

International Atomic Energy Agency

IUREP N.F.S. No. 149

December 1977

Distr. LIMITED

Original: ENGLISH

INTERNATIONAL URANIUM RESOURCES EVALUATION PROJECT

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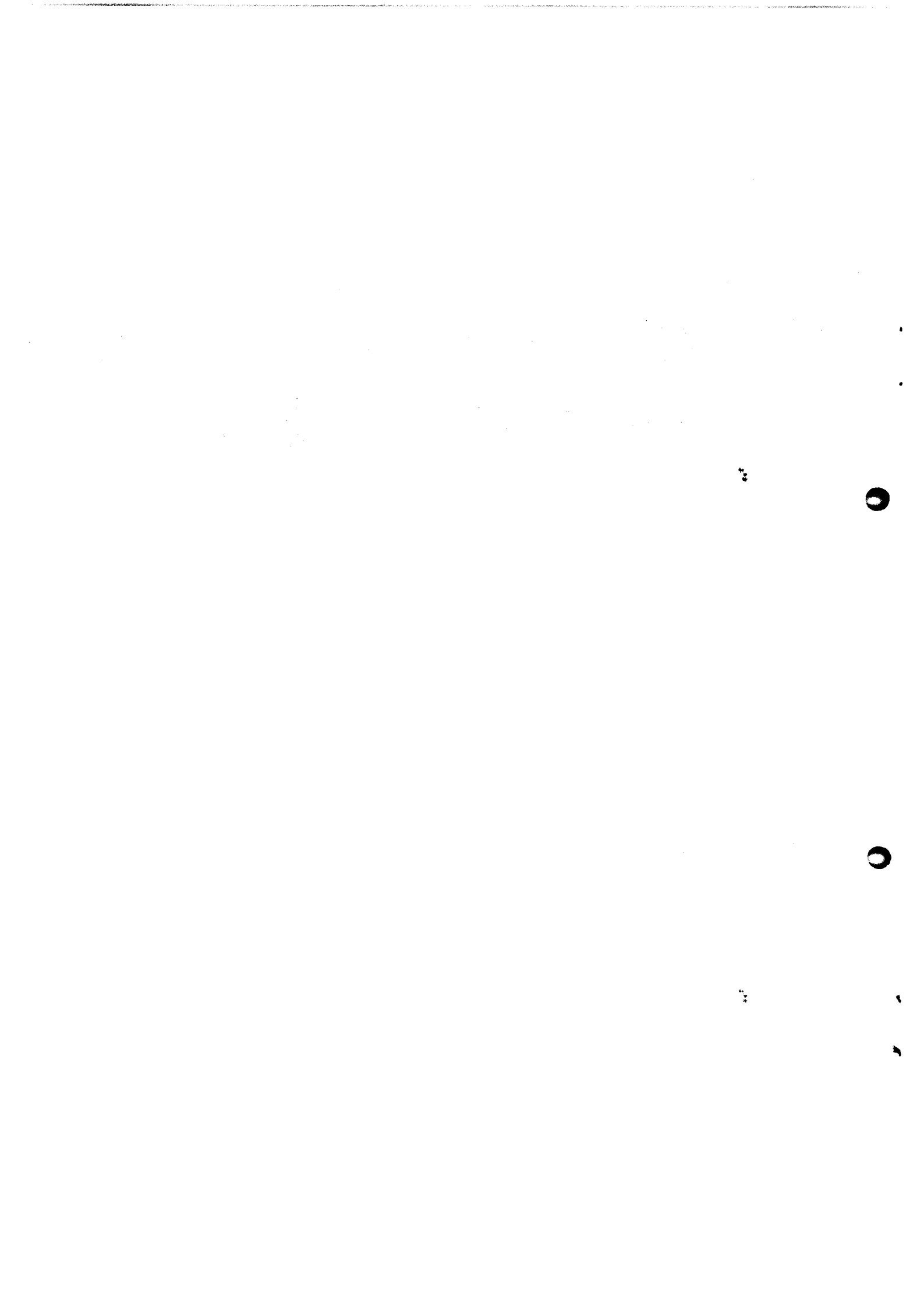
NATIONAL FAVOURABILITY STUDIES

NEW CALEDONIA

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NATIONAL FAVOURABILITY STUDIES

IUREP N.F.S. No. 149

NEW CALEDONIA

THE UNIVERSITY OF CHICAGO

1964

PHYSICS DEPARTMENT

CHICAGO, ILLINOIS

1964

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MEMORANDUM

TO : [Illegible]

FROM : [Illegible]

SUBJECT : [Illegible]

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## S U M M A R Y

New Caledonia is an island and with dependencies totals just over 1900 square kilometers in area and contains an estimated 128,000 people. It's principal products are nickel and chrome, but agricultural products assume considerable importance in addition.

Geologically New Caledonia is quite complex, and on the basis of the complexity of geology and the relative intensity of the mineralization of the island as well as apparent favourable host rocks a category 2 - 1,000 - 10,000 tonnes U - (nearer to 1,000 than 10,000) is assigned.



1. The first part of the report is a general  
introduction to the subject of the study.  
It is followed by a description of the  
methodology used in the study.

The second part of the report is a  
description of the results of the study.  
This is followed by a discussion of the  
implications of the results.

## A. INTRODUCTION AND GENERAL GEOGRAPHY

### Geography

New Caledonia is an island in the Pacific, about 800 mi. E of Australia. The total area of 19,100 sq km includes the Loyalty Island. Encircled by a great coral reef, New Caledonia is about 400 km long and 50 km wide. The east coast is composed of Paleozoic rocks, and the west coast, more broken includes some Mesozoic and Tertiary formations. Metamorphic rocks include gneisses, schists and serpentines. All the southeastern area consists of peridotites, which also occur in the north and northeast. The mineral resources include nickel, chrome, cobalt, iron, copper, gold and manganese. A chain of mountains in the interior reaches 1650 meters on Mt Panié and 1630 m on Mt Humboldt.

### Climate

The climate is sub tropical with mean monthly temperatures ranging from about 17° to 32° C. The rainfall is highest during December-March: on the east coast, which is subject to the trade winds, it is about 200 cm annually and on the west less than 100 cm.

### Transportation

Roads: there are a total of 4,600 km of roads in New Caledonia, of which 300 are bitumen-surfaced, 1,880 stone-surfaced and 2,500 tracks.

Several steamship lines serve New Caledonia as well, and domestic are scheduled and one charter air line serve New Caledonia, as well as six foreign Airlines including Air Nauru, and Air New Zealand.

### Industry

The economy of New Caledonia is based on agriculture and mining. Coffee, copra, cotton, cassava, tobacco, fruits, and essence of Niaouli (used in perfume making) are the principal crops. Minerals are profuse, especially nickel ore (mining of nickel is the chief economic activity) and chromium ore. Cobalt, copper, iron, lead, manganese, and platinum also are found. Exploration for petroleum is under way. Metallurgical plants, cotton mills, and food processing establishments are the chief industries.

The principal government agency dealing with mining is not known, but might be Chambre de Commerce at d'Industrie, BP 10, Noumea. Although the basic administration of the area is carried out by the French.

### Population and currency

The population of New Caledonia according to the latest estimate, (Jan 1955 is 128,000 of whom Melanesians and French make up approximately 85 percent (almost half French and half Melanesians). The remainder are principally Wallisians and Polynesians. The principal city is Noumea, the capital with around 70,000 population.

The unit of currency is the Pacific franc (CFP) and US\$1.000= 90.91 CFP at the end of 1976.

B. GEOLOGY OF NEW CALEDONIA IN RELATION TO POTENTIALLY FAVOURABLE URANIUM BEARING AREAS

For a relatively small island, the geology of New Caledonia is quite complex. From the standpoint of geological history the stratigraphic record begins with marine sediments in the Mesozoic. The succession is rather thin but a thick Eocene section is present.

New Caledonia belongs to the circum-Australian group of features along with New Guinea and New Zealand. Up to 13,000 meters of Eocene are preserved along this trend.

New Caledonia is a northwest-southeast trending island. Meta-sediments of Cretaceous age predominate in the extreme northwest. Basalt is present in the western portion of the northwest part of the island. Small patches of marine sediments of Mesozoic and Eocene age inter-mix granites in the central part of the island. Ultra-basic rocks and "blue schist" metamorphics occupy the southeast quarter of the island.

The origin of the blue schists is moot. One school of thought maintains that they are oceanic crust thrust upon the mainland, from the southeast. The other maintains the faulting is high angle and normal. Both agree that they represent a deep seated origin.

Faulting runs through the length of the island in about its center. Workers use the terms "geosuture" and "le grand fault" to indicate the degree of faulting, although magnitude of movement and relative throw is debated. Shear zones are measured in kilometers wide, although descriptions of the character of the shears are fragmentary. This fault is correlated to the faulting along the Owen Stanley Mountains of Papua New Guinea.

The island, as already stated is quite heavily mineralized with several minerals, of which several are economic (notably nickel and chrome) and others may become economic. It is probable that such a degree of mineralization by so many different minerals may, would also include uranium in its primary forms.

C. PAST EXPLORATION

There has been no reported uranium exploration on New Caledonia. However, it is likely that, since the French have such an interest in New Caledonian minerals, and have virtually examined the world for uranium supplies they have at least considered New Caledonia, as a very likely target for past uranium exploration.

D. URANIUM OCCURRENCES AND RESOURCES

There are no known uranium occurrences on New Caledonia and no resources of uranium have ever been reported.

E. PRESENT STATUS OF EXPLORATION

There is no known effort in uranium exploration in New Caledonia. However, in view of the nickel-uranium deposits recently found in Canada, it is probably safe to assume that some examination (or re-examination is or will be carried out on the New Caledonian nickel and chrome deposits.

F. POTENTIAL FOR NEW DISCOVERIES

The shear zones along the geosuture present the best opportunity for uranium deposits. Mylonite zones within the shears, appear to be the best possibility.

Primary type deposits may be present in the metamorphics as veins, stocks and pipes, especially where orogenic rich (phyllites etc) metasediments abut impervious rocks.

No continental clastics are reported in the section, so no secondary solution type deposits are anticipated.

Because of these features, and the probability of uranium mineralization being associated with the intensity of all mineralization, New Caledonia is assigned a category 2 uranium potential, (the true estimate is nearest the lower end of the range).

Compiled by M V Hansen  
IAEA, Vienna  
December 1977

I disagree -  
- I would say 0-1000 tonnes

REFERENCES

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Compiled by M V Hansen  
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