

POLITECNICO DI TORINO
 FIRST SCHOOL OF ARCHITECTURE
 Master of Science in Eco-efficient Product Design
Honors theses

The landfill near Brasilia. From problem to occasion of development

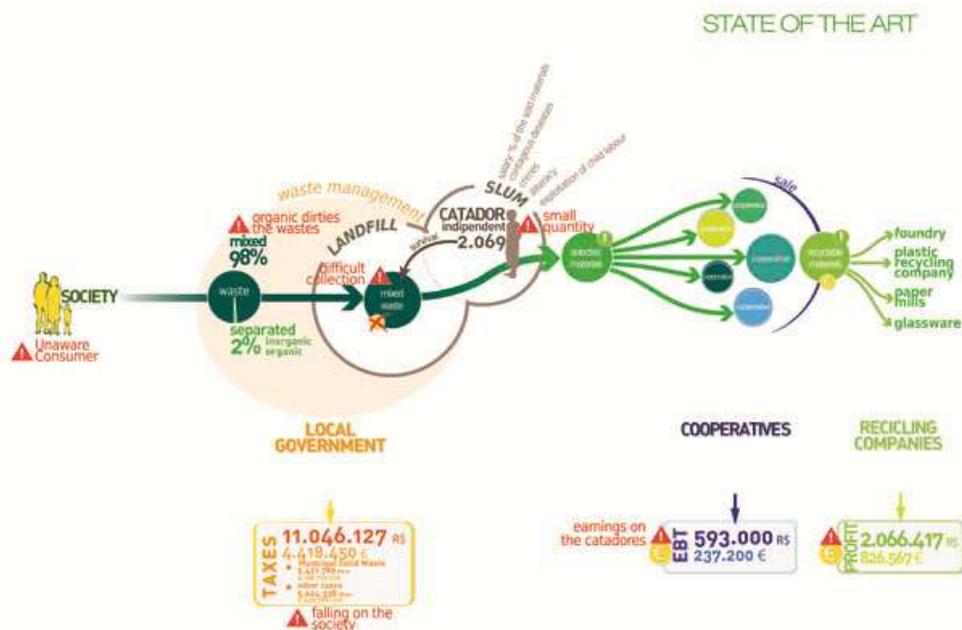
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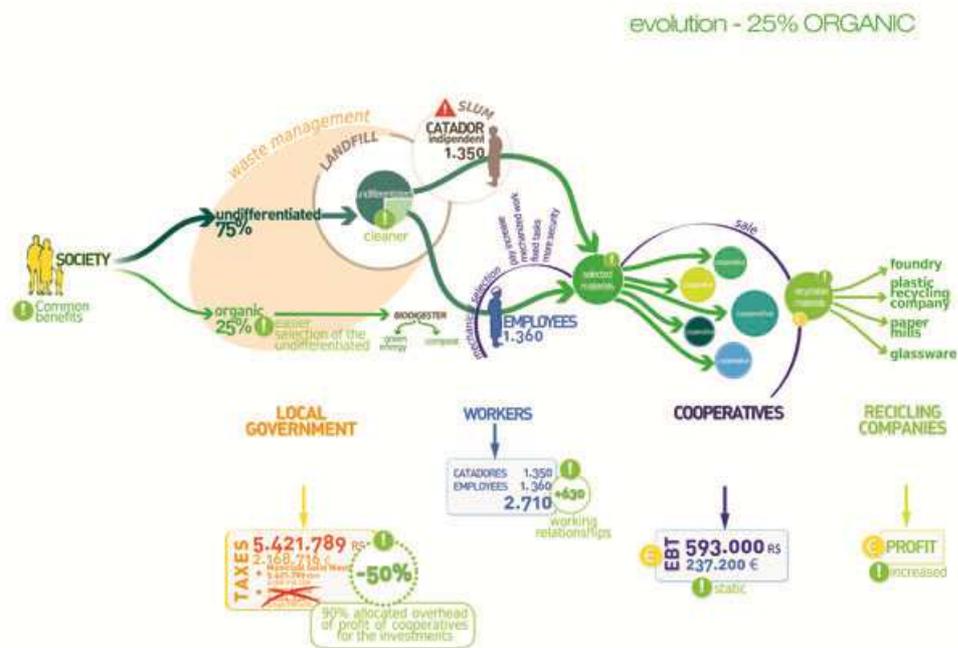
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Nowadays garbage can be considered as indicator of the habits of consumption in the society we live. The problem is going up all over the world, in particular in a strong rising economy such as the Brazilian one. The composition of wastes shows that the citizenship does not recognize the environmental and economic problems linked to the production of goods that first before will be buried.

Object of the analysis is the landfill near Brasilia, next to the slum called Estrutural. Here, every month a huge quantity of garbage is buried, 98% of which comes from mixed waste collection. The wastes are sorted and processed: organic compound turns into compost, while the inorganic part and the not processed one proceed to the landfill. Here the catadores, in independent groups, choose the recyclable wastes bare-handed and separate out the materials in order to sell them, through the cooperatives, to the recycling companies. Economically the citizenship contributes both in a direct way, with the Urban Solid Waste Tax, and in a indirect way, since the municipality makes conveyances in the balance sheet in order to cover the management costs. The actors in the systems are not linked: on one hand the citizen ignores the effects of the wastes, on the other hand the catador lives in the slums and works in difficult conditions, socially excluded.



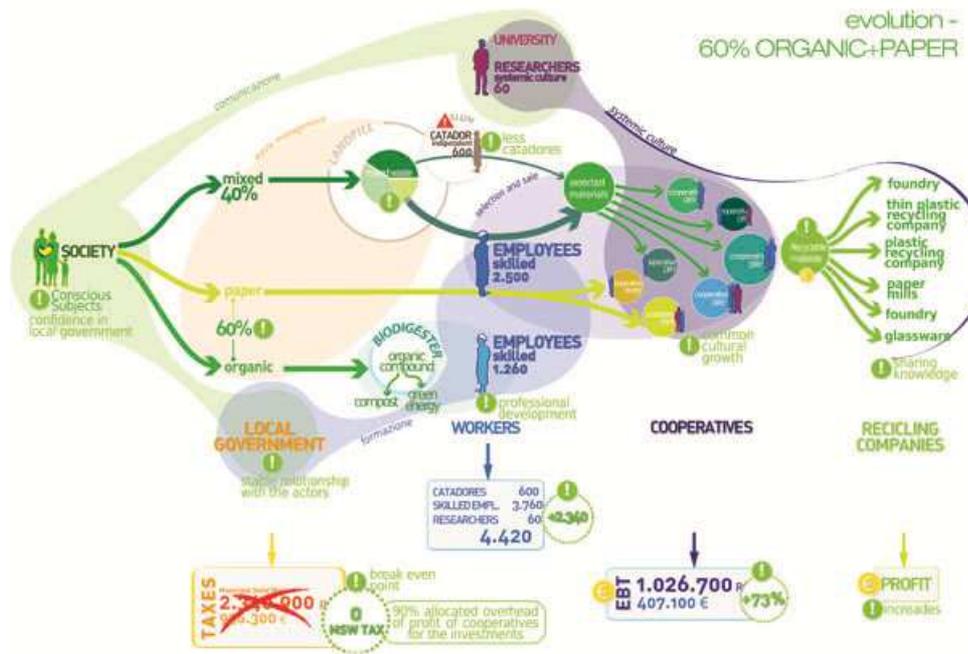
Analyzing the critical issues in the state of the art emerges that the main problem is the organic, which dirties the mixed wastes and makes more difficult the separation of the inorganic part, in order to re-enter in the recycle chain. It is necessary for the Brazilian institutions to understand that changing the approach in the waste management the territory can grow. Thus, designing a scenario of separate organic collection for a 25%, through investments of the municipality together with the cooperatives in separating the materials mechanically, brings important effects. On the economic side we have USW indirect taxes lowering, thanks to a system of allocating overheads of 90% in the profit of the cooperatives to the institutions, financial backers. On the social side we foresee professional integration of 630 workers with contract (ex catadores).



With this results, it is important to encourage the citizens to the separation of the materials at different levels. Thus, with the separation of the organic and the paper at 25% taxes have a further lowering and the well-framed cooperatives draw up contracts with about 980 workers. It's easy to understand that the bigger is quantity of separated waste, the higher are the economic benefits and the social dynamics moved.

Separating organic and paper on 40%, the cooperatives start to earn much more money (+17%) that can invest in education of their workers. The growing economic and social benefits will be communicated to the citizenship. A scenario of 50% foresees a strengthening of the social consciousness of the value of the wastes and a specialization of the workers in the cooperatives. The higher profit allows the cooperatives to invest in research together with the university, in new technologies and recycling processes in a systemic way.

Finally, on a 60% we estimate a definitive cut of the USW taxes and a strengthening of the earnings through the whole recycling chain. In a social context, the workers included have increased of 2340 persons and now they work in a safe and innovative context. The citizen looks at the waste as a resource, acting as a conscious subject linked to the institutions, to rising professional figures of systemic culture.



In conclusion the evolution starts from conscious choices made on the territory in terms of re-using the resources and in terms of relationships between the actors, in order to design a new scenario of cultural changing from a systemic point of view, desirable for future generations.

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