ABSTRACT:

PROSPECTS FOR THE DEVELOPMENT OF GEOLOGICAL NATURAL RESOURCES IN THE LESSER ANTILLES

by

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Introduction

This document represents only the abstract of a longer review paper which is currently being prepared for publication as a special report of the Commonwealth Geological Liaison Office. It will simply outline the background to, and the contents of the final report.

Objectives and background

The purpose of this paper is to provide a general review of research and exploitation which has been carried out to date on geological natural resources in the British Commonwealth Lesser Antilles. Since 1961, when the post of Government Geologist to the Windward and Leeward Islands lapsed, these islands have had no resident specialist in the field of the earth sciences. Consequently, they have depended for research and advice firstly upon the services of the Seismic Research Unit at the University of the West Indies, which since 1952 has had a standing commitment to investigate all problems related to volcanoes and earthquakes in the region; and secondly upon various national and international organizations, including universities, government research agencies and commercial interests from outside the region which have sent specialists or research students on short visits (usually not more than a few months and often only a few days) to investigate particular problems.

In most cases, foreign geologists working in the Lesser Antilles have corresponded with and visited the Seismic Research Unit in Trinidad to discuss their work and to collect existing background information from the Unit's library and unpublished data files. As a result of

the research done by the Seismic Unit's own staff plus contacts over the past 26 years with visiting earth scientists, the Unit has a unique collection of literature references, unpublished reports and correspondence documenting most of the attempts which have been made, both before and especially since 1952, to develop on a commercial scale the geological resources of the Lesser Antilles.

The different topics with which this paper deals mostly have little bearing upon one another, except that they all belong to the field of earth sciences. It seemed more appropriate for ease of future reference that they should be arranged on a subject basis because work done on a particular geological resource in one island clearly has a bearing on the prospects and best approach for another island: this is the layout which will be followed. However, an attempt has been made in Table 1 to produce cross-references showing which islands have known prospects in each of the subjects. These subjects will be treated in what the writer judges to be the order of potential economic significance in the Lesser Antilles as a whole at the present day. Thus geothermal energy is considered first, because under the most favourable circumstances this could relieve an island of dependence upon external sources of petroleum fuel for electricity generation and also provide surplus power for new industrial development, with potential revenue or savings in foreign exchange amounting to millions of dollars. Groundwater, the continued development of which is of comparable importance, is considered second, whilst items such as the development of pumice and base metals, which from present evidence are unlikely to have more than a minor impact on the island's economy, fall lower in the sequence.

List of subjects discussed

1) Geothermal exploration
2) Groundwater
3) Pumice for lightweight aggregate and pozzolan
4) Base metals, including gold, silver, copper, manganese, iron, titanium
5) Other inorganic minerals, including sulphur, phosphates, barytes, bauxite, alunite, precious opal, salt
6) Petroleum
7) Brick clays
8) Sand, aggregate and road metal

Sources of information

All sources of information for the present paper are listed in the bibliographyat the end of each subject. In addition to published papers, these include numerous unpublished typescripts and letters (copies of which are on file at the Seismic Research Unit in Trinidad). The more important sources of unpublished data are the British Overseas Geological Surveys (which in 1965 was incorporated into the Institute of Geological Sciences) and especially the typescript reports by P.H.A. Martin-Kaye who was appointed under this scheme as Government Geologist to the Leeward Islands from 1951-1956 and to the Windward Islands from 1956-1961. Other unpublished information from the Institute of Geological Sciences includes various special laboratory reports on geological specimens

collected either by the Institute's own personnel or by staff of the Seismic Unit. Reports by international organizations such as the United Nations are generally issued as typescripts for restricted circulation, but copies of most of these have been sent to the Seismic Research Unit in recognition of the fact that the Unit contributed data to the report.