I. Background

I. Following an initial request from the Government of Congo for Revolving Fund assistance at the beginning of 1979, a mission visited Congo in October of the same year to evaluate phosphate possibilities. Although a negative assessment was made concerning the economic possibilities for rock-phosphate, it was established that there is good potential for offshore phosphate deposits along and near the Congolese coast. As a result, a specialized consultancy mission was fielded in early 1980 to evaluate this potential.

2. Surficial concentration of pebble phosphate was reported within 20 kilometres of the coastline of the People's Republic of Congo between Pointe Noire and the southern frontier with Cabinda by the Marine Geology Department of Brazzaville University in 1976. To maintain the necessary exploration-evaluatory impetus, the Government is now seeking assistance from the Revolving Fund to finance and carry out detailed work in this area.

3. Water depths in the area of investigation range from 30 to 40 metres. The phosphorite, 20 per cent to 40 per cent by volume, is found together with shell fragments in a matrix of loose silt. It consists predominantly of coprolites and other detrital grains which are reported to contain 25 per cent to 35 per cent of phosphorus pentoxide. Preliminary samples assayed by the Revolving Fund confirm these findings. The occurrences are typically located near phosphorite-rich sandstone outcrops of Miocene age, which are considered
to be the intermediate source. These occur as erosional remnants, underlain by beds of Eocene and Paleocene age, of which the former is a low grade phosphoritic limestone, considered to be the primary source of phosphorite.

4. The project area is located within the Congolese platform and has a surface area of approximately 360 square kilometres. Present knowledge only shows a thickness of some 0.5 metres and one of the principal aims of the project will be to ascertain whether an exploitable thickness (3-5 metres) can be found in bottom depressions. A mining and processing project of minimum economic scale, in the Congolese context, may be expected to produce some 500,000 metric tons of phosphate concentrate annually (from which some uranium could probably be recovered). In this location a grade of 30 per cent phosphorus pentoxide would probably be required for viability; hence a 20 year reserve of some 10 million tons of this grade and of exploitable thickness should presently be considered as the minimum target. Exploration of the Congolese platform is considered to have a definite possibility of locating such tonnage. If the proposed systematic exploration is successful in defining phosphorite deposits of economic dimensions and grades, an eventual exploitation projects might generate an annual gross income of some US$17.5 million at current phosphate prices.

5. Background data and information justify the conduct of a preliminary evaluation survey for the purpose of proving or rejecting the economic potential of the Congo offshore phosphorite deposits. The Government of Congo places considerable priority on the careful expansion and development of its mineral resource potential with particular attention to phosphates needed for agricultural development. It has an infrastructure and organizational capacity which would allow prompt development of any phosphate resource outlined during the course of Revolving Fund work. The probability of defining mineable reserves within the capability of modern dredge mining technology is considered to be reasonable, thus providing good possibilities of obtaining replenishment contribution to the Fund, while making a significant contribution to the industry and economy of the Congo.

II. The Project

6. Previous investigations in the offshore regions of Congo, while valuable as reconnaissance surveys, did not have the track density to establish the definitive parameters required in an economic appraisal. The objective of the project will be to define and evaluate more precisely the physical characteristics of the phosphoritic deposit, such as thickness and areal extent, in order to determine its economic potential. Initially this work will be done through the use of marine seismic and drill sampling surveys. These surveys will employ a suitable vessel and equipment which will explore, using a track and sampling density planned to maximize acquisition of pertinent data for
minimum expenditure, with the purpose of proving or rejecting the economic potential of the Congo offshore phosphorite deposits.

7. The Minimum Work programme approved by the Administrator in July 1980 will include the following activities: (a) a first stage seismic survey with a high resolution sub-bottom profiling system (Uniboom) for defining the contact between the unconsolidated sediments and the bedrock. Measurements of the bottom topography with a side-scan sonar and precision echo-sounder depth-recorder, together with a gravity-corer for superficial bottom sampling to aid in the seismic interpretation, will also be used; (b) an on-shore programme for review of seismic data; (c) a second stage of drill sampling with an air-lift drill or vibro-core system; and (d) a final sample test processing stage.

8. In carrying out the Minimum Work described above the Fund will expend not less than the equivalent of $165,000 over a period of approximately five months to finance all required inputs. This expenditure constitutes an obligation of the Revolving Fund to the Government of Congo.

9. If the results of the Minimum Work justify additional work, it is estimated that an additional expenditure of $700,000 may be required to carry out further activity which would include preliminary feasibility work to assess potential ore reserves, production processing logistics and marketing as well as a preliminary economic analysis. This would bring total possible expenditure for this project to the equivalent of $865,000. Further activities which may be required beyond the Minimum Work will only be carried out if justified according to the Fund's operational procedures.

III. Financial Data

10. Revolving Fund Allocation

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<tbody>
<tr>
<td>Minimum Work</td>
<td>165 000</td>
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<tr>
<td>Possible additional expenditures for further activities following the Minimum Work</td>
<td>700 000</td>
</tr>
<tr>
<td>Total possible cost of the project</td>
<td>865 000</td>
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The financial assets of the Fund are adequate to meet the cost of the Minimum Work programme.
IV. Recommendation

11. In light of the above, the Administrator recommends that:

The Governing Council,

(a) **Note** the approval by the Administrator of the Minimum Work at a cost of $165,000, as an obligation of the United Nations Revolving Fund for Natural Resources Exploration;

(b) **Approve** this project involving a total possible expenditure of $865,000;

(c) **Decide** that this approval shall be cancelled unless the Government of the People's Republic of Congo and the Fund shall have signed a project agreement within a period of nine months after the date of approval of the Minimum Work, it being understood that the Governing Council shall be notified of any such cancellation at the Council's first session after such action has been taken.