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Títol de la tesi	Análisis de la gestión de los residuos municipales generados en un entorno metropolitano utilizando un enfoque multicriterio.
Unitat estructural	Enginyeria química
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(Mínim 1 i màxim 4, podeu veure els codis a http://doctorat.upc.edu/gestio-academica/impresos/tesi-matricula-i-diposit/codis-unesco)

Resum de la tesi de 4000 caràcters màxim (si supera els 4000 es tallarà automàticament)

In Chapter 1 of the thesis the responsibilities of the main actors involved in the decision-making are identified, listed and described, stressing that there are many actors involved in the decision-making. Also, there is a description of the main stages of municipal waste management and the various management possibilities. In this chapter, the main hypotheses of the thesis have been proposed: the hypothesis that absolute variation of the municipal waste generation cannot be solely due to demographic factors, other aspects such as the social-economic one would have to consider in order to give an explanation; and the hypothesis that the operations of collecting and transporting waste may represent a high percentage of the overall economic costs of the management.

Chapter 2 is a bibliographic review of the different methodologies available for decision-making and the commercial software tools based on LCA methodology and specific for waste management.

Chapter 3 of this thesis presents the inventory data of the environmental, economic and social criteria, associated with each of the stages involved in the waste management in the municipality of Terrassa. This chapter contains a comprehensive collection of economic, social and environmental data. These data, mainly own-data or literature-data if not available, are geographically associated to the municipality of Terrassa. The data will be used by the tool proposed in this thesis in Chapter 5.

Chapter 4 fills a gap regarding the study of the bio-waste fraction composition. Experimental data suggest that the bio-waste composition (the quality of it) depends on socio-economic factors. The study determined the socio-economic variables which affect the quantity of improper materials in the bio-waste fraction. These socio-economic variables are related to the behaviour of society towards the collection of this fraction. Based on these variables, different mathematical models have been proposed. The ultimate aim of these models is to estimate the content of improper materials present in the bio-waste so that this content is taken into account when designing treatment facilities for such fraction.

Chapter 5 presents the proposed methodology for building the decision-making tool. A mathematical model for predicting the amount of municipal waste generated has been developed taking into account the socio-economic and demographic criteria. This model allows us to simulate the amount of total waste to manage if the capacity of household consumption and/or the inhabitants varies. This model allows us to see what influence the minimization policies on the waste generation have. In this chapter the sustainability objectives (criteria) are defined (environmental, social and economic criteria).

The indicators / sub-indicators (attributes) associated with each of the stages or process units involved in a management model have been defined taking into account the pre-defined objectives.

In Chapter 6 different waste management scenarios have been studied and compared. The following management scenarios have been considered: a base scenario (EB), a waste prevention scenario (ERP) and 4 scenarios economic environment dependent (EE), two corresponding to a pre-crisis economic environment and two corresponding to an environment of economic crisis.

Finally, chapter 7 presents the main conclusions of the thesis and suggests possible future research.

Lloc	Terrassa
Data	2 d'abril de 2014

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