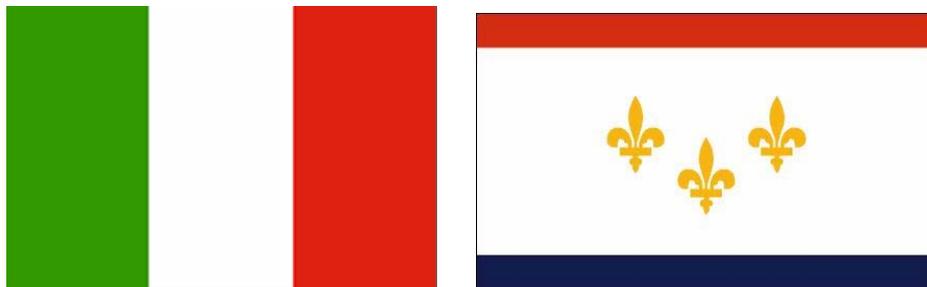


Italian Environmental Approaches and Applications for New Orleans



By:

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I. Introduction

Over the past semester, our Italian class took on the task of investigating environmental problems in Italy and how they are addressed in order to make comparisons and suggestions for the city of New Orleans. After Hurricane Katrina, New Orleans is certainly in need of assistance in terms of managing environment issues, and by looking at the successes that cities in Italy have had, we hope that similar policies could be implemented in our own city. We were able to successfully integrate studies of the Italian language into this project as well, doing most of our work actually in Italian.

In order to obtain information about Italy, we used many methods of research, some of which were interactive. We initiated communications with students from an Italian high school (Liceo Cornaro) and also students from the University of Padova. Both schools are in the Veneto region of Italy, and this region provides an excellent comparison to the New Orleans area.

For communication with the high school students, we used the website “wiki”, which is an interactive blog with pages for discussion. We would ask the students questions about our subject matter in Italian, and they would respond in English. This provided us a means for helping each other out by correcting the written work we had done on each page. All of our discussions are saved on the website, <http://tulanecornaro.pbwiki.com/>.

For communication with the university students, we used an online communication tool called “skype”, where we were actually able to speak to our discussion partners over the internet. This reinforced our conversational Italian, whereas the previous communications clearly reinforced our writing skills.

Other research work included using websites to find information on the general topics. We discovered that there is an historical “North-South” division in terms of environmental issues in Italy, which can be loosely compared to the United States. Northern Italy is more advanced and progressive in terms of taking action, while Southern Italy typically lags behind in the process. We also reviewed several Italian and European laws that were implemented throughout the years, such as the Kyoto Protocol, the Ronchi Decree, and the Clean Air Act. With the review of such policies, we also looked deeper into political implications of environmental problems, such as the imposition of taxes to fund environmental improvement processes and research.

Finally, much of our information came directly from guest lecturers who came into the classroom and told us about various topics. Most of the presentations were regarding the current situations in New Orleans, but a few of them did actually involve Italy. Many of those who came in and spoke to us already had interesting ideas for improving our city, and they were quite enthusiastic to further the motivation for action to occur.

II. Recycling

The Decreto Ronchi:

The Decreto Ronchi is a law passed in 1997 in order to reduce the amount of waste that was steadily building in the country. Between 1975 and 1995, approximately 13 to 26 million tons of garbage had built up in Italy. Governmental officials were concerned that this number would grow out of control particularly because of the small size of the country. The minister of environmental affairs of the time, Eduardo Ronchi, initiated the law. It became the strongest movement for the environment in Italy. In addition to requiring everyone in Italy to recycle, the law also decreased the abuse of waste yards and the management of garbage by the Ecomafia. There are many articles of which include the various types of waste and the proper way to discard each one. These articles also provide guidelines for the citizens in Italy. This includes how to reduce the amount of waste, how to reuse as much as possible, how to recycle properly and how to recuperate in order to produce various types of energy.



Figure 1 "I don't throw away. I recycle!"

The Differential Collection System:

The differential collection system was set up when the Ronchi Decree was passed. Within 10 years of its initiation, 90% of the citizens in Italy were using differential collection. The system is set up so that all trash must be divided into separate bins. This includes glass, plastic, aluminum, "green waste" and compost. There is a reduction on taxes for those who have their own containers to transform compost into fertile soil. The principal objective of this system is to reduce the amount of waste produced and reuse the most possible. A huge part of the success of this program is education. The citizens of Italy are taught at a young age the importance of recycling and its effects on the environment.

There are two ways that recyclables are collected. The first is street collection and the second is door to door. In street collection, citizens must bring their trash to the different types of containers. The disadvantage with this type of collection is that

contamination is inevitable, occurs often and contaminated containers cannot be recycled properly. The advantage of this type of collection is that people are not held down to specific collection dates. In door to door collection, citizens separate garbage into their own containers. These containers must be placed outside of the door at specific times for collection. The advantage to this is that materials are more likely to be recycled correctly while the disadvantage is that citizens are forced to abide to specific collection dates. Some cities use street collection, others use door to door collection and even others use both. The recycled items go to industrial plants where they are either turned into new things or used to produce energy.



Figure 2 Citizens bring their recyclables to a main drop-off point and place them into separate bins for later pick-up.



Figure 3 The photos show the street collection that exists in Italy. Each container is used for a different type of material.

Termovalorizzazione (Incineration):

‘Termovalorizzazione’, which translates to incineration, is a form of biomass that is increasingly being used in certain regions of Italy. The process uses garbage materials in order to produce heat and energy sources. In order for the process to work successfully, however, the garbage must be separated and treated before it can be used to produce such energy and heat. Incineration functions as an alternative to landfilling and biological treatment methods such as composting. In the year 2005, 64% of electrical energy produced in the process of Italy was done so in this manner. The potential of electricity generation using municipal waste combustion and other non-thermal methods of waste-based energy such as anaerobic digestion are being increasingly looked at as a potential energy diversification strategy. Although the process adds to feasible energy resources, it also contributes adversely to the cleanliness of the air. Incineration has a

number of outputs such as the ash and the emission to the atmosphere of combustion product gases and particulate matter. Thus, the paradox of what becomes the lesser evil in terms of environmental issues is created. Do we sacrifice the cleanliness of the air in order to provide alternative energy? Since the process is relatively new, it is hard to determine whether it is completely feasible and worth taking such a risk to have it maintained.

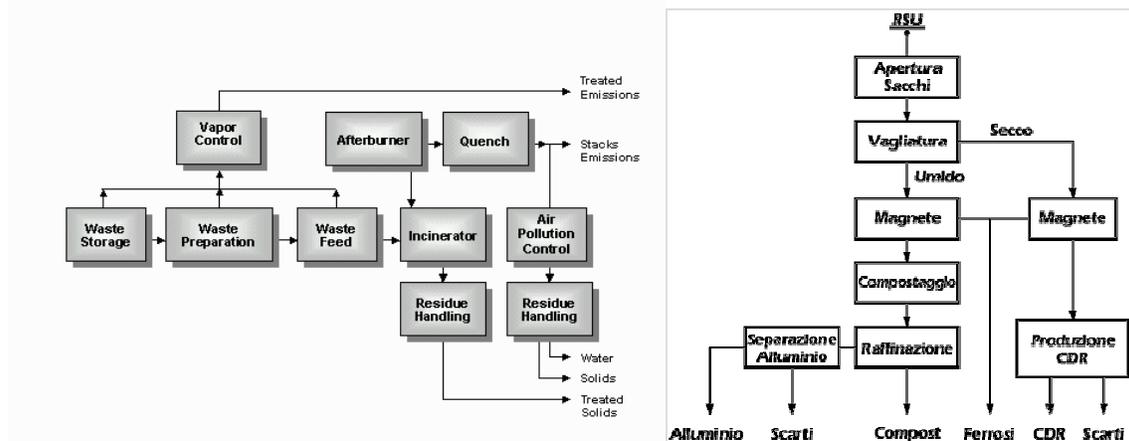


Figure 4 Termovalorizzazione Process. These charts demonstrate systems for reusing refuse and creating usable or cleaned materials.

Other Areas of Interest:

Italy has always had strong recycling programs, especially in its northern regions. The country is the world leader in recycling dangerous wastes, and encourages its people to recycle through various means. Small taxes are imposed which help funding for the recycling movement, allowing for recycling processes to be maintained. The taxes are directed to households, and varying depending on the number of individuals living in a household. They are based on two principles: the size and space of a household, and the amount of refuse to be recycled per year.

Comune di Padova - Tariffe gestione rifiuti urbani - Anno 2006

UTENZE DOMESTICHE (non comprensive di IVA 10% e add. Prov. 5%)	Quota fissa €m2	Quota variabile €/anno
Utenze abitative con numero componenti 1	0,41	48,622
Utenze abitative con numero componenti 2	0,48	87,883

Utenze abitative con numero componenti 3	0,53	97,344
Utenze abitative con numero componenti 4	0,58	107,015
Utenze abitative con numero componenti 5	0,62	140,826
Utenze abitative con numero componenti 6 o più	0,66	166,000

Figure 5 Urban Recycling Taxes in Padova.
Taxes are based on the number of people in a household.

The “Legambiente”, an environmental protection group, also gives special awards to regions of Italy that have typically high participation rates in recycling. This motivates citizens to recycle more, in that it gives their areas of residence a certain sense of prestige and environmental awareness that they would like to maintain. Integration with the European Union also provides regulations for Italy to participate in recycling behaviors, in order for the country to maintain a healthy status among its neighbors.



Recently, corporations in Italy have also become aware of the need for recycling. Italy has started a new trend of “ecologically correct” clothing lines, used by such prominent manufacturers as Giorgio Armani, Levi Strauss, Gap and Nike. The main focus of these clothing lines is to produce organic jeans, which use recycled zippers and buttons and entirely all-natural materials. The packaging in which the clothing lines ship these items to storefronts is also made from recycled materials.



The city of New Orleans could certainly learn a lot from Italian cities in terms of recycling. Before Hurricane Katrina, there was a better recycling system in place that accepted a wide variety of materials. Following the hurricane, there is no central city-wide recycling program, and currently no plastic materials are being accepted. Smaller scale recycling movements have been emerging throughout the past several months, however, it is necessary for the implementation of a unified system in order to achieve successful results. The disaster produced much refuse that has nowhere to go, and it would be much more beneficial for the city to be investigating means of legitimate recycling rather than turning to landfills and endangering Louisiana's wetlands. Although certain recycling processes pose the problem of being too costly, it is essential to seek out less expensive methods to be put into place.

III. Renewable Energy

One of the worst environmental problems in the world, and one with major effects on New Orleans and the rest of the Gulf Coast, is the current energy crisis that we are facing. The consumption of fossil fuels has quadrupled since 1950, and experts warn that in the best case scenario we only have some 50 to 70 years before we exhaust global oil supplies. This use of fossil fuels is a significant cause of global warming, which threatens to raise sea levels by up to several feet. If sea levels rose even one meter, New Orleans and the rest of southern Louisiana would be in grave danger. Thus, it is imperative that we join the search for new sources of renewable energy that will limit dangerous emissions and slow global consumption of unsustainable energy sources.

The major types of renewable energy are solar, wind, hydroelectric, geothermal, hydrogen, and biomasses. Each has advantages and disadvantages, but with our research and considering the geography and situation of the city, we feel that solar energy and biomasses can be used to great effect in New Orleans.



Figure 6 Wind turbines harnessing a renewable source of energy.

Solar energy is an inexhaustible source of energy that can definitely be harnessed here.. It is harnessed using solar panels that are composed of silicon cells that convert energy radiated by the sun. The photons from the sun strike the cell and move the electrons in the silicon, and this movement creates energy that can be used as electric or thermal energy in buildings or homes. A solar plant can last up to 25 years and limits dangerous gas emissions normally created in power plants. It is also possible to use stand-alone solar panels, such as those used in some cities in Italy atop outdoor light poles rather than having to wire them into a system. Solar panels can also be worked into a building so that they are an integral part of its architecture, rather than an afterthought.

Italy is fourth in Europe for use of solar energy, and although it seems expensive for the government to fund solar projects, a small energy tax has been instituted in Italy that has gone very far in reducing governmental costs. It is about .0017¢ per kwh used (compared to 8-10¢ per kwh, the average price of electricity for a household in New Orleans). Regions are also providing incentives for installation of solar panels on buildings, such as paying a percentage of installation costs or of costs for plant construction. Some banks give incentives to companies for using renewable energy sources, and another important element of renewable energy use in Italy is the fact that education begins in elementary schools on sustainable energy sources. Solar power in Italy is used to provide electricity to rural and mountainous regions in the south, and there are many examples of solar power usage in Italy, including on water-pumping devices (especially for agricultural use), systems of illumination, signs (on streets, at airports, and in ports), radio antenna towers, and meteorological and seismic data collection stations. Cornaro High School, for example, uses solar panels on the roof to lower energy costs.



Figure 7 A Solar Paneled Roof



Figure 8 Solar Powered Streetlight



Figure 9 A Solar Power Plant



Figure 10 A Solar Paneled Overhang

There has also been a lot of research in the arena of biomass, substances of biological origin that are no longer being used. These come in three forms: biofuels, biopower, and bioproducts. Biofuels are oils or other liquids that can be used for energy—for example, with the fermentation of organic refuse, ethanol can be produced, which can in turn be used in motors instead of gasoline. The materials of biomass decompose in various ways to produce electric and thermal energy, and these are biopowers. A digester of vegetable and liquid refuse produces a biogas for use as fuel, heat, or an energy source. Biomasses that are broken down into chemical composts create bioproducts. Using the idea of biomass for recycling organic refuse is important because organic refuse is one of the largest sources of trash, so recycling it reduces the amount of waste going into landfills. Italy promotes biomass use with incentives to farmers to produce biomass, regional promotion of wood biomass use, creating biomass plants to recycle waste, and education campaigns. As such, biomass along with solar power would be an important use of renewable energy in New Orleans.



Figure 11 A digester for decomposing biomass into usable forms of energy.

IV. Water Problems In American and Italian Perspectives: The City of Venice



Figure 12 Two photos of Saint Mark's Square in Venice while flooded, which occurs more than 200 days annually.

The problems in Venice are easy to compare to the problems of New Orleans and the Louisiana coast because like New Orleans, Venice is sinking. Instead of being built on a swamp, Venice is in a lagoon, but the similar problems still arise. We are losing coast at an alarming rate, which will only expedite the sinking of our city, and Venice is faced with a comparable problem. Since 1897, Venice has lowered six inches, and the sea has risen three inches as well, causing the city to be bathed in sea water far too often, approximately 200 days each year. After the flood of 1966, the issues of Venice came to the forefront, and numerous laws were enacted which called the “safeguarding of the Venice lagoon a matter of ‘preeminent national interest’ and linked its physical protection to the restoration of environmental balance and socio-economic development as a whole. The laws addressed the threat that high waters, sea storms, erosion, pollution, socio-economic changes, fragile urban structures impose on the well-being of the lagoon and its populated areas.” To combat these problems, the system of interventions delegated to the state include:

- 1. Environmental defense:** securing the banks of polluted canals, improvement of water and sediment quality
- 2. Environmental defense:** protection and reconstruction of mudflats and salt marshes habitat and structure
- 3. Defense from high waters:** local defenses of urban centers
- 4. Defense from high waters:** MOSE system - work to regulate tidal floods
- 5. Control and management:** studies, surveys, monitoring, data bank
- 6. Defense from sea storm:** beach and dunes reconstruction (from “SAL.VE” website, <http://www.salve.it/it/default.htm>)

Venice also suffers from coastal erosion, which it seeks to counteract with sea walls with some success, but the areas that do not have sea walls are still vulnerable to erosion. In addition, Venice has constructed outer jetties, which have diverted the currents that brought in sand to replenish the beaches. As a result, there is unnatural build-up at the ends of the jetties but no equal distribution of sand, and they have inadvertently increased erosion overall due to a complicated circulation pattern that they cause.

The MOSE Project is another phase of the improvements, and it consists of 78 mobile steel barriers built at three points outside of the lagoon. Each barrier is up to five meters wide and 28 meters high. Under normal conditions, the barriers will lie on the sea bed, filled with water. When extremely high tides are forecasted, the barriers will be inflated with air to create a dam and keep the waters from invading the city. Some environmental groups are concerned about the effects of closing off the lagoon because they are worried it would cause the lagoon to stagnate and hurt marine life, but the project is still being carried out.



Figure 13 Locations of MOSE barriers



Figure 14 Aerial image of the lagoon of Venice

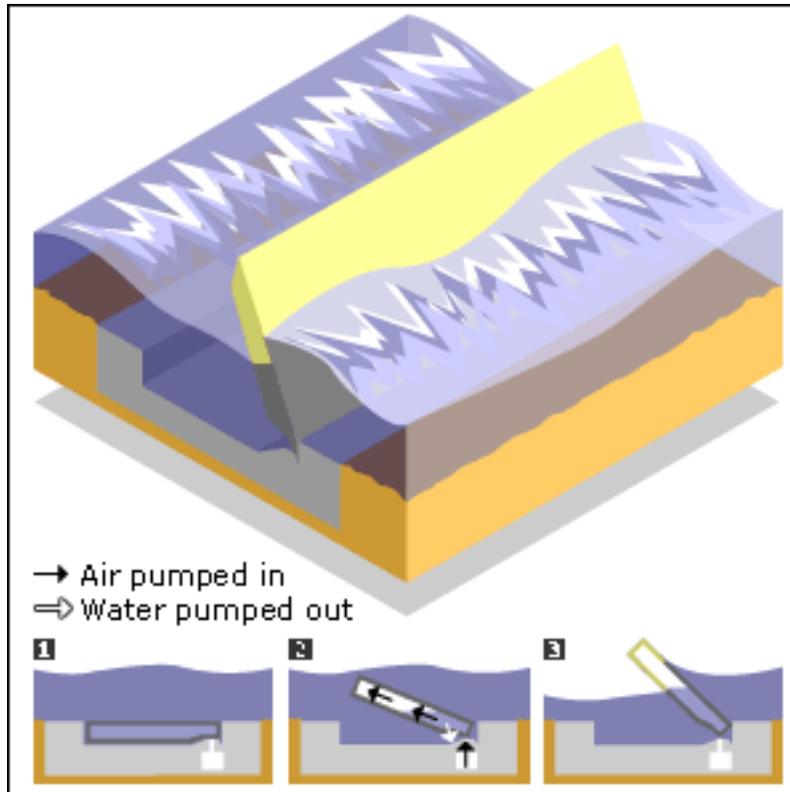


Figure 15 Operation of MOSE mobile steel barriers

V. Conclusion

There are clearly many parallels between cities in Italy and the city of New Orleans in terms of environmental issues. By looking at the examples of resolutions Italy has created, New Orleans may be able to adopt policies that will improve the general wellbeing of the city.

We determined that the implementation of education systems regarding the environment is vital to the city. In Italy, the youth of the nation are educated about the environmental issues of their country from an early age. This inspires all generations of citizens to be proactive in the fight to maintain a healthy and stable environment to live in. The Liceo Cornaro high school in which we had correspondence with has specialty classes on the subject matter, and the students even dedicate some of their vacation weeks to actively improving their area. One of our classmates proposed the plan of working with New Orleans public schools to create recycling centers similar to that which Tulane University has. Such a program would promote education and awareness among youth here in our city, and would also provide an easier way for all citizens to participate in city recycling.

Along with education and awareness, we also need action to be taken. We cannot just simply develop theories and plans for improvement and not follow through with them. It is necessary for the continual lobbying of politicians to implement change and

then execute it. Especially after Hurricane Katrina, New Orleans and the rest of Louisiana are in dire need for efficient politicians who can develop programs of environmental restoration so that our city will not be so vulnerable in the event of other disasters.

On the local level, it would be beneficial to involve more businesses in the preservation effort. Some businesses are significant contributors to environmental problems, and working with such industries by compromising on certain regulations could be a big step in improvement. Large businesses also can access large amounts of capital, money which could be used to fund some of the proposed programs and efforts. Some regions in Italy provide incentives to citizens to use environmentally conscious products and processes, which could also allow for local improvement. For example, some Italians use solar panels and other sources of alternative energy due to these incentives given.

New Orleans should look into the possibility of recycling biomass and using the waste that is prevalent throughout the city. A method in allowing this system to work effectively would be to provide incentives to farmers in the agricultural sector to persuade them in doing so. This also calls into question the problem of funding sources, which is often the foremost impediment to plans of action anywhere.

Not only must there be awareness at local levels, but on the national level as well. With a strong national interest in the rebuilding effort of the city, much more can be accomplished in a shorter amount of time. The Italian government has shown such an immense national interest in preserving the city of Venice, and the United States should make a similar parallel with New Orleans. As in Italy, the United States should also consider making more government funded initiatives available. The MOSE Project of Venice, although effective, proved to be quite costly, which would again impede the use of a similar process in New Orleans. The government can, however, impose small taxes to its citizens that allow for additional funding sources. By creating even the slightest tax, results in funds would be present.

Everyone must work together in order to maintain the environment they live in and have it available for future generations; New Orleans is no different. The city was faced with one of the most deadly and costly natural disasters, and is still in great need for reform and policy change in terms of halting or correcting certain environmental concerns. By viewing the successes of cities in Italy, New Orleans can adopt whatever policies necessary and modify them to fit its rebuilding effort. This just reinforces the notion that we can all learn a lot by listening to each other and working together in search of a common goal.