



SHORT COURSE ON SOLID WASTES
COLLECTION AND DISPOSAL

EM/Wastes Course/C6
2 May 1968

Damascus, 20 - 30 May 1968

ENGLISH ONLY

SOLID WASTES COLLECTION AND DISPOSAL
IN THE CITY OF BEIRUT

by

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INTRODUCTION

Refuse collection and disposal have long been a problem of great concern to the Public Health Authorities all over the world. Especially important is the fact that the growing up of modern cities, along with the greater modern demands for better environmental conditions, has contributed to make the solution more difficult. In the Middle East, as in most similarly developed countries, the lack of planning, the lack of technical advisory services and the lack of comprehension in a rapidly progressing society have contributed to a situation where one finds himself helpless and deeply engaged in the important problem of refuse collection and disposal without the necessary equipment. In seeking easy solutions, or rather costly ones, the local authorities have ended up with conditions more difficult to deal with than before.

HISTORICAL REVIEW

Beirut has at present a population of more than 800 000 people. It is a city which has developed fairly rapidly during the past thirty years and it has more than doubled in population in that relatively short period. About fifteen years ago the question of refuse started to be a pressing problem. The Municipality then resorted to composting and handed the project to a private company. Unfortunately, the conditions prevailing were difficult

to deal with, and the project failed to achieve the anticipated results. A lot of factors have contributed to that failure even though the composting process was indeed carefully planned. Garbage collection in the city was not so unfortunate, and the local authorities have been serving the citizens in a fairly acceptable manner. Collection has and still is carried out on a daily basis, storage containers are still inadequate in most places and separation of refuse is out of the question at the present time.

Street sweeping is now carried out fairly adequately in a good portion of the city, even though mechanical means have not yet been used.

PRESENT CONDITIONS

The quantity of refuse collected daily at the present time from the whole city of Beirut, excluding the suburbs, is estimated to average about 700 tons per day in winter. There is no great difference in the summer time when the estimated quantity is about 600 tons per day.

If we assume the population of the city to be 800 000, the quantity of daily refuse per capita would amount to about 0.88 kg per day in winter and 0.75 kg per day in summer. These values fall within the reported quantities mentioned in the "Sanitary Refuse Practices" P.H.S. 1953, i.e. fifteen years ago in the United States, but they are closer to the lower limits.

Daily collection is provided to the city dweller and the number of municipal workers in the refuse collection service is now 1750 including 200 inspectors. This number will be raised to 2200 in the near future. Refuse containers are, as mentioned earlier, not very adequate in most places, ordinary gasoline tins with a capacity of 20 litres being currently used. However, new buildings are now required to provide refuse collection chutes and refuse chambers that will facilitate collection and promote better hygienic conditions. The law requires the refuse chamber to be smaller than 4 m^2 in floor area.

FINAL OBSERVATIONS

A lot has yet to be done in order to raise the environment to acceptable

be underestimated. Properly carried out, the refuse collection and disposal as it is planned within the financial means of the city should give good and acceptable results. The services provided would cost the Municipality around eight million L.L. per year, i.e. 10.00 L.L. per capita per year which is not a low value but it includes collection and disposal. In the United States, the estimated range of cost would be between \$1.2-\$9 per capita per year depending on the size of the city and its location.

Beirut counts at present about 70 000 dwelling units, the refuse is collected by ordinary refuse collection trucks, their total number being fifty. This number of trucks is inadequate and the Municipality is getting 120 new trucks which will start operating before the end of the present year.

The disposal problem is not at present as well solved as collection. Many projects have been studied and foreign experts were called recently to give their view on the most economical and effective means of proper disposal. Composting has again been definitely adopted for financial reasons; final plans and specifications for the project are now ready. The Municipality will forward the whole project to a private firm who will submit their proposals. Location for the composting factories has been established and it is thought that construction work will start in the very near future.

APPENDIX

TECHNICAL DATA

Estimated present population : 800 000 people
Future population forecast : non existant
Estimated number of dwelling units : 70 000

Present number of collection personnel : 1 750 persons
Future planned number of collection personnel : 2 200 persons

Frequency of collection : daily
Average winter daily refuse for the City : 700 tons
Average summer daily refuse for the City : 600 tons

Present number of collecting trucks : 50
Number of new trucks to be put in service this year : 120

Refuse disposal method :

- present : sea dumping
- projected in the near future : composting