

## **Sustainable Innovation 2019**

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**University for the Creative Arts**

**Business School**

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### **Circular Economy and Implementation of Paris Agreement Objectives Case Study – Recovering, Recycling of Plastic Waste and Production of SynGas Informal and Formal Sector in Mexico.**

**L Munoz**

Viña del Mar University, Chile

There is no doubt humankind face a big environmental crisis. We need 1,7 planets to keep our life styles. Perspectives indicate, by 2030 we would need to reduce GHG emissions by 30% and 50% by 2050 in order to keep climate change under safe boundaries. The world population would rise 9 billion by 2050, increasing pressure to natural resources and energy use. World need prompt actions and solutions that could potentially cost 5,5% of global GDP by 2050. Focus need to be put in four priorities, climate change, biodiversity, water and pollution impact on health. World need prompt actions and solutions that could potentially cost 5,5% of global GDP by 2050.

Considering this scenario, we need new models to allow us to change from linear to circular economy. One alternative is to implement more sustainable life cycles that allow us to reduce negative externalities and waste, increase recycling and the efficiency in use of natural resources and a reduction on energy use.

The following paper describes a project requested by ARPAM (Agricultural Plastic Waste Association of Mexico). It comprises the implementation of activities in order to reduce plastic waste through increasing it recycling. Traditionally the agricultural sector has prospered in areas where natural climate and resources are optimal. Therefore, creation of protected systems of culture was impelled (greenhouses) turning unproductive earth into highly profitable agricultural operations. At present time, protected agriculture covers 20.000,00 hectares in Mexico. Although this has allowed an increase in productivity, it created a big problem: 320.000,00t/year plastic waste. Before project implementation, less than 10% of the agricultural plastic waste (just 24.000,00t/year) was recycled in Mexico (in ARPAM associates facilities). Furthermore, the common practice in rural areas is to burn all plastics that cannot be recycled in order to heat poor households. This action produces highly toxic amounts of atmospheric emissions and has a big impact in health of this people.

Project objective include standardizing existing facilities in order to increase recycling capacity and producing electricity with wasted plastic that cannot be recycled.

As results of this project, we will:

- Increase the plastic recycled in Mexico, generating new plastic film, transforming a waste into a new product.
- Generate 110 MWh, facilities would go “off grid”. Energy cost represents 80% of total cost in recycling facilities. New Mexican Energy Law gives opportunity to plastic recyclers to reduce electricity consumption costs through it own renewable energy production
- Reduction of over 5 million tCO<sub>2</sub>e/year through recycling and 400.000,00 tCO<sub>2</sub>e/year through electricity generation,
- Reduction of 1 billion US dollars of GDP invested in GHG reduction by 2030 and
- Creation of 1,5 million of new jobs.