PAHO/CEPIS/PUB/03.108
Original: Spanish

GUIDELINES FOR THE DESIGN, CONSTRUCTION AND OPERATION OF MANUAL SANITARY LANDFILLS

A solution for the final disposal of municipal solid wastes in small communities

Jorge Jaramillo
Universidad de Antioquia, Colombia

Organización Panamericana de la Salud
Oficina Regional de la Organización Mundial de la Salud
ÁREA DE DESARROLLO SOSTENIBLE Y SALUD AMBIENTAL

Centro Panamericano de Ingeniería Sanitaria y Ciencias del Ambiente
CEPIS/OPS

2003

CEPIS/PAHO is a specialized agency of the Pan American Health Organization (PAHO/WHO).

Los Pinos 259, Urb. Camacho, Lima, Peru
P.O. Box 4337, Lima 100, Peru
Phone: (511) 437 1077
Fax: (511) 437 8289
cepis@cepis.ops-oms.org
http://www.cepis.ops-oms.org

CONTENTS

4. THE MANUAL SANITARY LANDFILL

5. DESIGN OF A MANUAL SANITARY LANDFILL

FIGURES

Appendices

LIST OF TABLES

Foreword

It is an increasingly clear fact in Latin America and the Caribbean that inadequate final waste disposal has a negative impact on the environment and public health. The population has become aware of the seriousness of this problem and, in different places, people have demanded that their public institutions take more energetic measures to solve it. In response to these justified complaints, government authorities have started to take action to mitigate the negative effects of poor waste disposal practices.

The alternatives being offered to solve this problem today are based on an integrated management approach and place a great deal of emphasis on the sustainability of the proposed solutions. At the same time, the idea is for the solutions to be inserted into appropriate legal instruments as prescribed by the legislation of each country. It should be noted that in most of the nations of the Region sanitary landfills are already being demanded as the best solution for final waste disposal.

Although progress has been made, we cannot ignore the fact that the problem of final waste disposal takes on particular characteristics in small districts and rural areas, owing to several factors: a lack of funds because of the widespread subsidizing of the public cleaning service; absence of information on the negative consequences of open dumps; ignorance of the feasibility of joint solutions, which reduce costs of implementation and operation of manual landfills thanks to the application of economies of scale; ignorance, also, of the appropriate technology to dispose of residues without incurring in major investment and operating costs; and, in general, insufficient knowledge on how to address the problem of inadequate final waste disposal.

Hence the need for an up-to-date guide that will cover all the stages involved in setting up a manual sanitary landfill for small communities. Hence also the decision to revise our former publication on the topic, Municipal solid waste. Guide for the design, construction, and operation of manual sanitary landfills. *The mere fact that this guide has had four reprints in six years is an indicator of the growing importance of the issue in the Latin American and Caribbean Region.*

This version includes new topics that will help small communities in the Region to develop an integrated waste management system, to manage and monitor sanitary landfills, and to carry out cost analyses to ensure the sustainability of these activities. The document will be of great use in improving the environmental conditions and public health of a large sector of the populations of Latin America and the Caribbean.

The author of the original document is Jorge Jaramillo, an engineer, international consultant, and chief professor at the University of Antioquia, Colombia. To enrich this new edition, he has incorporated comments from different consultants working in this field in other countries. The Solid Waste Management Area of CEPIS/PAHO also cooperated in the preparation of the text and reviewed the final version of the document. Alvaro Cantanhede, engineer, Regional Consultant for Waste Management, and Leandro Sandoval, engineer, Advisor on Urban Solid Waste, participated in this task.

Finally, this new edition would not have been possible without the financial support provided by the PAHO/WHO Representative Offices in Mexico, Paraguay, Venezuela, and Peru. The translation was financed by the PAHO/WHO Representative Offices of Guyana, Trinidad and Tobago, and Jamaica.