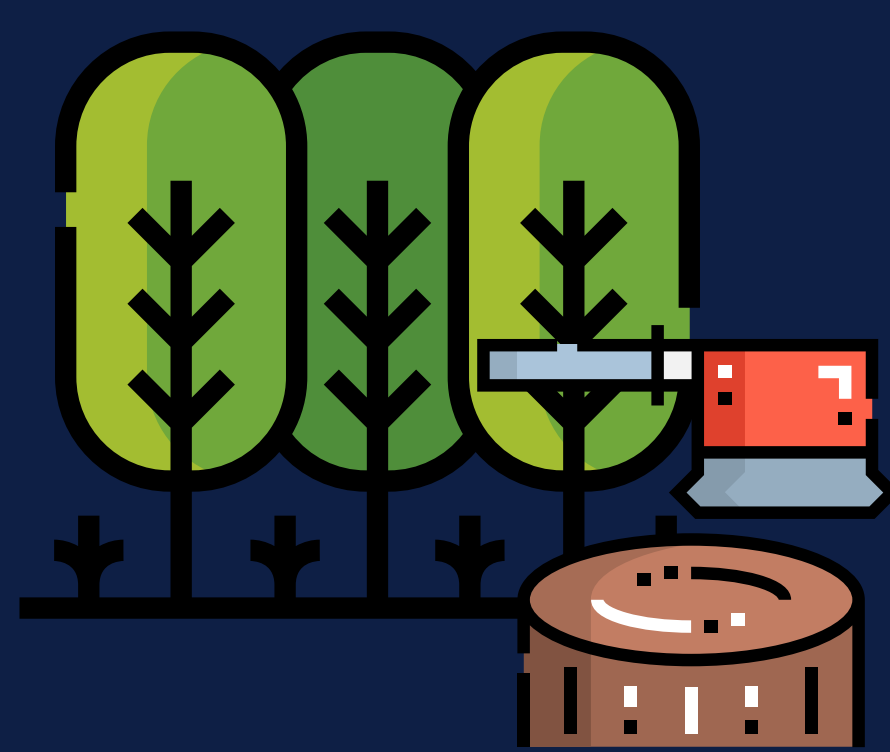
Accelerated change of the ground use



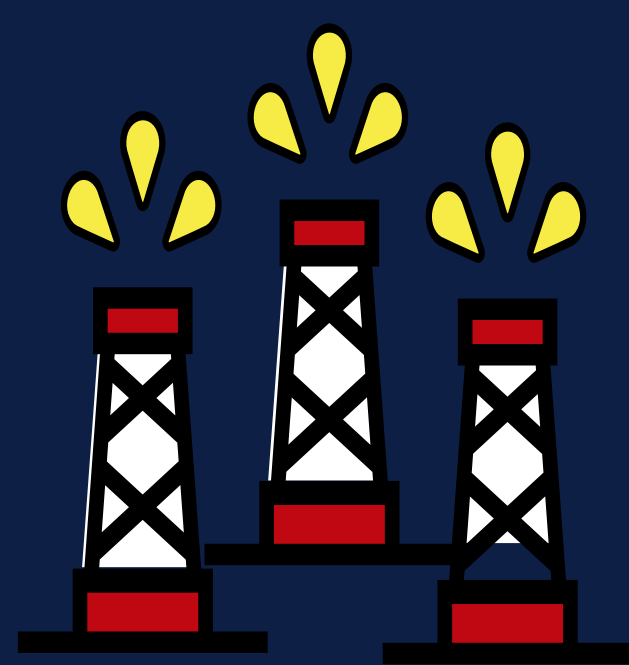
Indiscriminate fire use in agricultural activities



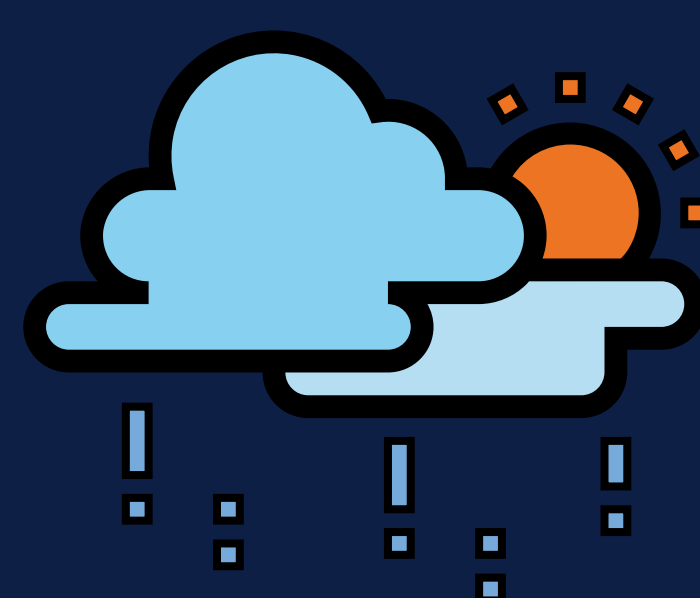
Floods



Irrational exploitation of the forest resources



Disordered development induced by the oil exploitation



Change in the rains regime



Not planified colonization



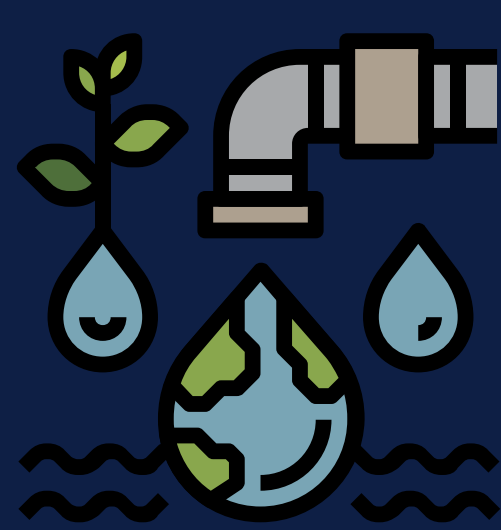
Increase of the forest fires



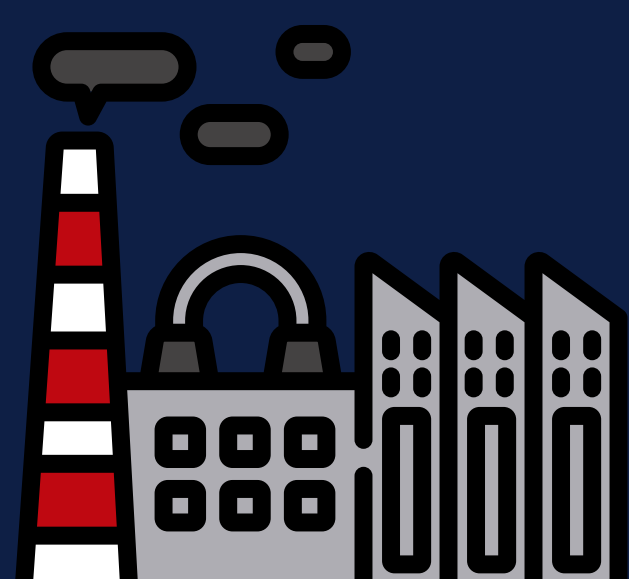
The current trends of the ground use change; overexploitation of wild resources; energetic sector alterations; pollution; increase and population dispersion; agricultural frontier expansion; lack of governance and the climate change can lead to the social degradation, economic and political area

**Conclusions.** The evaluation studies of the weather impact in the flows are important for the conservation of the species, the assessment of the function and capacity of aquatic ecosystem recovery, just like the people wellness that depends of the rivers

The climate change adaptation requires to determine the regime of the rivers flows, like:



Change in the water consumption to compensate the precipitation rates



Industries transfer to greater wetness regions



Change in the morphology of the cities to compensate the floods

The ecological flows provide the information that is required to set the proposals and strategies for the rational management of the aquatic resources, and the assessment of the climate change effect in the rivers between the periods of preimpact and postimpact