“Production of biodegradable and compostable bags, waste management and Plant for the production of compost”

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Focus Themes:
Technology and value addition

To which sector/s of agribusiness does the solution apply? :
Processing

Please describe the solution /project. :

The actual project aims to:
- Introducing bio-plastics in South America as a biodegradable and compostable option to replace polyethylene bags. Construction of a plant for the compost production.
- Manufacturing of biodegradable and compostable bags through the technological restructuring of a factory whose plant has been taken over by a workers cooperative after bankruptcy
- Launching an educational campaign, promoted by a non-governmental organization, aimed at: raising awareness on environmental damages derived from the use of non biodegradable plastic bags; the promotion of waste reduction, separate waste collection, composting and recycling.

The question of how to deal with waste is not a problem of a singular country or a particular community. Indeed, it is a global problem and the right solution to it must necessarily involve not only different social actors but also different resources, technologies, and values such as solidarity and respect.

We have been generating waste so rapidly, that stop and think what to do with it still constitutes a pending issue. In South America, thousands of plastic bags are given out for free each day in every supermarket. Made basically from oil and gas, these bags could be recycled in less than 1%. It is much more expensive to recycle a plastic bag than producing a new one. The total degradation of this kind of bags could take years.

Believing that these bags are for free is a huge collective illusion. We pay every single milligram of these bags at a very expensive price. We pay for the manufacturing of each bag. We pay so that after using it, somebody takes care of it. And we pay when this product ends on the river bank or blocking a storm drain or, in the best of all alternatives, when it is recycled and then turned into a new plastic bag.

Over the last 35 years, plastic is the waste component that has seen the most significant growth. Damages to the environment caused by petropolymers are huge. The United Nations Environment Programme (UNEP) has conducted a study where lots of photographs have been taken showing thousands of miles of seas and oceans around the globe. The conclusion is awful: there are 18 thousands of plastic waste every square meter of salt water. In Argentina, in 2006, 13,5% of total waste was plastic, mainly polyethylene plastic bags.

At the same time, each person generates per day approximately one kilo of garbage being 60% of organic origin. It is important to elaborate a recovery system and appraiseement of the organic waste. Composting is the sustainable solution and consists on fermenting a mixture of residuals organic vegetables and animal, of what a homogeneous (compost) product of granulated structure is obtained that can be incorporate to the soil to improve its characteristics and structure, increasing the abundance of fertilizing elements.

Argentina possesses 34 million hectares dedicated to cultivation that must be fertilized. Still, there are alternatives ahead. The main challenge is reconciling environment and industrial development

What problem or market opportunity did it address? :

In Argentina, there is no supply of biodegradable plastics from corn starch or other vegetable origin substances. Even if public policies have not shown a clear and firm decision as regards solving the problem of urban waste, bioplastics turned into biobags give a net advantage to environmental care and waste management, being as well a business opportunity for the country.

A recent law from the Province of Buenos Aires foresees the elimination in the Province of non biodegradable bags.
How was the solution developed?:

In 2005 bioplastics of agricultural origin are presented at Interpack Fair (Germany) as a future market. The positive perspectives for bags made of renewable raw materials were based on many reasons, among which the high oil price stands out.

In order to make it possible for emerging countries to use bioplastics material it was necessary to wait until prices were more accessible. Bioplastics market has been recording a dynamic growth of 20% per year and the price has been constantly falling to the point that nowadays it has become a feasible option in also in some developing countries.

What were the implementing stages of the solution?:

The project will be divided into two stages:
- first, TriTellus Srl will acquire and process raw material Mater Bi from Italian Novamont SpA, at a small scale, manufacturing biodegradable and compostable bags which will meet EN 13432. NGO Ecooperar GA will acquire the bags produced and will also launch an educational campaign aimed at raising awareness on environmental benefits derived from separate waste collection and composting. In the meantime, a pilot plant for the production of compost will be constructed. Municipalities and trades began to substitute the polyethylene bags for biodegradable ones as it demands the law.
- secondly, a major output of biodegradable and compostable bags will be achieved through the technological restructuring of a factory taken over by a workers cooperative after bankruptcy.

What challenges had to be overcome?:

This project is to be implemented and due to Argentine economic conditions, the main challenge will be obtaining funds.

What are the main outputs / outcomes of the solution?:

As regards the main outcomes of this solution, we can envisage it as an important contribution to create a more positive waste culture in Argentina: from choosing products that have biologically degradable packaging and products that can be used productively and also recycled, to the point of looking for ways of producing and using goods that stop waste being generated. This can be translated into:
- optimizing resources use in order to reduce the amount of waste produced by the local society;
- changing the mindset in the management of waste, moving away from a waste disposal mentality towards a materials management mentality in which waste is recycled, reused and minimized;
- helping a case of a bankrupt factory in Argentina occupied by its workers and restarted on a collective worker-led basis;
- improving the quality compost to be sold and mainly used to enhance soils, in other words, the project contemplates to supply the recycled material to local sectors such as agriculture, forestry, vineyards, parks, fruit farming, and also private gardening, ornamental gardens, parks, etc.

What are the lessons learned in implementing the solution? What factors were critical for its success?:

According to the experience in Italy, Castiglione Olona, Varese, a critical factor is education. A wide spread of solutions of the kind of the one presented is linked with the habits/ways of living that can reduce the amount of waste and prepare people to think about re-use/recycle of the waste material. For this reason, the project foresees to work in primary schools to help to build the culture of the rational use, saving and recycling.

If there are other solutions to a similar problem what makes this one different?:

There are no similar solutions.

How long was the duration of the project / how long was required for the solution?: 2 / 4
Being linked to a cultural change, this is a long term project even if some results can be seen in a shorter period with the substitution of supermarket bags.

**Which institutions / organizations are supporting the implementation of the solution?** :
*Private sector associations*

Please name:

TriTellus SRL, NGO Ecooperar Gestion Ambiental

**What are the key areas of impact?**:
*Social*
*Trade*
*Productivity*
*Employment*

**What was/is the budget allocated to design/implement your solution?**:
-10.899.345,92 USD

**How was the solution financed?**:
Private sector

**Were alternative sources of finance considered?**:
Yes

Please Specify:

Local/national government

**How can the sustainability of the solution be ensured?**:

The demand for biodegradable bags was created by a recent law of the Province of Buenos Aires that constrains the users of the bags (e.g. supermarkets) to replace the traditional bags with biodegradable ones. This law is in the process of being implemented. This demand will cover the cost of the production and will allow the recovery of the investment.

Besides the sale of the compost, in the future is hoped to diversify the production guiding it toward products of the type mulch film.

**Is there a cost recovery scheme in place?**:

Yes

**Are beneficiaries able / willing to pay for services?**:

The benefits are for the whole society (pollution reduction) and there will not be a direct cost to be paid for them. The biodegradable bag will be bought by the supermarkets that will be applying the new law.

**What are the future plans for the implementing institution?**:

The second step is to locally produce the raw material needed for the production of the bags.

**Are there expansion plans for new services – new potential beneficiaries?**:

The company is already working to improve the composting techniques the get a compost of better quality that will have more economic value and that might have better agricultural benefits.
Can the solution be replicated/scaled up to cover other areas/regions/countries/groups/products? :
This solution could be replicated first in other Argentinean provinces and then in all South America.

Does the solution model offer opportunities for South-South cooperation? :
Yes

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