

<b>Donor country</b> Italy			
<b>Project/programme title</b> Second generation biofuel: cellulosic ethanol			
<b>Purpose</b> This project, carried out by Chemtex – Gruppo M&G (Italy), in cooperation with the relevant Mexican partners (Semarnat and Conafor), will evaluate the roadmap for a innovative solution in the production of second generation bioethanol from Mexican feedstocks, which do not compete with food, at price competitive with fossil fuels. In particular the project focuses on the feasibility study of the process to produce second generation bioethanol from the best sustainable Mexican biomasses; the identified biomasses on one hand will have to guarantee a high cellulose/hemicellulose yield per hectare and on the other hand will have to allow a high global energy efficiency and a low environmental and social impact.			
<b>Recipient country</b> Mexico	<b>Sector</b> Agro-bioenergy	<b>Total funding</b> 100,000 Euros	<b>Years in operation</b> 12 months
<b>Description</b> The objective of the Project is to select high-yield and sustainable crops for second generation biofuel production, assuring eco-compatible bioethanol production and social-economic development for the interested geographical areas both in the short as well as in the long period. The general objective of this activities is therefore to identify the most interesting crops for second generation bioethanol production In agreement with the pedo-climatic characteristics of the most interesting areas and the sustainability of the productive cycles. In Mexico, for instance, there is an important research in ethanol production using various plant materials as feedstock, some of them involving local plant species well adapted to marginal water availability of semi arid and arid environments. Most of this research has been done under aims different to biofuel production, but nevertheless the information generated can provide a basis for biofuel production feasibility assessment and give indications as the potential of different plants to provide feedstock for first and second generation ethanol.			
<b>Indicate factors that led to project's success</b> Woody and herbaceous dedicated energy crops are considered as sustainable feedstocks for production of bioethanol. In this Project identification of local biomasses, which fit the Mexican territory and are sustainable from both the point of view of impact on the territory and agricultural remuneration, is a key (such as sorghum, sugar cane bagasse and perennial plants non-food). Mexico is the fifth larger producer of Sorghum in the world. Roughly seventy percent of the Mexico has a subtropical climate, providing ideal conditions for agriculture, in particular sugar cane; Sugar, in fact, is the first and most important harvest in Mexico. From the technology point of view, the Italian partner of Project has comprehensive experience in the development, design and installation of ethanol manufacturing systems that are highly efficient and reliable. It has been developing process design and integration features both on first generation (ethanol from cereals) and second generation ethanol production with emphasis on energy efficiency, low environmental and social impact, plant operability and reliability taking also into consideration capital and operative costs for different upgraded solutions.			
<b>Technology transferred</b> Analysis on how the selected energy crops will impact on the logistic chain of the bioethanol conversion process. Transfer of knowledge regarding: energy crops cultivation, storage/harvesting and logistic; second generation plant specification and process description.			
<b>Impact on greenhouse gas emissions/sinks</b> The plant materials, chosen as feedstocks, should fulfil several socioeconomic and environmental criteria such as availability, cheap price, non-food use, contribution to reduction in GHG, energy efficiency, high ethanol/hectare yield, low environmental impact (minimum water and fertilisers requirements), as well local and global environmental relevance.			