

# UNITED NATIONS DEVELOPMENT PROGRAMME



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## UNITED NATIONS REVOLVING FUND FOR NATURAL RESOURCES EXPLORATION

### PROJECT RECOMMENDED BY THE ADMINISTRATOR

#### Exploration of Lateritic Nickel Deposits (Bonga Sector), Upper Volta (UPV/NR/78/001)

#### I. Background

1. Following an initial request from the Government of Upper Volta for Revolving Fund assistance at the end of 1978 and further consultations, an evaluatory-preparatory mission was mounted to Upper Volta in April 1979. A further specialized consultancy mission was fielded in November 1979. While other areas initially proposed for exploration by the Fund were found not to have good potential for the discovery of economic mineralization, the Bonga area was considered to be favourable and appropriate for Revolving Fund financing.
2. During 1976-1977, a considerable amount of exploration work was carried out in the Boromo and Houndé greenschists belts in the west-central and southwestern parts of the country through the assistance of UNDP project UPV/74/004. To maintain the necessary exploration-evaluatory impetus, the Government is now seeking assistance from the Revolving Fund to finance and carry out detailed work over four areas previously covered by the UNDP project where a lateritic nickel occurrence and good indications for possible additional deposits of the same type have been discovered.
3. Nickeliferous laterites are residual soils formed by deep weathering of certain ultramafic rocks under tropical conditions. Currently, nickel production outside the centrally planned economies is based approximately 60 per cent on sulphide ores (e.g. Sudbury, Canada) and 40 per cent on laterites (e.g. New Caledonia, Indonesia, Philippines, etc.). Identified land-based reserves are currently estimated to be 20 per cent sulphide and 80 per cent lateritic. Lateritic ores are mined by open-cut methods and, thus, mining costs are relatively low; however, these ores are not amenable to upgrading and therefore require relatively high energy inputs in processing, though developments in hydro-metallurgy may change this.

4. The proposed Bonga area has significant potential for economic deposits of nickeliferous laterite. In Area I, the main Bonga deposit has already attracted the attention of the Government. A laterite resource up to three sq.km. in area, some ten m. thick and grading in excess of 1.5 per cent nickel has been identified: possible reserves in the 15 to 30 million ton range may be anticipated. The deposit is seven km. from the railroad linking Ouagadougou with Abidjan on the Atlantic coast, and 13 km. from the Volta Noire river. Should an orebody be defined, recent developments in metallurgy suggest the possibility of recovering nickel and cobalt which could economically treat both limonitic and saprolitic ore.

5. The Government of Upper Volta places considerable priority on the careful expansion and development of its mineral resource potential. It has an infrastructure and organizational capacity which would allow prompt development of any economic resource outlined during the course of Revolving Fund work. The probability of defining mineable reserves is considered to be high, thus providing good possibilities of generating replenishment payments, while making a significant contribution to Upper Volta's mineral industry.

## II. The project

6. The objectives of the project will be to identify and evaluate deposits of economic potential in sufficient detail to attract investment for feasibility studies and possible commercial development. Work will be oriented towards nickel, cobalt and associated minerals.

7. The project areas are located within the west-central part of Upper Volta, and have a total surface area of approximately 230 square kilometers.

8. The Minimum Work will include:

(a) Investigation of the main Bonga deposit, a known mineral prospect with a surface area of approximately three square kilometers, mainly by pitting, drilling and sampling;

(b) Reconnaissance of neighbouring areas which have potential for providing additional tonnages of nickel laterite mineralization. This reconnaissance work will include:

(i) Detailed geochemical soil sampling to locate exploration targets, followed by;

(ii) Drilling and pitting to investigate the possibility of defining further deposits; and

(iii) Collection and chemical assaying of drill and pit samples.

(c) Evaluation of the results of the above activities to reach conclusions in respect of all exploration targets investigated and to formulate recommendations, if warranted, as to the nature and extent of further work that may be necessary to obtain conclusive results on the potential economic importance of any mineral deposits.

9. In carrying out the Minimum Work described above the Fund will expend not less than the equivalent of \$650,000 to finance all required inputs over a period of approximately 20 months.

10. If the results of the Minimum Work justify additional work, it is estimated that additional expenditures up to \$2,000,000 may be required to carry out intensive drilling/pitting, assaying, bulk sampling and mineral testing.

III. Financial data

<u>11. Revolving Fund allocation</u>	<u>\$US</u>
Minimum Work	650 000
Possible additional allocation for further activities following the minimum work	2 000 000

The financial assets of the Fund are adequate to meet the costs of this project.

IV. Recommendation

12. The Administrator recommends that:

The Governing Council,

(a) Approve this project involving a Minimum Work at a cost equivalent to \$650,000, as an obligation of the United Nations Revolving Fund for Natural Resources Exploration, and possible additional expenditures for further activities, to a maximum of \$2 million, bringing total possible expenditure to the equivalent \$2,650,000; and

(b) Decide that this approval shall be cancelled unless the Government of Upper Volta and the Fund shall have signed a project agreement within a period of nine months after the date of this approval, 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.

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