# Introduction

Despite the fact that Latin American countries such as Mexico have taken greater steps into improving their waste management, many communities still face diverse challenges associated with the collection and disposal of waste. Those localities are generally confronted with health problems as well as water and soil pollution partly resulting from the lack of adequate methods for handling waste. Common international agreements signal the need to prioritise waste management in developing cities given that the scope and magnitude of problems regarding waste continue to increase. Waste issues are multidimensional, resilient and pervasive. Effective solutions must come from an array of approaches ranging from technical, infrastructure and engineering, political and economical as well as social, urban and biological.

The effect that waste has on our natural environment and ultimately on the quality of life is still unknown and/or disregarded by many. Waste remains a challenge for waste management practitioners. Most people have waste at the

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bottom of their daily living concerns, giving priorities to issues such as safety, health, food, and money.

In this work, the impact that waste has on cities is explored by giving a holistic view on what measures can be taken in terms of waste management in order to positively influence the ecological condition of urban built environments. This question is based on the premise that waste is intimately joined to human development and must be regarded as an element that can promote the sustainability of mankind and other living species, as opposed to the general view that waste is valueless, forgotten and unworthy.

This thesis explores the ecological potential of waste in urban areas. It looks at the case of the municipality of Jiutepec in the State of Morelos located south of Mexico City. It aims to show the impact of waste in natural environments and will propose a set of guidelines to tackle waste issues in cities. In addition to ideas on how to trigger waste awareness in the general public.

The study is divided into three main sections. The first section gives a theoretical background focusing on the concept of urban ecology and offers a set of parameters to define the ecological conditions of cities. It also features the methodology which was used to conduct the study and the special context of waste issues in the State of Morelos. The second section presents the case study analysis of the municipality of Jiutepec. It illustrates its most important physical, infrastructural, social and political features and takes a closer view on the dynamics of waste treatment by identifying its strengths, weaknesses, opportunities and threats. Additionally, this segment includes reflections on household behaviour, housing structure and education. The last section regroups guidelines on sustainable waste management in Jiutepec and general ideas on making waste part of a global solution for the protection of the environment.

In Mexico few empirical studies are conducted on cities with less than 250,000 inhabitants. This can be seen in the display of documents published by local scholars. Studies emphasis on national trends causing each state to be regarded as a homogenous entity instead of dissecting each municipality to obtain more accurate data.This work hopes to contribute toward looking closely at other localities with similar characteristics as the one exposes in this work. Small entities have been known to have difficulties in incorporating environmental objectives into their local development agenda. This is suggested by Simioni, who points out the deterioration of the natural environment as one of the most visible consequences of rapid growth in Latin American cities (1999).

Global indicators reflect a high population growth in the developing world and the rate of the provision of services fails to keep up with urban growth patterns (Tannerfeldt and Ljung, 2006). Experts classify health, water and sanitation as priority issues in poor neighbourhoods in developing cities. Environmental problems such as air pollution, deforestation and floods are suggested to be particularly harmful to low-income groups (Simioni, 1999). In this regard, this thesis is presented in times where environmental issues in the development world are under intense scrutiny by researchers. The intention of this thesis is to further contribute to the debate on theses issues.

This research delves mainly with household refuse produced in urban areas. Financial or technical details, cost evaluation or detailed numbers on the waste stream are not included. Although those issues are considered relevant when suggesting an integrated waste management solution, they are, however, considered to be out of scope of this thesis.

A challenge that was met while compiling the information was the inconsistency on waste data and other statistical facts. In some cases, the data available on waste presented variations which were difficult to verify. This is not uncommon when one takes the challenges to study a medium-sized Latin Ameri-

can town. On that note, Simioni adds as a general observation that "there are generally no environmental databases. Where they do exist they are organized by sector, which makes them difficult to used for programming and project purposes" (1999).

Additionally the explorations made on behaviour and attitudes towards waste are not only supported by the literature but also by my regional knowledge accumulated after several years of professional work in the case study region. It is also important to note that the extreme political gravity of the subject of waste in the region, as well as the lack of transparency on procedures of final disposal also influenced this work.

The motivation behind this thesis lies in the quest to bring together issues related to waste, social behaviour and urban planning. The concern is that most people do not fully understand the impact of waste management practices on ecological processes. This study embodies reflections accumulated across a period of practical assignments with waste.

This work has two main purposes – first, to contribute to the academic field; second, to increase the quality and quantity of data on waste management in Latin America, specifically Mexico. Designed as a useful resource, one hopes this study will act as a catalyst to sustainable practices in the field of waste management.