

**Search for a Spanish Partner for a  
Bilateral R&D Project (this document will be shared with potential Spanish  
companies)**

<b>Organization</b>	
<b>Date of Request:</b>	23.10.2019
<b>Company name:</b>	Centre Marocain des Techniques du Cuir
<b>Contact person and title/ designation:</b>	1)My Youssef Zmirili General Director 2)Aissam Malouk Project manager assistant
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**SECTION 1: Your Company Profile**

*(Please give brief / to the point explanations. For more explanation on any point below, you may add a short paragraph as an annexure, with this document.)*

<b>Business Sector</b>	R&D as well as Technical assistance in Leather and footwear industries
<b>Company mission or core functions</b>	CMTC works to provide technology services, transfer knowledge and conduct research on relevant topics within leather and footwear sectors.
<b>Date of establishment</b>	
<b>Ownership (if public and traded, add stock exchange and ticker symbol)</b>	Non-profit organization
<b>Total number of employees</b>	20-30 employees
<b>Number of employees in R&amp;D</b>	5 employees
<b>Key products sold or services provided</b>	<ul style="list-style-type: none"> <li>*Carry out healthy and safety tests and analyses on footwear and leather.</li> <li>*Laboratory analysis and tests (chemical, physical and mechanical tests)</li> <li>*Determine the footwear and leather quality.</li> <li>* Applied Research for development and</li> </ul>

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	<p>Innovation</p> <ul style="list-style-type: none"> <li>* Quality assurance &amp; advice, technical assistance as well as training: <ul style="list-style-type: none"> <li>○ Leather</li> <li>○ Footwear</li> <li>○ Leather goods</li> <li>○ Textiles</li> <li>○ Environmental issue, wastewater</li> </ul> </li> <li>* Computer-aided Design (2D &amp; 3D CAD )</li> <li>* Audits &amp; Inspection</li> <li>* General Interest activities</li> </ul>
<p>Company core technical competences</p>	<ul style="list-style-type: none"> <li>* Equipped laboratories,</li> <li>* Advanced footwear technology platform</li> <li>* Tannery platform</li> </ul>
<p>Key R&amp;D programs and activities</p>	<p>The center is considered an analytical expertise of tannery waste in Morocco. CMTC has developed know-how in sampling and analysis of all environmental effluents.</p>
<p>Examples of accomplishments</p>	<p><b>National Project:</b></p> <ul style="list-style-type: none"> <li>● Technical prerequisites studies for relocation of the Tanneries of Fez city to a new industrial area.</li> <li>● Development of good practices for leather tanning.</li> <li>● Studies and implementation of new treatment techniques avoiding the appearance of chromium VI and formaldehyde in leather</li> <li>● Development of new test methods for alkylphenols analysis in leather</li> <li>● Improvement of orthopedic shoe offer in Morocco</li> </ul>
<p>Company strategic orientation</p>	<p>Our objective is to promote innovation within the footwear and leather industries by providing solutions and innovative technology.</p>

<b>SECTION 2: Partner of Interest</b> <i>(Please provide a brief summary of the prospective partner company or organization. This summary may address some or all of the points below)</i>	
Profile of ideal technology partner	Research center / Universities Expertise in leather, environment, security
Core technological competencies and expertise	<ul style="list-style-type: none"> <li>* Wastewater treatment technologies</li> <li>* R&amp;D expertise in leather and footwear industry</li> <li>* Tannery waste treatment</li> <li>* Wastewater treatment</li> <li>* Renewable energies</li> <li>* Energy efficiency in leather industry</li> <li>* Water/renewable energy/agriculture</li> </ul>
Other essential qualifications (e.g.: ownership, track records etc.)	
If you have a list of companies with whom you are in contact or interested in contacting, please provide contact details	<ul style="list-style-type: none"> <li>* INESCOP</li> <li>* Spanish Agency for International Cooperation</li> <li>* Cluster Calzado Innovación</li> </ul>
If you are interested in collaboration: please specify details and other important information you want to share with a potential company	
Interested areas of collaboration	<ul style="list-style-type: none"> <li>* R&amp;D expertise in leather and footwear industry</li> <li>* Tannery waste treatment</li> <li>* Wastewater treatment</li> <li>* Renewable energies</li> <li>* Energy efficiency in leather industry</li> <li>* Water/renewable energy/agriculture</li> </ul>
Specific R&D contribution you are seeking/offering	



**Signature**

**Name: My Youssef Zmirili**

**Date: 23.10.2019**

### **1) Renewable energy production from tannery wastes**

It is well known that the global tanning industry generates millions tones of solid waste per year. As the economic and environmental costs of leather production are rising very fast all over the world, the search for viable alternative waste solutions and sources of energy becomes increasingly critical.

Leather tanning poses serious environmental threats by discharging liquid effluents and solid wastes directly into surrounding areas, rivers, waterways or to the landfill without proper treatment. Industrial wastes are major sources of pollution.

The implementation of gasification has the potential to provide significant cost benefits in terms of power generation and waste disposal, and increase sustainability within the industry. The gasification process converts any carbon-containing material into a combustible gas comprised primarily of carbon monoxide, hydrogen and methane, which can be used as a fuel to generate electricity and heat.

Objectives:

- 1- Sustainable management of tannery wastes through converting these wastes into energy.
- 2- Significant commercial value as it can be reconstituted and resused.
- 3- Gasification of tannery wastes
- 4- Biomethanation (or anaerobic digestion) system.

### **2) Energy saving in Moroccan & Spanish tanneries through solar energy use and electrical performance.**

Energy is an important driver of industrial productivity growth. It is a key production input in industrial processes. Energy, on average, represents a vital importance of total production costs.

Deployment of energy efficient technologies and processes are often constrained by several financial, technical, behavioral barriers.

The tanning industry Energy is also one of the major operating costs along with the use of water. Energy is used for operating machinery, drying leather in different process phases, heating water to temperatures needed for chemical processes, producing compressed air etc. Significant factors influencing energy consumption in a tannery include the type of raw materials entering the tannery and the energy intensity of the different process phases

Objectives:

- 1- Identifying, by means of energy auditing, the main areas where energy efficiency can be implemented in tanneries.
- 2- Identifying the best technical and technological solutions available to reach higher levels of energy efficiency
- 3- To reduce energy consumption for electricity in tanning operations.

### **3) Green Industries production from tannery wastes**

Tanning industry generates large quantities of solid wastes during the leather manufacturing process and sub-sequently during effluent treatment. During this process, different wastes produced include meat separated from skin, fat tissue, hair, sludge, and chromium. The quantity of wastes from tanneries depends on the type of the leather manufacturing process, skin resource, and techniques used. At the end of the leather manufacturing process, around 20% of the weight of raw skin is changed to leather. Therefore, the preparation of chrome leather solid waste into fertilizer is one of the best methods of governance leather solid waste pollution. Waste-derived collagen-containing amino acids can be used to produce organic fertilizer. The use of such wastes as fertilizers represents an interesting alternative for their disposal, with less potential impact to the environment

#### Steps of project study

- 1- Evaluate the effect of leather industry works in the growth of cultures of commercial interest
- 2- Figure out the optimum process for transforming waste into fertilizers
- 3- Choose the right scopes in which could be adapted with the obtained fertilizers.
- 4- Testing of fertilizers in real agriculture fields