Solid Waste Policy Making in a System in Transition

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Solid Waste Policy Making in a System in Transition:

The case study of biological treatment in the West Bank

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The study is based on a Master's thesis (presented at Wageningen University, Wageningen, The Netherlands, 2000) expanded by further local field research conducted by the author.

(Monograph series #4)

To my best friend, to my sister Abeer

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Preface

This project highlights the major factors determining solid waste policy making in a socio-political system in transition. The case study of the West Bank focuses on the biological treatment of solid waste disposal within the solid waste policy making process. Research on this topic is of great importance within this region because of the political and environmental sensitivity, particularly due to the restrictions on the water supply and system imposed by the prevailing political context and the ongoing Palestinian-Israeli conflict.

The research investigates technical, economic, and socio-institutional factors that determine biological treatment internationally. The local dynamics on the West Bank are very important in understanding the process of solid waste policy making. The research identifies the agencies involved in waste management, but the complexity of the internal and external forces and networks for the different actors and links for decision makers will be left for future research.

This research provides background information about solid waste policy making and suggests possible future scenarios for biological treatment in the West Bank. It is hoped that this is a starting point for a more in-depth investigation about solid waste policy making in a system in transition, and for investigating the different options for solid waste management in general.

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INTRODUCTION

A well established and functioning solid waste management system is a very important component of healthy communities. The relationship between poor public health and the improper storage, collection, and disposal of solid waste is not difficult to realize (Tchobanoglous et al. 1993). Throughout the world, solid waste has traditionally been collected and disposed far from inhabited areas. Unsanitary dumpsites are the major result of such practice, and as the population spreads to areas where dumpsites exist, these sites have become a major hazard in many areas.

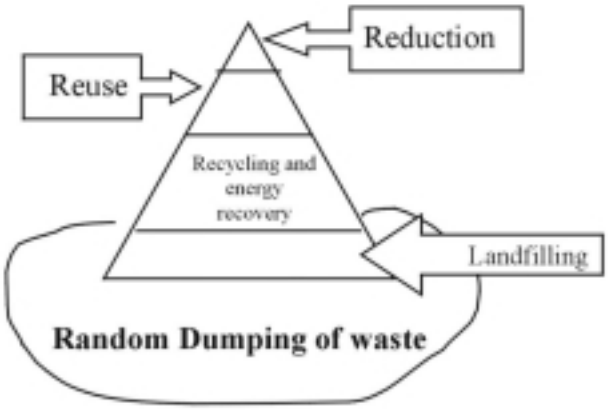
In the past this was not considered a problem. "In early times, the disposal of human and other wastes did not pose a significant problem, for the population was small and the amount of land available for the assimilation of wastes was large" (Tchobanoglous et al. 1993, 3-5). Problems from dumpsites began to arise as water resources were contaminated, explosions and fires occurred, and air pollution made the problem more obvious and visible. When land was plentiful and the waste stream was less hazardous, the remnants could be buried in landfills. But as land has become scarce, burial has become increasingly expensive. In addition, concerns over environmental effects on water supplies and economic effects on the value of surrounding land have made buried waste less acceptable (Tietenberg 1994, 323).

In developed counties there has been increased awareness about the negative impacts of solid waste dumpsites, resulting in a move away from simple collection and random disposal to proper safe disposal. The first solution was the establishment of "sanitary" landfills. With increased environmental

awareness, landfills have become increasingly viewed as a less sustainable option for treatment of solid waste in comparison to other emerging alternatives.

The historical development of what constitutes safe solid waste disposal has passed through different stages since the introduction of the sanitary landfills approach. The Hierarchy of Solid Waste Disposal (Figure 1) has evolved as a guideline to be followed for choosing the most appropriate environmental option for solid waste disposal. In the 1990s, this hierarchy viewed waste prevention and minimization as the most favorable option, followed by reuse, recycling including biological treatment, and energy recovery. Sanitary landfills are at the bottom of the hierarchy.

Figure 1: Diagram for Hierarchy of Solid Waste Disposal



The current trend is to integrate all phases into a whole solid waste management system, which incorporates environmental, social, and economical impacts as the guide for policy making in solid waste disposal options rather than waste disposal as an independent phase. This change in concept began in developed countries that were economically strong and had populations with a higher level of awareness and knowledge about environmental problems. These conditions were the main motive towards the institutionalization of environmental concerns.

At the moment, the primary concern for developing countries is economic growth. Environmental concerns are treated as a luxury. Although there is

concern with certain environmental issues that are obvious links to the public health or the welfare of the society, in general, there is a lack of environmental awareness. In such cases environmental issues are seen as complementary and not in conflict with economical development. Without awareness, governments do not feel justified spending on environmental programs. Whether solid waste disposal policies in developing countries will follow the same path as the ones chosen in developed countries remains to be seen.

The concept of sustainable development promoted in the Brundtland Report 1987 (Our Common Future) showed that environmental protection and economic development complement one another and are interlinked. Proper solid waste management is linked to the welfare of the society. Recently, countries facing problems in water pollution are realizing the importance of incorporating a good disposal system that protects the water.

The Case of Palestine

Palestine is a typical case of a country in transition where the struggle for economic improvement is a major priority. But in Palestine the Israeli occupation has led to a developmental lag greater than that found in both developed and neighboring developing countries. Until now solid waste management has been limited to collection and disposal in open, unsanitary dumpsites. There is increased concern for safe disposal due to the growing awareness of problems associated with the potential of polluting the groundwater aquifers. Because these aquifers are the only source of drinking water for Palestine and are also shared with Israelis, there is both local and international pressure on the maintenance of the quality of the aquifers.

At the moment Palestine is passing through a stage of transition, moving from the occupation into a stage where the Palestinian Authority (PA) is gaining some responsibility for certain issues in limited geographical areas. Government departments and institutions are being established to cope with environmental concerns and changes are occurring. Palestine is in the first phase of building its country, and if environmental concerns are incorporated now, it might have the advantage of avoiding major ecological disasters such as water resource pollution.

Palestine is divided into two main regions, the West Bank and Gaza Strip.

In the mid-1990s, 40 percent of the Gaza Strip was handed over to the Palestinian Authority. Because this geographical area is more contiguous in comparison to the scattered areas in the West Bank, the Gaza Strip has had the opportunity to improve its infrastructure and is now the only "model" in respect to successful solid waste management practices in Palestine. Despite its limited experience with solid waste collection and disposal in sanitary landfills, the Gaza Strip can play a role in providing the West Bank with some options for solid waste disposal.

Solid waste management in Palestine is very much a "system in transition." It is hoped lessons can be learned from other successful waste management systems in developed and developing countries. Although there is a general understanding that something must be done, the future of waste management systems in this politically and environmentally sensitive region continues to be influenced by broader political pressures and weak local infrastructure.

Scope of This Study

This study focuses on the West Bank, an area of Palestine that has a slightly different socio-political structure and geography than the Gaza Strip. The legal history is also different, as Gaza followed Egyptian laws from 1948 to 1967, while the West Bank followed Jordanian laws. The Gaza Strip is taken as a comparative case study with possible applications to the West Bank.

During this transition period, before the final status of this area is decided, external and internal factors affect solid waste management. How the various actors who have played a part in environmental issues in the geographical areas controlled by the PA come together to work towards a cohesive policy framework is one of many crucial issues currently being planned.

Internal factors include decisions in solid waste management and the roles of the formal actors, such as Palestinian government bodies. Informal actors, such as non-governmental organizations (NGOs) were an important factor in shaping the Palestinian civil society in both urban and rural settings during the past 30 years of Israeli Occupation. They continue to play a role, but these roles have changed as emerging formal Palestinian institutions take on responsibility.

External forces such as the Oslo I Agreement of 1994 played a significant part in forcing movement in the area of solid waste management. The peace process forced formal Palestinian Authority concern, and international organizations and governments have been heavily involved in funding projects, even though these programs sometimes interfered in defining the best solid waste options for Palestine.

Most importantly, there are environmental and political barriers that limit the choices for disposal alternatives. They include both the highly sensitive issue of keeping dumpsites away from aquifers in order to maintain quality water resources and the restrictions imposed by the Israeli authorities on the use of land needed for sanitary landfill sites. Under the present conditions of occupation, Israel controls all of the West Bank territory outside Palestinian towns and villages.

Biological treatment technically merits further investigation as a viable option in the West Bank due to the type of wastes, the amounts of organic material in the waste stream, and the high water content in it. Investigation of economic, social, and political factors should also be considered before determining the applicability of solid waste technology in the community. The overall development and future possibilities of waste management systems in the West Bank, with special interest in the possible utilization of biological treatment, is investigated in this report.

The research is structured into six main parts.

Chapter One provides a basic discussion of the legal and institutional setting as well practices in solid waste management in Palestine. The first section of this chapter discusses solid waste management during the Israeli occupation 1967-1994. The second section discusses the post-occupation experiences in Gaza and portions of the West Bank. The internal, external, and legal factors are explored and the effects of the transition upon solid waste management are described.

Chapter Two summarizes the general conceptual framework for the solid waste management chain: the definition of solid wastes, technical aspects of biological treatment worldwide, and assesses disposal options. Through this discussion, potential options for solid waste disposal in Palestine are offered.

Chapter Three outlines the research and methodological framework and organization of the fieldwork.

Chapter Four and Chapter Five discuss the perceptions of different actors about the various waste problems. Chapter Five deals specifically with perceptions of biological treatment.

Chapter Six explores potentials of the Gaza Strip experience in solid waste management as a "model" for policy making in the West Bank.

Chapter Seven summarizes the conclusions and recommendations of the study for local and national Palestinian policies.

ABBREVIATIONS

ABF-BOKU - Abteilung Abfallwirtschaft, Universität für Bodenkultur, Vienna

BOOM - Besluit Overige Organische Meststoffen EHD - Environmental Health Department

ENEA - Ente per le nuove tecnologie, l'energia e l'ambiente

EPA - Environmental Protection Agency (US)

EPD - Environmental Planning Directorate

ERM - Environmental Resource Management

ICA - Israeli Civil Adiministration

LEC - Local Environmental Committee

LENGO - Local Environmental Non-Governmental Organisation

MEnA - Ministry of Environment Affairs (merged from PEnA beginning of 1999)

MOA - Ministry of Agriculture

MOH - Ministry of Health

MOPIC - Ministry of Planning and International Cooperation

MSW - Municipal Solid Waste

NFU - National Farmers' Union (US)

PARC - Palestinian Agricultural Relief Committees

PEnA - Palestine Environment Authority (est. December 10, 1996)

PESP - Palestinian Environmental Strategy Plan

SCF - Save the Children Federation

SWC - Solid Waste Council, Gaza

SHWD - Solid and Hazardous Waste Directorate