# Chapter I

## INTRODUCTION

The control of environmental pollution depends on measurements for the establishment of natural, uncontaminated baseline levels and for the recognition of an increase, or a tendency of increase, in the concentration of elements or compounds which are known or suspected to be harmful to man or to the natural ecological balance. Method of analysis for special elements and compounds in an accurate and reliable way are, therefore, a prerequisite for a meaningful environmental protection work. Neutron activationanalysis is well established as one of the most sensitive analytical technique for determining the majority of the elements over a very large range. This means that both highly contaminated samples and samples representing undisturbed natural levels can be analyzed by the same method.

Water samples are among the most important materials to be tested during ivestigations of environmental pollution. Liquid effluents from numerous industrial processes and municipal waste treatment plants are discharged into rivers, lakes, and the ocean. Accurate and precise data on trace element concentrations in such water origins are essential for pollution control. This is especially important here in this country, where water from rivers is still used for drink.

The purpose of this paper is to describe the use of neutron activation analysis for multielement determination at low concentrations in water, particularly suitable for routine analysis of a large number of samples, and to present some typical results on the concentrations of some trace elements in the water along the Chao Phya River.

Samples of surface water at the depth of about 1 metre from the surface, were collected from the middle of the Chao Phya River at the following locations : Nonthaburi Bridge (Pathum Thani) Ban Sai Ma (Nonthaburi), Bangkok Bridge (Bangkok) and Samut Prakan (see Fig. 1-1). The sampling operations were performed on April 22, June 5, June 18, August 18, and August 24 of the year 1974. Two samples at one location were collected each time, one at the lowtide and one at the high-tide period. A total of 40 samples were obtained in analysis.

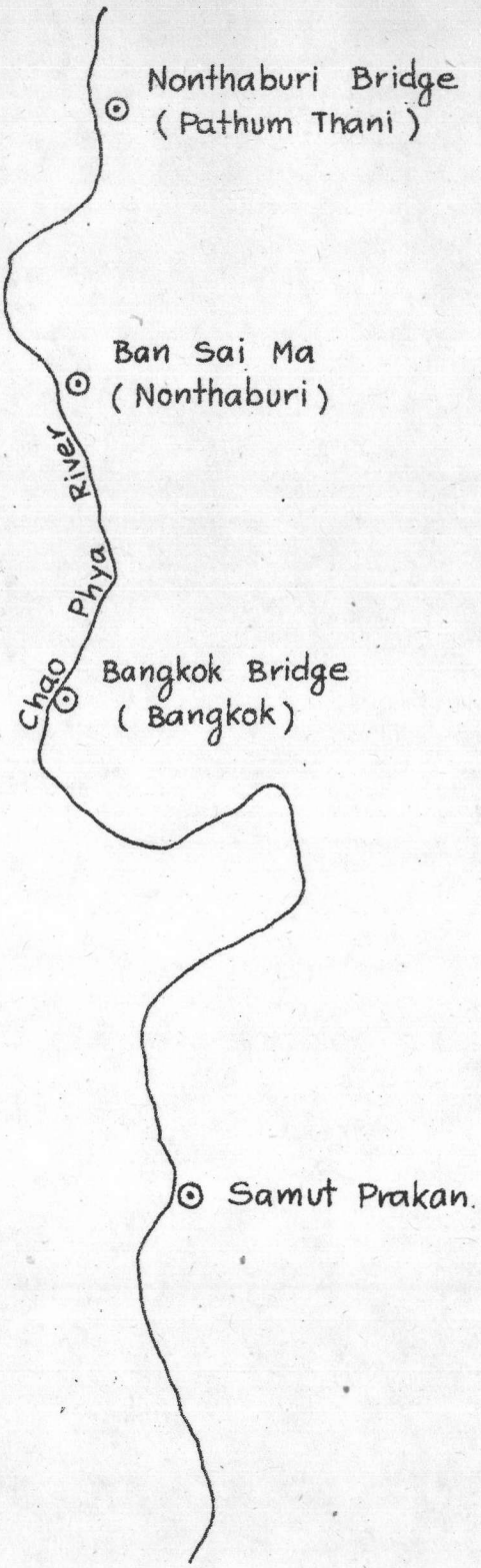


Fig. 1-1 Locations for sampling along the Chao Phya River.