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SUPPORT

OTHER FUNDS AND PROGRAMMES
UNITED NATIONS REVOLVING FUND
FOR NATURAL RESOURCES EXPLORATIONAnnual report of the Administrator for 1982Summary

This report describes the activities of the United Nations Revolving Fund for Natural Resources Exploration in 1982 and is submitted in compliance with Economic and Social Council resolution 1762(LIV), paragraph 1(o). The report describes progress and effectiveness in field activities and in the evaluation of new project requests. It also highlights the efforts to assist Governments to mobilize the technical and financial resources required for pre-investment follow-up. Information is included on the activities of the Fund in the field of geothermal development following Governing Council decision 82/23. The serious financial constraints of the Fund are presented.

The attention of the Governing Council is directed to the recommendations of the Administrator as set forth in paragraph 59.

INTRODUCTION

1. The United Nations Revolving Fund for Natural Resources Exploration can report substantial progress in 1982 in all of its activities: minerals exploration, feasibility studies and geothermal energy development. Consolidating its prior achievements in mineral exploration, the Fund was successful in locating several new, potentially economic deposits in 1982. It also provided assistance to user countries in mobilizing the technical and financial resources required to establish the economic feasibility of mining operations which should lead to production revenues in the user country and replenishment contributions to the Fund. The Fund's ultimate objective of having discoveries move towards commercial production is now considered to be well within reach.
2. In the course of the year, there were eleven operational mineral projects in Argentina, Benin, Congo, Cyprus, Guyana, Kenya, Liberia, Mali, the Sudan, Suriname and Upper Volta. Field work was completed in three projects, in Argentina, Benin and Cyprus, and the project in the Sudan was completed with submission of the final report. Very positive findings can be recorded for work accomplished in Argentina and Benin as well as during the first phase (Minimum Work) activities in the Congo. Promising findings can also be recorded for the completed programme in Cyprus and the Minimum Work programme in Kenya.
3. Following authorization by the Governing Council in its decision 82/23 to extend the Fund's activities into the field of geothermal exploration, action has been taken to evaluate a number of project proposals from which a first geothermal project can be presented to the Council in the near future. Further examination of these proposals has indicated that in many cases energy generated from successful projects could be rapidly utilized in existing or developing electrical grid systems. In addition, many geothermal exploration drilling programmes to the discovery stage could be executed at a budget level similar to larger scale mineral projects currently being undertaken by the Fund.
4. The Fund's consolidated operational progress is being recognized by donor and recipient Governments as well as by the international mining community and international and regional financial institutions. However, success, which is so close, together with meaningful expansion and development of both the minerals and geothermal programme, cannot be achieved unless considerably increased contributions are immediately forthcoming. The Fund has sufficient programming funds to maintain a viable level of project development for the short term only. The seriousness of this situation is underlined in this report.
5. Chapter I of this report provides an overview of all Fund activities in 1982. Progress is summarized in chapter II. Management and finances are reviewed in Chapter III and a status summary is presented in chapter IV.

I. OPERATIONAL SUMMARY

A. Mineral resources

6. With the increase in the discovery of mineral resources of economic potential, the Fund examined ways of strengthening its investment follow-up capability. The Council had previously provided the framework for strengthening this critical area of the Fund's activity when it approved feasibility study financing in its decision 79/26 and co-financing authority in its decision 80/29. The operational summary below therefore starts with a new section, "Pre-investment follow-up activities", followed by a brief review of operational and pipeline projects. The tabulated summary attached as annex I gives essential details and data of project activities.

1. Pre-investment follow-up activities

7. Field operations at Huemules in Argentina were completed in May 1982. These involved detailed geological mapping, geochemical and integrated geophysical surveys, almost 2050 metres of diamond drilling, 257 metres of percussion drilling and 322.8 metres of exploration tunnelling on a high-grade gold prospect. Mineralogical and metallurgical tests were made on a composite sample of a high-grade area intersected by the adit. A computer based review of all exploration results was completed by a consultant firm. Results of this work are extremely promising.

8. Part I of the Fund's final report, entitled "Mineral Exploration in the Province of Chubut", which describes work carried out by the project in areas other than Huemules, was submitted to the Government. Part II is under preparation and will cover work effected in the Huemules area. A special summary report on Huemules has been prepared and, at the request of Government, is already being made available to potential private investors and lending institutions.

9. In part II of the final report, reported minerals will be claimed at Huemules for gold and silver, with good by-product potential for copper, lead and zinc. While the findings are so far very positive, the investigations at Huemules have not provided sufficient data to determine ore reserves and grade with the degree of accuracy required for investment decision making. Consequently, a two-phased feasibility study programme has been designed in co-ordination with Government to complete pre-production investigations.

10. Late in 1982, discussions with the Argentine Government were held to consider financing options for this feasibility programme. These options include the obtaining of financing from the private mining sector, the World Bank and the Fund. A proposal is being considered by the Government which

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would utilize Government, Fund and World Bank financing with a provision for the intervention of private investment at the most advantageous time. Meanwhile the Government is improving access facilities to the area and examining the financing options.

11. Offshore phosphate exploration work was started and completed on schedule at Pointe-Noire in the Congo during 1982 and an interim report on the completed first phase (Minimum Work) activities was made available to the Government. This report describes the potential reserves which are considered to have sufficient size and grade to be mined economically by conventional offshore techniques. Further work, however, is required to define these reserves, and thereby increase the attractiveness of this discovery for investment and mining development.

12. Options are being discussed with Government to determine the objectives and financial requirements for further work. The subsequent exploration work, which will commence in 1983 utilizing funds already approved by the Governing Council, has been designed and an outline drawn up for follow-up feasibility study requirements. Co-financing arrangements for the feasibility study have been initiated. The objective is to bring the project to the point of establishing economic viability for investment and production. International mining groups, both public and private, are showing considerable interest in the future industrial development of the Pointe-Noire deposits.

13. Fieldwork in Cyprus was completed on schedule utilizing the supplementary financing reported to the Governing Council last year, and the final report is under preparation. Sufficient evidence of potential copper mineralization was obtained in three separate target areas to allow the Fund to declare them as reported mineral deposits. Although the work completed did not result in the proving of economic viability, interest in additional exploration has been generated with private mining groups. The Government has indicated a desire to continue its co-operation with the Fund in an effort to secure follow-up work.

14. In Ecuador, the Government had not been able to attract investment to follow-up the positive silver discovery made by the Fund and previously reported to the Governing Council, (DP/477). However, towards the end of 1982, the Government gave permission to the Fund to discuss results with serious potential investors. The project findings have now generated the interest of a regional industrial development bank and an international mining company, which were considering joint development financing.

2. Completed projects

15. Projects in three countries were concluded during 1982. In Benin, work was implemented and successfully completed. The project demonstrated the presence of a relatively small but economically viable deposit of kaolin

clay. Initial physical and chemical tests show that the raw material is suitable for use in the ceramic industry. A final series of industrial application tests are awaited for the final report to be completed and for recommendations to be made to the Government of Benin in relation to possible investment and development. The project in the Philippines on base and precious metals exploration has been brought to a satisfactory conclusion and a report is being submitted. Minimum Work for the exploration of possible diamond deposits in the Sudan was completed satisfactorily in 1982. Assessment of all laboratory work and the contractor's report provided no indication of diamondiferous deposits and additional work was not justified. The final report was submitted to the Government.

3. Operational Projects

16. In Guyana, ongoing fieldwork concentrated on the follow-up of anomalous areas of gold potential in the Cuyuni belt. The drilling programme used for the subsurface investigations of earlier defined base-metal and rare-earths targets was completed on schedule but without indications of economic mineralization.

17. Excellent progress continued in Kenya. Drilling of geophysical anomalies in the search for massive volcanogenic sulphides recently resulted in the discovery of a large iron sulphide deposit in the Lolgorien area, but to date no economic grade minerals have been found accompanying this mineralization. However, such bodies are characteristically zoned (zinc, gold, copper, etc.) and further ground geophysical surveys and drilling are now being undertaken. The encouraging results of work so far completed allowed both the Fund and the Government to recognize the importance of extending exploration work over similar rock types to the north of the present exploration area. In response to an official request from the Government, a decision was reached by the Fund to include this additional area into the subsequent phase of exploration work. An amendment to the Project Agreement was processed and work will now proceed during 1983 without any requirement for additional financing. In this reorientation of the project, the Government has indicated that it would agree to the use of co-financing of further activities should this be a practical alternative.

18. In Liberia, work was completed on the alluvial gold programme with negative results and, as reported to the Council last year, (DP/1982/40), efforts were concentrated on the hard-rock gold exploration programme during 1982. Results of this work were more encouraging and by the end of the year two targets had been well defined and detailed exploration was underway.

19. As programmed, the Mali project became operational in the latter half of 1982. A project office was established in Bamako and a base camp was set up in the remote Tessalit area in October. Considerable time was required for the organization of field work and the development of the extensive logistic

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support required to operate in this remote area. Initial exploration work got underway at the end of November and drilling in one area was started in January 1983 and was satisfactorily completed in February 1983.

20. In Suriname, all Minimum Work requirements were completed with respect to exploration over the Bakhuis Mountain area (Area I). Although some further assessment is still required, it is unlikely that zones of economic copper potential have been discovered. During the latter half of the year, work was concentrated on the Lawa Area (Area II) for the exploration of hard-rock and possibly alluvial gold. Some anomalous zones were being identified and evaluated.

21. Minimum Work in Upper Volta was completed on schedule in late 1982. The detailed evaluation of the Bonga nickel laterite deposit, effected through detailed mapping, pitting, drilling and extensive sampling, demonstrated that the occurrence contained insufficient tonnage and had too low a grade to be economically viable either now or in the relatively long-term future. Nickel exploration also gave negative findings outside the main Bonga area in the search for satellite nickel bodies which could have added to the tonnage potential. However, the other exploration component of the project gave more promising results and also indicated that mineralization, probably including volcanogenic massive sulphides containing copper, lead, zinc, silver and gold, might extend outside the confines of the present exploration areas. The Government of Upper Volta made a request for a reorientation of work into an expanded project area which was favourably considered by the Fund. The chances of exploration success in such an expanded area are considerably improved by the recent discovery by a UNDP/United Nations project of significant zinc-rich volcanogenic massive sulphide mineralization just to the north of the Fund's area at Perkoa. This expanded work will not require additional financing.

4. Pre-operational projects

22. The Government of Haiti ratified the Project Agreement in December 1982. All pre-project arrangements for the provision of equipment and staff are underway and it is expected that the project will become operational by mid 1983. This project (DP/NRE/PROJECTS/REC/2) is presented for the Council's approval. In Peru, all technical details were agreed upon with the Government and the Administrator approved the Minimum Work Programme for \$1.7 million in early 1983. It is expected that the Project Agreement will be signed quickly and the Minimum Work programme will begin in the latter half of 1983. The Peru project (DP/NRE/PROJECTS/REC/3) is presented for the Council's approval.

5. Evaluation of potential projects

23. During the year, evaluations of potential projects were made in Burundi, Costa Rica, Honduras, Sierra Leone, the United Republic of Tanzania and the Yemen. Requests for possible mineral projects were also received from the Governments of Chile, Ecuador, the Gambia, Honduras and Rwanda. A detailed assessment of alluvial gold potential in Burundi was negative and the Fund is working with the Government in an effort to identify another project. The evaluation of a potential gold exploration area was proceeding in Costa Rica and a consultancy mission was scheduled for early 1983. By the end of 1982, a detailed evaluation of potential in various areas of Honduras had been initiated and further evaluation work was programmed. With the strong co-operation of the Government of Sierra Leone, the first phase of detailed project evaluation work was undertaken. Consultations were held with the World Bank, which had also been approached by the Government to assist in the over-all upgrading and development of the country's mining sector. Efforts are to be made in Sierra Leone to establish complementary World Bank and Fund programmes, with the Fund effecting exploration work and the Bank financing other more basic sector requirements. Firm decisions have not yet been reached and the Fund scheduled a further specialized mission to evaluate the alluvial gold potential. Evaluation of base-metal and hard rock prospects have already been completed and zones of interest outlined. In a further effort to develop a project in the United Republic of Tanzania, the Fund financed some detailed airborne and ground geophysical testwork over known nickel mineralization in the Kabanga area. The final report of the contractor is being delivered in early 1983 and results are to be assessed in co-ordination with the United Nations. To follow-up the Fund's mission to Yemen in late 1981, a detailed technical consultancy mission was fielded in the first half of 1982. The Fund is awaiting the results of work being carried out by other mineral exploration programmes in the country before making a final assessment as to project viability. In considering requests for projects in China and Egypt, additional technical information is being requested for the areas under consideration. Negotiations on the Project Agreement with the Government of Yugoslavia were not concluded and therefore no project recommendation is being submitted to the Council.

B. Geothermal resources

24. As reported in document DP/1982/41, requirements for exploration drilling programmes on one or more prospects have been identified in at least 14 of the 50 developing countries with potential for high-enthalpy fluid production for power generation. At the time of that report, many of these countries had expressed interest in the Fund participating in their activities. Following authorization by the Governing Council, these possibilities were carefully considered in more detail and eight countries were selected for initial evaluation missions.

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25. From the outset, the Fund considered that the best allocation of its financial resources would be by investment in an exploration drilling programme. Compared with entering an exploration programme at the pre-feasibility stage, over-all project costs could be reduced by \$0.5 million to \$2 million, and the inherent exploration risks as well as the lead time to production would be minimized.

26. The initial evaluatory missions by headquarters technical advisers focused on the selection of one geothermal target or prospect per country. The technical merit of each was assessed and information was obtained on the policies and priorities of the host Governments with respect to geothermal as opposed to other forms of energy. The size of generating capacity to result from a given discovery, and the likely selling price of the produced energy were evaluated. The possibility of third-party interest in co-financing and potential investment follow-up were also taken into account.

27. As a follow-up to this phase of initial evaluation, missions by teams of outside consultants are scheduled to go to the two or three most attractive prospects in early 1983 to assess them in detail and to prepare preliminary budgets and work plans. On the basis of these mission reports, it is expected that a final selection will be made.

28. In addition to the above noted project evaluations, the Fund has continued to receive requests for assistance from other countries, e.g. Bolivia, Honduras, Mexico, Vanuatu and Yemen.

II. PROGRESS AND RESULTS ACHIEVED

29. Intensive field work, further mineral exploration success and positive geothermal project evaluations well describe the progress made by the Fund in 1982. Equally important, a systematic follow-up plan of action was initiated to assist host countries, at their request, to mobilize the technical and financial resources required to establish feasibility and bring discoveries to the production stage, whereby revenues would be generated to the host country and replenishment to the Fund.

30. The high professional level of the Fund's operations led to mineral discoveries of potential economic significance in three countries in 1982. With eight completed projects to date, the Fund has made six potential economic discoveries. While two of these discoveries are minor and are of a more uncertain nature, this very high success ratio is highly encouraging.

31. The flexibility of Fund operations, which consistently has been stressed as a major factor in exploration success, allowed the Fund to reorient operational projects in order to maximize success possibilities and to make the most cost-efficient use of its funds. Similarly, in the development of new projects under its forward planning programme, the Fund emphasized careful

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project selection. A cautious approach to project selection was considered even more important in view of the scarcity of programming funds.

32. In the geothermal sector, four countries were initially assessed and three project possibilities were identified (in Guatemala, Nicaragua and the Philippines). Further initial evaluatory missions were scheduled for early 1983 (in Argentina, Colombia and Turkey). In the evaluation process, the technical services of the United Nations were utilized to the maximum.

33. As noted in the present report, the Fund energetically responded to the report of the 1981 Working Group of Government Experts (E/1981/23), which recognized both the interest of the Fund and its responsibility to assist countries in their efforts to pursue the findings of a project in such a way as to improve its chances of reaching the stage of acceptability for exploitation. The Fund's positive exploration results have been brought to the attention of international mining groups, public and semi-public institutions as well as the World Bank and other international financing groups. Considerable interest has been generated through these contacts and follow-up consultations are continuing.

34. Eventhough achieving production depends on many factors beyond the control of the Fund, the first step beyond exploration, which is the identification of follow-up requirements, is well in hand. These requirements were seriously examined during 1982 and various options were studied. In co-operation with user Governments, discussions on co-financing possibilities with industrialized countries as well as joint financing arrangements with the World Bank have been most encouraging and constructive. It appears that the approach of retaining the Fund's "corporate" knowledge of the exploration area for further work while obtaining additional financial requirements from the World Bank is looked upon favourably by user Governments. Upon specific request, the Fund has also been able to introduce potential sources of qualified private investors to Governments, thereby further increasing development possibilities at the appropriate time.

III. MANAGEMENT AND FINANCE

35. Sound management practices continued to be stressed in 1982 in accordance with the Fund's administrative and operational procedures. The main energies of the Fund were directed towards strengthening its field activities and assuring technical and managerial operational control and efficiency at all times. Management effectiveness was enhanced by means of the phased approach to project development allowing for flexible programming with the most economic utilization of funds.

36. At every stage of the programme cycle, from the selection of a project to a decision on whether to extend exploration work, the cornerstone of the evaluation process continued to be the assessment of risks and potential economic viability. The Fund was particularly demanding of a strict application of this criteria to the extent that several new project requests could not be pursued and others were reoriented. This was a necessary albeit time-consuming process which will bring results in the long run.

37. With emphasis more on potential economic viability than on meeting a target for a specific number of new projects during the year, the Fund advanced more cautiously in its pre-project development work. The long-term outlook remains very favourable for the continued presentation of new viable requests from which to select and design viable projects. The Fund's pipeline of mineral exploration projects consists at present of 17 proposals which are in various stages of evaluation.

38. With the persistence of the present world-wide recession, the prolonged decline in raw material prices and the dramatic downturn in high-risk exploration and in syndicated loans for production financing, the role of the Fund for exploration purposes, and of international financial institutions for production financing assumes even more importance for the developing countries. When the world economy rebounds, if there is a major hiatus in the discovery and evaluation of future resources, as exists at present, producer countries will not be in a position to avail themselves of increased raw material markets and prices, and consumer countries will be faced with reduced sources of supply.

39. During the year detailed technical assessments were undertaken for every project by the Fund's technical evaluation group. This assessment process, an important management tool, which involved a team approach, resulted in revised work programmes and updated expenditure schedules. The Joint Operations Group (JOG) met at regular sessions. All major project decisions were brought to the attention of its members.

40. For specialized technical assessments, extensive use was made of outside consultants. There was also an appreciable increase in the use by the Fund of national and international mining services under subcontract for major components of exploration work, taking full advantage of the world-wide experience of mining groups operating in the developing countries. In many of these countries, advanced technologies were utilized. Considerable use was made of locally available professional services and work forces. Additionally, national equipment and supplies were utilized wherever possible.

41. Co-operation within the United Nations system was consolidated. As noted, a highlight of the past year has been the consultations with international and regional financial institutions on specific project follow-up possibilities. The World Bank also continued to provide specialized technical and legal

advice free of charge. The co-operative mechanisms established with the United Nations for 1982-1983 on a reimbursement basis proved to be more cost-effective and to be more in line with the technical requirements of the Fund. In addition to arranging technical inputs from the United Nations for both the minerals and geothermal sectors of the Fund, over-all ties were strengthened by means of the joint technical co-ordination working group, which met frequently to exchange information on exploration activities, mission reports and travel plans.

42. The technical expertise of the United Nations in specialized fields was called upon for missions to the Fund's operational projects and in a number of cases this expertise was also utilized for project development work. During the year close co-operation continued with the special unit of the United Nations for new and renewable sources of energy, whose staff assisted in geothermal project evaluation. No new staff have been engaged by the Fund for geothermal activities.

43. On the administrative side, the services of UNDP were utilized on a reimbursement basis. In a parallel manner to that of UNDP, the Fund strictly adhered to a "zero growth" requirement for the administrative costs under its control. Including the newly assessed charges for non-core activities to the Fund from UNDP in 1982, administrative costs remained stable and continued to decrease as a proportion of all expenditures.

44. In accordance with Governing Council decision 81/24, the Fund issued a revision to its "Operational Procedures and Administrative Arrangements" (DP/142/Rev.1), which has been made available to the Council.

1. Financial Position and Resource Requirements

45. The status of contributions and of resource allocations is summarized in annexes II and III, respectively. Programme delivery in 1982 increased 67 per cent and 33 per cent over 1980 and 1981, respectively. The Fund's cumulative programme commitments were US\$27.3 million, which includes an estimate on an actuarial basis for subsequent work. Funding availability for additional programming was estimated at \$10.8 million as of December 1982.

46. There was some improvement in the level of voluntary contributions to the Fund in 1982 as well as an increase in the number of countries financially supporting the Fund. It is hoped that this upturn, while very modest, signals a trend for future years. Japan continues to be a major contributor to the Fund. A significant new contribution was received from the Government of Norway, and it is hoped that this will lead to continued pledges by that country and renewed interest by other donors. Pledges were also received for the first time from the Governments of Bangladesh and Chile. Continued support was received from the Governments of Belgium, Indonesia, Iraq and Panama.

47. Despite this modest increase in support, the Fund's financial position remains unsatisfactory and inadequate, particularly at a time when a number of positive developments are occurring rapidly which place a demand on already scarce resources. Having taken into consideration the limited availability of funding for additional mineral exploration programming as well as its expanded authority in the geothermal sector and the possibility for follow-up feasibility work in the minerals sector, the Fund was very conservative during the year in undertaking financial commitments.

48. Recognizing that it will take a considerable increase in the level of voluntary contributions to meet the growing demands from user countries in all areas, the Fund will proceed to allocate available funding to requests which meet its selection criteria. The Fund will be guided by its Operational Procedures and Administrative Arrangements (DP/142/Rev.1), in that projects shall be selected on the basis of their technical and economic viability and therefore of their potential for contributing to the requesting country's economic development and their ability to help achieve the revolving nature of the Fund. The funding allocation criteria applies to all areas - solid minerals, geothermal and feasibility studies. Given the existing commitment to the solid minerals programme, and as understood by the Council, funding priority will be given primarily but not exclusively to the minerals sector and particularly to following-up on promising findings in order to promote a prompt economic return to user Governments and replenishment to the Fund.

49. In the geothermal sector, further study of actual project possibilities has indicated that it will be possible to complete certain projects for less total cost than anticipated in document DP/1982/41. The magnitude of funding required for a successful exploration drilling programme of the type under consideration is in the range of \$4 million to \$5 million, a similar magnitude to a large-scale minerals project. Moreover, a successful geothermal exploration project can rapidly lead to energy production, providing early returns to both the user country and the Fund. All factors taken into account, geothermal projects are an attractive proposition and the Fund will soon be in the position to present a geothermal project for consideration by the Governing Council.

50. Co-financing possibilities for a geothermal project have been discussed with some interested industrialized countries which are being kept informed of project development work. The initial response was positive. The Fund has also maintained contact with international lending agencies interested in geothermal development.

51. The Fund's present financial position limits the amount which can realistically be considered for mineral feasibility studies. The Fund will continue to act as a catalyst for attracting other financial and technical sources. The Fund in any case is prepared for timely intervention, since it is in the interest of the host country to reach the production stage as soon

as possible. Because of positive project developments during 1982, it is anticipated that the Fund soon will be in a position to present a feasibility project for approval.

52. A variety of financial approaches are being considered for the follow-up to successful mineral exploration projects. This demonstrates the increased confidence placed in the Fund by user Governments. As noted, there is considerable interest in combining the resources of user governments, the Fund, and international and regional financial institutions as well as those of Governments and private and public mining groups for feasibility studies and subsequent capital investment for production. Since each project is unique, the most favourable arrangement will be carefully assessed by the Government and the Fund on a case by case basis.

IV. STATUS SUMMARY

53. The Fund has pursued its objectives vigorously and with considerable effect during 1982, and has taken all necessary steps in response to Governing Council decisions 81/24 and 82/23 reflecting the recommendations of the Working Group of Government Experts (E/1981/23). The level of financial support, however, remains inadequate. With reduced programming resources at its disposal the Fund has innovatively investigated additional financial resources which could be made available for its core exploration programme as well as for the critical area of pre-investment. Discussions with user and donor countries, international financial institutions as well as public and private organizations have led to co-financing and joint-financing proposals aimed at early development and returns.

54. Under its expanded mandate, the Fund has developed its work to the point where both mineral feasibility studies and geothermal projects are at an advanced design stage. Projects in these areas will soon be presented to the Council for its consideration.

55. The Fund is following a long-term pre-investment strategy and is moving ahead expeditiously yet prudently. As recognized by the Council, the Fund is providing a complete form of assistance which is essential to enable the developing countries to make optimum use of their undiscovered resources. The exploration and development gap to which the activities of the Fund are addressed can not be narrowed to the degree desired level with the present level of voluntary contributions.

56. In recognizing the importance of generating other sources of financing to consolidate the Fund's programme, the Council will appreciate that these opportunities are being presented largely because of the success generated by the voluntarily funded core programme. The additional resources being investigated are supportive only and cannot be regarded as a substitute for the Fund's basic programme.

57. Unless the level of funding is increased, available financing will need to be concentrated largely on the implementation of approved projects and on those in an advanced stage of development as well as on the promotion of discovered resources. Consequently, the Fund will be unable to respond to the numerous requests made for new basic minerals exploration projects nor will it be able to support a viable level of geothermal energy activities.

58. As previously recognized by the Council, it is essential for the Fund to strengthen its assistance in the area of feasibility (post-discovery) studies. It is equally important that this assistance be made available as soon as possible after the termination of positive exploration activity, i.e. the successful termination of a Fund exploration project. It is foreseen that a small scale feasibility study could be effectively executed for not more than \$1 million. The delegation of approval authority to the Administrator for a feasibility study, which is subject to replenishment based on reimbursement to the Fund in accordance with Governing Council decision 81/24, would ensure that discoveries move towards production as early as possible.

V. RECOMMENDATIONS

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

The Governing Council

(a) Approve the following two projects, subject to the availability of funds:

(i) Precious and base metals exploration in northern Haiti (HAI/NR/80/001) (DP/NRE/PROJECTS/REC/2);

(ii) Mineral exploration for base metals and gold in Peru (PER/NR/82/001) (DP/NRE/PROJECTS/REC/3);

(b) Endorse the efforts by the Fund aimed at promoting follow-up pre-investment work leading to economic development and financial returns;

(c) Decide to delegate to the Administrator authority to approve small scale feasibility studies so that no serious gap ensues between detailed exploration and such feasibility work. Any such action would be reported to the Governing Council at its next regular session;

(d) Appeal urgently to past, present and potential contributing member Governments to substantially increase the level of voluntary contributions to the Fund.

Annex I

UNITED NATIONS REVOLVING FUND FOR NATURAL RESOURCES EXPLORATION

Status of projects as of 31 December 1982

A. Completed projects

Country and project number	Principal target minerals	Expenditure (thousand of US dollars)	Status
<u>Argentina</u> ^{a/} ARG/NR/77/001	Copper, lead, zinc, gold, silver	3 198	Field work completed: 05/82 Field work was successfully completed. Final reports in preparation. Pre-investment discussions with the Government, private investors and the World Bank were initiated for feasibility study follow-up and further development.
<u>Benin</u> BEN/NR/80/001	Kaolin clay	279	Field work completed: 10/82 The project was successfully completed and demonstrated a small, economically viable deposit of Kaolin clay. A final series of industrial application tests were in progress before completion of the final report.
<u>Cyprus</u> CYP/NR/77/001	Copper, basemetals and gold	1 106	Field work completed: 07/82 Field work was completed and evidence of potential mineralization was obtained. Reported mineral deposits are being declared. The Fund will continue to co-operate with the Government in an effort to secure follow-up exploration and development requirements. The final report is under preparation.

Annex I (cont'd)

Country and project number	Principal target minerals	Expenditure (thousand of US dollars)	Status
<u>Ecuador</u> ^{a/} ECU/NR/76/001	Silver, gold, lead, zinc	2 070	Field work completed: 07/79
			Contact established with a regional industrial development bank and an international mining company for development financing consideration of this silver discovery. The project concluded with its final report to the Government in January 1980.
<u>Panama</u> PAN/NR/77/001	Porphyry-copper and gold	1 023	Field work completed: 12/80
			Final report completed. Small gold discovery being described.
<u>Philippines</u> PHI/NR/79/001	Copper, zinc, lead, precious metals	593	Field work terminated: 04/82
			Field work was terminated and a Work Completed Report was in preparation.
<u>Sudan 1</u> SUD/NR/75/001	Gold and base metals	217	Field work completed: 04/78
			The project concluded with the final report to the Government in April 1979.
<u>Sudan 2</u> SUD/NR/78/001	Diamonds	433	Field work completed: 11/81
			Assessment of results provided no indication of diamondiferous deposits and additional work was not justified. The project concluded with the final report to the Government in June 1982.

B. Operational projects

Country and project number	Principal target minerals	Commitment (thousand of US dollars)	Key dates	Status
<u>Congo</u> ^{b/} PRC/NR/80/001	Offshore phosphate	MW ^{c/} 165 SW ^{e/} 700 <u>865</u>	GC ^{d/} approval: 03/81 Signature: 01/81 Project effective: 12/81	Minimum Work was completed successfully and a potential economic deposit of phosphate has been identified. Subsequent work and feasibility follow-up is being designed to define these reserves for investment and mining development. Co-financing is being sought.
<u>Guyana</u> GUY/NR/78/001	Phosphate, rare earths, niobium, massive sulphides, gold	MW 650 SW 2 000 <u>2 650</u>	GC approval: 03/80 Signature: 07/80 Project effective: 09/80	Fieldwork is being concentrated on the follow-up of anomalous areas of gold potential.
<u>Kenya</u> KEN/NR/78/001	Copper, lead, zinc, gold, silver	MW 1 100 SW 1 500 <u>2 600</u>	GC approval: 01/79 Signature: 10/79 Project effective: 08/80	Drilling of geophysical anomalies resulted in the discovery of a large iron sulphide deposit. Work was initiated in the search for associated economic grade minerals. The Fund and Government also agreed to extend the area of exploration work over similar rock types where very good indications exist for base metal sulphides.
<u>Liberia</u> LIR/NR/78/001	Precious metals	MW 850 SW 1 650 <u>2 500</u>	GC approval: 06/79 Signature: 05/79 Project effective: 12/79	Negative results were obtained on the alluvial gold programme. More encouraging results emerged from concentrated efforts on the hardrock gold. Targets are now being subjected to detailed exploration.

Annex I (cont'd)

Country and project number	Principal target minerals	Commitment (thousand of US dollars)	Key dates	Status
<u>Mali</u> MLI/NR/80/001	Rare earths, niobium, tin, tungsten, tantalum	MW 1 300 SW 1 500 <u>2 800</u>	GC approval: 06/81 Signature: 10/81 Project effective: 02/82	Field activities started and drilling in one of the areas was scheduled for early 1983.
<u>Suriname</u> SUR/NR/76/001	Copper, zinc, gold, tungsten	MW 500 SW 1 500 <u>2 000</u>	GC approval: 01/79 Signature: 10/79 Project effective: 07/80	Minimum Work requirements were completed in December 1982. Emphasis was placed on the exploration for hard-rock and placer gold in the Lawa Area.
<u>Upper Volta</u> UPV/NR/78/001	Lateritic nickel and gold	MW 650 SW 2 000 <u>2 650</u>	GC approval: 03/80 Signature: 10/80 Project effective: 05/81	Minimum Work on the Bonga nickel laterite deposit was completed. The nickel laterite occurrence was not considered economically viable. The Government requested reorientation of the project into an expanded area which is considered to have good potential for volcanogenic massive sulphide mineralization and precious metals.
<u>C. Pre-operational projects</u>				
<u>Haiti</u> HAI/NR/82/001	Copper, gold	MW 1 000	Administrator's approval: 09/82 Signature: 10/82 Project effective: 01/83	The Project Agreement was ratified by the Government in December 1982. Field operations are scheduled for mid-1983.
<u>Peru</u> PER/NR/82/001	Gold, base metals	MW 1 700	Administrator's: approval: 02/83	Signature of the Project Agreement was anticipated for early 1983 with the Minimum Work scheduled to begin as soon

D. Project requests and pipeline1. Minerals sector

<u>Country</u>	<u>Principal target minerals</u>	<u>Status</u>
Brazil	Gold, nickel	Awaiting further discussion with Government.
Burundi	Alluvial gold	Negative evaluation of alluvial gold potential. Attempts being made to identify other viable projects.
Chile	Offshore phosphate	Request being evaluated and mission planned for early 1983.
China	Various	Position to be consolidated.
Costa Rica	Precious and base metals	Request initially evaluated and consultancy mission planned for early 1983.
Dominican Republic	Precious and base metals	Awaiting further discussion with Government.
Ecuador II	Copper, lead, zinc, silver	Evaluatory action being taken in 1983. Priority given to investment follow-up for San Bartolomé (Ecuador I).
Egypt	Gold, copper	Awaiting further data from Government to complete project evaluation.
Gambia	Various	Request for airborne survey negatively assessed.
Guatemala	Gold	Official request expected from Government in early 1983.
Honduras	Gold	Evaluatory mission planned for early 1983.

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Annex I (cont'd)

Morocco	Silver	Awaiting resolution of concessions and further discussion.
Rwanda	Various	Awaiting clarification of project request.
Senegal	Lignite (coal)	Awaiting outcome of exploration work by other organizations.
Sierra Leone	Gold and base metals	Close co-operation with the World Bank. Evaluatory mission for hardrock minerals completed and specialized placer gold mission planned for February/March 1983.
United Republic of Tanzania	Nickel	Consultancy mission completed. Report being evaluated.
Yemen	Lead, zinc, silver	Consultancy mission completed. Awaiting positive results of ongoing work by other organizations.

2. Geothermal sector

<u>Country</u>	<u>Area and potential</u>	<u>Status</u>
Argentina	Copahue, Neuquen; 50 megawatt	Results of evaluatory mission under review. Exploration drilling project possible.
Bolivia	Various	Evaluatory mission fielded in October 1982.
Colombia	Various	Evaluatory mission fielded in early 1983.
Ecuador	Various	Evaluatory mission scheduled for early 1983.

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Guatemala	Cerro Galapago, 15-30 Megawatt	Detailed technical mission in March 1983 to study proposed exploration drilling project.
Honduras	Various	Mission fielded in late 1982, dialogue continuing.
Indonesia	Various	Mission fielded in late 1982, dialogue continuing.
Nicaragua	Monte Jalan-El Hoyo-San Jacinto; 50+ Megawatt	Results of evaluatory mission under review. Exploration drilling project possible.
Philippines	Burauen, Leyte; 100+ Megawatt	Results of evaluatory mission under review. Exploration drilling project possible.
Turkey	Izmir-Seferhisar	Evaluatory mission scheduled for early 1983.
Vanuatu	Efate	Mission planned for late 1983.

a/ Pre-investment follow-up.

b/ Minimum Work completed, subsequent work programme and pre-investment follow-up under review.

c/ MW: Minimum Work.

d/ GC: Governing Council.

e/ SW: Subsequent Work (maximum).

Annex II
UNITED NATIONS REVOLVING FUND FOR NATURAL RESOURCES EXPLORATION

Status of contributions as of 31 December 1982
(US dollars)

Country	1974	1975	1976	1977	1978	1979	1980	1981	1982	Pledges for 1983	Total pledges	Payment received	Amount due
Bangladesh	-	-	-	-	-	-	-	-	1 000	1 000	2 000	1 000	1 000
Belgium	-	-	405 405	909 091	166 666	-	-	110 497	102 041	102 041	1 795 741	1 591 659	204 082
Canada	-	-	1 500 000	-	-	-	-	-	-	-	1 500 000	1 500 000	-
Chile	-	-	-	-	-	-	-	-	5 000	5 000	10 000	5 000	5 000
Dominican Republic	-	-	-	-	-	-	2 000	-	-	-	2 000	2 000	-
Indonesia	-	-	-	-	-	10 000	10 000	10 000	-	10 000	40 000	30 000	10 000
Iraq	-	-	10 000	-	-	-	-	-	11 290	-	21 290	-	21 290
Italy	-	-	-	-	-	-	840 336	-	-	-	840 336	840 336	-
Japan	1 500 000	3 500 000	3 500 000	3 500 000	3 000 000	3 000 000	-	2 000 000	2 000 000	a/	22 000 000	22 000 000	-
Mali	-	-	-	-	-	-	-	450	-	-	450	450	-
Netherlands	-	411 523	374 532	403 226	-	-	-	-	-	-	1 189 281	1 189 281	-
Norway	-	-	-	-	-	-	-	-	422 535	-	422 535	422 535	-
Panama	-	-	-	-	-	-	1 000	1 000	1 000	1 000	4 000	1 000	3 000
Uganda	-	-	-	-	-	-	-	51	-	-	51	51	-
United States of America	-	-	-	2 500 000	983 423	-	-	-	-	-	3 483 423	3 483 423	-
	<u>1 500 000</u>	<u>3 911 523</u>	<u>5 789 937</u>	<u>7 312 317</u>	<u>4 150 089</u>	<u>3 010 000</u>	<u>853 336</u>	<u>2 121 998</u>	<u>2 542 866</u>	<u>119 041</u>	<u>31 311 107</u>	<u>31 066 735</u>	<u>244 372</u>

a/ To be announced.

Annex III

UNITED NATIONS REVOLVING FUND FOR NATURAL RESOURCES EXPLORATION

Cumulative resources, commitments and additional programming availability
estimated as of 31 December 1982

(Millions of US Dollars)

I. <u>Cumulative resources</u>	
A. Contributions paid	31.1
B. Interest income (as of 31 December 1981)	10.0
C. Estimate of interest income for 1982-1983	4.9
D. Total	46.0
II. <u>Cumulative programme commitment</u>	
<u>Completed projects and projects for which fieldwork completed:</u>	
E. Maximum approval by Governing Council	12.6
F. Actual expenditure	8.9
G. Funds returned to central resources for further programming (E minus F)	3.7
<u>Operational projects:</u>	
H. Maximum approval by Governing Council	16.1
I. Indicative expenditure schedule ^{a/}	12.4
J. Maximum further work (H minus I)	3.7
K. Estimate of further work ^{b/}	3.3
L. Total indicative expenditure and estimate of further work (I + K)	15.7
M. Pre-project development (including estimate of 0.3 for 1983)	1.8
N. <u>Pre-operational projects</u>	
Minimum Work approved by the Administrator ^{c/}	2.7
III. <u>Administrative costs</u>	
O. Cumulative administrative costs (through 1982)	4.8
P. Estimated administrative costs for 1983 (including overhead costs to UNDP)	1.3
IV. <u>Balance available for additional programming</u>	10.8
Cumulative resources total (D) minus the sum of the cumulative programme commitment (F + L + M + N) and administrative costs (O + P)	

^{a/} Cumulative actual and projected costs to complete present phases of work plans.

^{b/} Based on the assumption that approximately one third of all approved projects expend their total allocations, one third expend only the Minimum Work commitment and one third expend an amount equal to Minimum Work plus half of the remaining amount allocated. Based on an average duration of subsequent work of 1.5 years, these calculations include an estimated increase due to inflation of 15 percent per annum.

^{c/} \$1.0 million for Haiti and \$1.7 million for Peru (approved in February 1983).