



## CHAPTER 7. STRATEGIES AND RECOMMENDATIONS

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## 7.1 Measures towards improving waste management in Jiutepec

### Education

There are several key points that run throughout the case study analysis and must be implemented in any actions toward improving waste management in Jiutepec. The most important and feasible step involves education campaigns to the general public.

Programs providing knowledge on the importance of a clean environment to the people of Jiutepec (especially targeting children and women) are a key to a successful waste management plan. Educational initiatives have a great impact in raising the level of commitment of locals. This is suggested by the positive results obtained during former campaigns. Thus, with proper understanding, residents could take more responsibility in the development of their town and find different means to resolve their sanitary problems.

**Street cleaning and public hygiene**

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**The production of flowers is one of Jiutepec's economical force.**



The importance of education campaigns in low-income areas is stipulated in a large number of international agreements. For instance, The UNESCO views education as “the most effective means that society possess for confronting the challenges of the future” (Unesco cited by Weingaertner, 2003). This suggested the need to put education forward in any sustainable actions.

If education shall be the pillar of environmental awareness strategies in Jiutepec, the question remains on how to properly educate? The most effective ways to provide knowledge to people in issues of protecting nature and waste minimization are not always evident. The previous analysis has demonstrated that Jiutepec’s population is mixed, mobile and active. This means that educational campaigns must be continuous and flexible to fit the profile of groups such as illiterates, senior citizens, children, and women for example.

Another key point that should be raised is the need to make more clear, and easier to understand the processes of waste management to the general public. This will allow people to see the effort and processes behind the collection and disposal of their waste, to be aware of the volume of waste they produce, and have a closer look at the impact of the waste they produce in their natural environment.

There are a number of success stories related to alternative waste management in small communities that can be shared by key info spreaders. The media diffusion of other positive approaches concerning waste and the impulse for community participation is a key for building a good outlook towards waste. The underlying principle of shifting waste as a problem to understanding it as a valuable resource will be of great benefit to all members of the community of Jiutepec. In general the response to environmental programs is positive in the municipality.

The following outlines ideas on waste education strategies for Jiutepec:

- Cultural activities promoted and set up by local youth to motivate and promote waste separation in public areas
- Guided visit to a composting plant, a separation/transfer center and dump site to targeted groups such as schools,
- Training teachers, media groups and social leaders through a waste awareness leadership program
- Establish sustainable programs similar to “*los Grillos*” and create neighborhoods cleaning programs involving competition
- Involve religious groups and senior citizens to take part of waste awareness campaigns.

The environmental benefits from improving education not only at schools but also through awareness campaigns are numerous:

**Box 5. Environmental benefits from improving education**

The improvement of the esthetic of the city may be heightened in short terms  
Basis for cleaner environment due to reduction of water and soil contamination  
Problem related to flooding may be reduced due to less waste in watersheds  
The volume of waste processed is reduced - waste transportation can improve  
Reduction of emission of particles through waste transportation.  
Reduction of the amount of waste in landfill and dump sites  
Reduction of gas emission through less anaerobic processes in dump sites and landfills  
Reduction of risks of leachate in soils

### **Promotion of source separation and separate collection**

The separation of organic and inorganic waste at the source is an important factor for the successful diversion of biodegradable waste from dumpsites and landfills. In general, waste separation at home raises awareness regarding the volume of waste generated and helps developing a sense of responsibility toward the environment.

Ongoing practices of waste separation in Jiutepec must be acknowledged and encouraged. The key actors for the task are waste collectors. They have direct contact with residents and have a real notion of the volume and type of waste produced in different areas. With proper training, collectors in Jiutepec can become a major force to help establish good practices in neighborhoods. Specific environmental benefits from source separation are as follows:

#### **Box 6. Environmental benefits from source separation**

Reduction of the amount of waste in landfill and dumpsites  
Reduction gas emission  
Reduction of risks of leachate in soil

### **Training program for private contractors**

The involvement of the private sector in waste collection in Jiutepec is inevitable. Private actors represent a major force in the way waste management is carried out in the locality. A possible approach would be to implement strategies on how to divide collection and transportation tasks. Currently contractors complain about the large distance between their collection routes and the final disposal site located in the Cuautla Region.

Another key approach is to offer proper training to the collectors. Several testimonies of operational hazards while operating show a lack of knowledge in handling the waste. Moreover a special course on types of waste and the potential of recycling material would help them better sort the material loaded in the waste trucks.

Training collectors can make collections services more efficient and may provide the following environmental benefits in the long term:

#### **Box 7. Environmental benefits from training waste collectors**

Reduction of air pollution  
Improvement in soil protection  
Reduction of noise and odor  
Healthy and cleaner lifestyle

#### **Establishment of buy-back centers**

Considering the importance of commercial activities in the municipality, waste with a market value could be put forward by implementing reuse systems through “Buy-back Centres” and promoting the recycling industry focusing on plastic products and all industries within packaging chains.

The environmental benefits from promoting recycling are:

#### **Box 8. Environmental benefits from recycling**

Conservation of energy and natural resources  
Elimination of pollution from the development of new products  
Reduction of noise and odor  
Reduction of waste in watersheds and ravines

### **Greening Jiutepec through compost**

Composting is known to be essential in any sustainable municipal solid waste management as it diverts a large portion of organic waste from dump sites and landfills, contributes to the stability of soils, and enhances agriculture and green activities. The municipality of Jiutepec could benefit from the production of a good quality compost as a means of reforestation and control of erosion. The environmental benefits from composting are:

#### **Box. 9 Environmental benefits from composting**

Improvement of the soil structure and its water capacity  
Protection of soils of green areas in public spaces  
Improvement of the fertility of the land  
Reduction of the emission of methane produced in landfills

## 7.2 Framework for sustainable waste management

The complexity and importance of waste management lies in its relationship to land use, social behavior, regional development, economy, political actions as well as environmental issues. The following recommendations are relevant for developing countries in the region of Latin America. In this part of the world, communities dealing with waste issues are, at some point, subject to misconceptions about the cost of waste in households and businesses, irregular waste trends between regions, and misleading information on waste data.

There are several factors affecting waste management in Latin American communities such as the one seen in the case study:

First, the composition and amount of waste is particular to those communities and must be taken into account. The waste contains a high proportion of organic material. The moisture level is high, which make the refuse dense and heavy. This has consequences in the capacity of the vehicles used for collection. They must be able to carry the weight of the waste and capture the leachate in order to reduce environmental hazards.

Second, waste collection coverage must be improved if goals are to reduce the amount of waste that ends up in slopes and ravines. The identification of illegal settlements and the provision of decentralized solutions to reduce the environmental impact in remote localities must be taken into account.

Third, public awareness and behavioral changes play a key role in waste management. The first steps towards sustainability start with attitudes in households. The success and failures of waste management also depend on the level of knowledge that people have and their level of well-being.

Women and children play an important role in that regard. Statistics show that women begin to have an advantage over men in literacy and they control the hygiene of their immediate circle.

Lastly, the institutions play a central role in waste management. However, the idea that local governments alone can solve any complex problem of cities is no longer valid. Local authorities must therefore learn how to effectively work with private partners. They must improve their monitoring activities and ability to measure or manage performance.