


# Chapter 2: Objectives



## ***2.1 General***

To perform the conceptual and detailed design, and the executive project of a pilot plant for the treatment of pesticide-polluted water effluents using solar photocatalysis, determining the best engineering parameters for a medium-sized facility that also serves to test an array of different compounds and water flow rates.

## ***2.2 Particular***

- To calculate the hydraulic parameters of the plant, and the energy required by the system, choosing the configuration that proves the most adequate to the needs.
- To put together the detailed design of the plant, including accessories, pump, recirculation tanks, physical space and structure of the plant.
- To discriminate among several possible configurations the one that best fits economic, versatility, efficiency and maintenance criteria.
- To find updated information regarding the use of pesticides in Mexico and the disposable practices of containers. Emphasis is to be made on the selected pesticides, 2,4-dichlorophenoxyacetic acid and atrazine.

- To review the general kinetics of advanced oxidation processes in order to understand the generation of reactive radicals and relate kinetic parameters to pilot plant operation.
- To produce a document that will enable fast and easy setup of a pilot plant, indicating approximate costs, suppliers, their location, and number of parts needed.
- To determine future research for the adaptation of new technologies for the degradation of organic persistent pollutants, emphasizing engineering abilities needed and links between laboratory findings and engineering adaptation and scale-up.