

Where this type of mining has taken place, subsequent evaluation of the remaining reserves and the initiation of modern mining is rendered much more difficult since what surface evidence originally existed has been largely destroyed.

It follows from the above that an expansion of coal mining in the Philippines, to the point where indigenous coal can supply an appreciable proportion of the total national fuel demand, will require a systematic and intensive drilling campaign to prove up sufficient reserves to justify the establishment of modern and efficient mines capable of producing an adequate tonnage of coal of a relatively consistent quality.

There has been much discussion of the development of coal gasification plants as one solution for the present shortage and high cost of petroleum fuels. It must be realized, however, that a modern coal gasification plant is dependent on regular supplies of a consistent grade of coal for which it has been designed. The coal deposits of the Philippines, by their very nature, render this extremely difficult, if not impossible, to achieve. Furthermore, this type of high-pressure coal gasification plant can only be justified if there is an adequate distribution system for the high-cost fuel gas produced, since this kind of plant is not flexible either with regard to the quality of raw feed-stock or to the plant output. Owing to the high capital cost of the plant, the cost per unit output rises rapidly if output is reduced below rated capacity. In discussing any such project employing high-technology plant requiring a heavy capital outlay, it is necessary to draw a sharp distinction between what may be technically feasible, and what is economically and practically feasible under existing circumstances.

From the information at the writer's disposal, and based on the limited amount of practical observation which has been possible in a visit of short duration, it seems that it might be possible to increase indigenous coal production

over a five-year period to the point where it could supply some 20% of total fuel demand in the Philippines. However, as stated above, it would be advisable to plan for the use of coal by small and medium scale local industries, rather than major industrial projects, and the production of smokeless fuel briquettes for domestic fuel consumption should be given serious consideration.

Such an increase in production would require immediate implementation of a drilling programme to block out proven reserves for the establishment of a number of medium-sized mines, adequately capitalized and equipped, and run with proper technical supervision. An extension of the present system of mining can never provide either a guaranteed supply or a consistent grade of fuel.

It may be necessary to establish a state enterprise, such as a National Coal Authority, to provide a nucleus of development capital and technical expertise which could not be provided by a number of small discrete mining enterprises. The terms of reference of such a body should be flexible enough to enable it to undertake coal mining on its own account, or to engage in joint ventures with private enterprise, as circumstances might dictate. It is not considered desirable that the coal authority should have exclusive rights to develop the coal resources of the Philippines, since this is likely to hinder development as much as to encourage it.

Legislative action may be necessary to annul coal-mining leases which are held privately and are not being worked, since it appears that at present a relatively high proportion of the mineable reserves are in this category.



Petroleum There has been a long history of petroleum exploration in the Philippines, even though the activity has been sporadic and intermittent. The results of the earlier work are summarized in a report by the Bureau of Mines (A Review and Assessment of Petroleum Exploration in the Philippines 1966). There is also a good summary and discussion of the prospects for finding oil in a report prepared by Dr. H. Porth of the German Geological Survey in 1973. Most of the original records have, however, been destroyed in a fire at the Bureau of Mines. The writer agrees with the general conclusions of Dr. Porth's report, while recognizing that his recommendations for bilateral assistance are outside the scope of the present writer's terms of reference.

There are numerous surface indications of petroleum in the Philippines, indicating that oil source-rocks are present in many of the different sedimentary basins. The principal reason for the lack of success in finding commercial deposits so far are believed to be the following:

- 1) Lack of reservoir rocks, particularly sandstones, in which the oil and gas could accumulate;
- 2) Geologically disturbed and complicated structures, including much volcanic activity, which may have resulted in the dispersal of some former accumulations;
- 3) Difficult physical, topographic, and climatic conditions rendering exploration on land slow and expensive;
- 4) A large number of small concessions granted to companies which possessed neither the financial nor the technical resources to carry out serious oil exploration.

The total area of the sedimentary basins on land in the Philippines is quite extensive, and on a purely statistical basis the density of drilling (i.e. the ratio of the number of wells drilled for each 100 square kilometers) is still very low. The digitization of seismic recording equipment and interpretation in recent years has greatly reduced the weight and increased the accuracy of reflection seismic equipment. Since the reflection seismograph is the principal exploratory tool used in petroleum exploration this factor will improve the accuracy with which exploratory wells can be sited in future and should be of significance in any further exploration for petroleum on land in the Philippines.

The only significant occurrence of hydrocarbons in the Philippines to date was the discovery of natural gas by Stanvac in the Cagayan Valley in 1958. Gas was found in the Ipil-1 well which was extensively tested. Offset wells, drilled adjacent to the Ipil-1 well to determine the size of the accumulation, were dry. The results of the tests in the Ipil-1 well and the fact that offset wells were unproductive indicate that the reserve of gas is small and must be regarded as subcommercial. Stanvac engineers estimated the gas reserve to be approximately 2.5 billion cubic feet, and while this may seem to be a large figure in itself it represents a relatively small reserve in comparison with the cost of exploiting it, and must therefore be regarded as being of purely local importance. There has been some discussion about the actual amount of the gas reserve, but unlike oil, it is possible to form an estimate of the size of a gas reservoir from one well and the Stanvac estimate may be taken as being reasonably accurate.

The Ipil-1 well was damaged accidentally during testing, and it would be both expensive and dangerous to attempt to recondition it. Any plan



for exploiting this gas reserve must therefore include the cost of drilling a new well which by itself would be an expensive undertaking because of the heavy mobilization cost of the drilling equipment.

While the Ipil gas discovery may be non-commercial, it is significant in that it demonstrates that hydrocarbons have been formed in the Cagayan basin, and further exploration of the area is probably justified despite the fact that several dry wells have subsequently been drilled in the area.

Based on the Ipil-1 discovery, it has been suggested that exploration for natural gas would assist in solving the energy supply problem of the Philippines. However, from the technical point of view there is no distinction between exploring for oil and exploring for gas. The exploration programmes and techniques are identical and there is no way of predicting beforehand whether a well will discover oil, or gas, or both, either separately or in association. The search for gas, then, must be an integral part of the search for oil.

The greater part of the present exploration for oil in the Philippines is concentrated in offshore areas despite the extra cost involved as compared to exploration on land. While there are geological grounds for believing that, in the Philippine archipelago, major oil and gas fields are more likely to occur offshore than onshore, particularly in the Palawan area, this should not be allowed to obscure the fact that the majority of the onshore basins in the Philippines are still relatively unexplored. Geological conditions in these landward basins are such that major oil and gas fields may possibly not exist, but this does not mean that a number of fields of relatively modest size could not make a significant contribution to the energy balance of the country. It is therefore suggested that steps should be taken to encourage onshore exploration for oil and gas simultaneously

with the present offshore exploration effort. In the opinion of the writer, the possibility that commercial accumulations of oil and/or gas may ultimately be found in the Philippines cannot be discounted, and it is recommended that the Government should do everything possible to encourage serious exploration by organizations possessing the necessary technical and financial resources. The administrative measures by which this can be accomplished will be dealt with in a separate section of this report.

Tar Sands Tar sand (asphalt) deposits are known to exist on the island of Leyte, and are well described in a report by Demetrio Palacio (1956). This report indicates that the tar sands occur as discontinuous lenses in a disturbed geological sequence, and that known reserves are limited in extent. Had these reserves been of sufficient magnitude it might have been possible to have utilized them as a source of petroleum, as is done in western Canada. The present known reserves on Leyte would not justify such a project, but further exploration of the area, and some drilling, might be justified with a view to using the material for paving highways as has been done in the past.

Oil Shale Oil shales are argillaceous rocks containing solid organic matter which can be converted to oil and gas by heating the shale. They do not contain any free oil and are frequently difficult to recognize by visual inspection of the hand specimen.

There are no reports of oil shale occurrences in the Philippines, but it does not appear that there has been any attempt to look for them and the extreme tropical weathering of all surface outcrops in the Philippines might make them even more difficult to recognize in the field than is usually the case.



The geological environment in which oil shales are formed is in some ways similar to that in which coal is formed and oil shale and coal sometimes occur in close proximity to one another. It is suggested that, since coal is fairly widely distributed in the Philippines, it might be worth while undertaking a systematic sampling of shale horizons in the coal-bearing regions in order to determine whether any of the shales come into this category. Owing to the difficulty of recognizing oil-shale in the hand specimen, it is necessary to subject each sample to a simple distillation test to determine whether the shale contains the necessary organic material. Such a sampling and testing programme could easily be carried out in conjunction with the programme of drilling recommended in connection with coal development.

Oil shale is generally regarded as being a source of oil, but in fact it can be used as a low-grade fuel and burned in a boiler for steam-raising. The exploitation of oil shale gives rise to a considerable problem of ash disposal, since the organic content is generally less than 20%. However, where the shale itself is calcareous, the ash can be used to make cement, thereby providing a useful and marketable by-product.

#### Geothermal

Geothermal manifestations are widely distributed in the Philippines, being associated with the volcanic activity along the main line of the Philippine fault. Despite this association, exploitable geothermal activity is rarely, if ever, connected with a presently active volcano.

Tiwi Field The writer visited the Tiwi field on 28 October 1973.

Investigation of the geothermal field at Tiwi, near Legaspi, commenced some 9 years ago and the exploration was assisted in its early stages by the United Nations, working in cooperation with the Bureau of Mines and the Commission on Volcanology. Development is now being undertaken by a

private company under a contractual agreement with the National Power Corporation (N.P.C.). Three producing steam wells have been drilled, and the site for a fourth well has been prepared. The contractor developing the field has submitted a feasibility study indicating that the first well, Naglagbong-1 is capable of producing some 60,000 pounds per hour of steam at a pressure of approximately 100 pounds to the square inch. The two subsequent wells are reported to produce more steam but the results are not quoted in the feasibility study. The reservoir base temperature is shown from the temperature-depth curve of the No. 1 well to be  $525^{\circ}\text{F}$  ( $218.5^{\circ}\text{C}$ ). The field is what is known as a "wet" steam field; that is, the wells produce hot water under pressure, part of which flashes into steam at the well-head as the pressure is reduced. The proportion of the total flow of the well which is available as steam is a function of the reservoir base temperature and the well-head separator pressure. In the case of the No. 1 well the test reports indicate that about 20% of the total flow of the well is available as steam at the separator pressure used during the test.

The writer is convinced that the Tiwi geothermal field will produce steam in sufficient quantities to make an appreciable contribution to the electrical supply available to the Luzon grid. However, the feasibility study as submitted by the contractor is regarded as an inadequate basis for the construction of a power station at the present time, for the reasons given below:

- 1) The feasibility study as such is based upon the production records of only one well;
- 2) Many of the basic assumptions used in the study (and much of the study is based on assumptions) are taken from oil industry practice



which are not directly applicable to the development of a geothermal field.

- 3) It is assumed that the first three wells have "proved" a productive acreage of 800 acres of reservoir. This assumption would not be justified even in an oilfield, since the wells are in a straight line and no lateral control is available. In any case, the implicit assumption that the productive capacity of a geothermal field is a function of its surface area is illusory. The confusion of principles is clearly brought out in the feasibility study by the discussion of "recharge" which automatically renders the concept of "proven reserves" null and void. If a geothermal field has a recharge system, one is not dealing with a finite and clearly defined reserve, as in an oilfield.
- 4) The feasibility study states that "resistivity mapping at Tiwi has indicated that 5600 acres of potential geothermal reservoir are present at drillable depth". This seems to indicate that the contractor is using the analogy of a seismic contour map of an oilfield. There is no discussion of the resistivity survey results and only one very small map of resistivity contours which is difficult to interpret. The contractor would appear to have a fundamental misconception of the role of electrical resistivity mapping in geothermal exploration. It is a valuable reconnaissance tool, but cannot give any indication of the actual production potential of the field. The electrical resistivity apparatus measures the ability of the earth to conduct electricity between two points; This is affected primarily by the salinity of the ground water, and a low resistivity anomaly can result from the existence of a layer of

cold saline water, or even a shale bed saturated with salt water. The instrument is also far more sensitive to near-surface effects than to those at depth, and the extremely low apparent resistivities encountered in geothermal areas have a screening effect which makes the interpretation of supposedly deeper data extremely uncertain. A further complication is the "streaming effect" resulting from the normal flow of near surface ground-water across the thermal field, which normally takes place from higher to lower ground. Where there is strong topographic relief, as at Tiwi, this streaming effect can displace the resistivity anomaly laterally down the hydraulic gradient, rendering interpretation of the resistivity survey even more uncertain. For the reasons given above, the assumption that the area of low apparent resistivity at Tiwi is coincident with the limits of the geothermal field is considered to be erroneous and untenable.

- 5) The feasibility study contains no discussion of the geological structure of the Tiwi geothermal field, which is crucial to its ultimate development as a power source. The writer believes that the field is located in a geological collapse structure of the caldera type bounded by arcuate faults, and possibly intersected by one or more transverse or radial faults. Such structures are very common in areas of recent volcanic activity and experience elsewhere has shown that geothermal fields are often associated with such caldera collapse structures. In such cases, the principal thermal manifestations frequently occur at the margins of the field, where movement along the boundary faults has fractured the overlying



cover. A large part of the structure at Tiwi has been obscured by lahar-type mud and boulder flows from the volcanic cone of Mount Malinao to the west but remnants of the caldera rim are discernible on the north and west sides of the field, and in the truncated spurs on the south. There seem to be no structural indications as to where the eastern boundary of the field may lie, but the occurrence of a hot water well in the town of Tiwi may be significant. In the opinion of the writer, the boundary of the Tiwi field probably runs along the base of the Putsan Ridge to the north, through the hot spring area of the Tiwi National Park and the resort area, swinging south and west along the foot of Mount Malinao. The latter may, in fact, be a parasitic volcanic cone on the south-western margin of the caldera collapse structure. This hypothesis is supported by the temperature-depth curve of the N-2 well, which shows a marked retrograde characteristic which is frequently associated with a well drilled close to the margin of a geothermal field. The contractor's feasibility study also mentions the possibility that the N-2 well may be located near the edge of the field.

On the above assumption, the hot springs along the margin of the Lagunoy Gulf would result from the overspill of heated ground-water flowing across the field from the high ground to the south, towards the sea. Wells drilled in this area would probably encounter high temperatures near the surface with colder water at depth. The proposed No. 4 well would also appear to lie outside the margins of the field. Inspection of the access road cuts and

the site of the No. 4 well failed to reveal any sign of thermal alteration of the rocks, which would also tend to bear out the hypothesis that this well may be outside the geothermal field.

- 6) The present pattern of drilling in the Tiwi field, while admittedly still at an exploratory stage, is quite unsuitable for the development of electrical power from the steam. A large part of the cost of equipping a geothermal field is the provision of large diameter insulated pipes to bring the steam from the wells to the power station, and the relatively large distances between the present wells would greatly increase the cost of development. It is recommended that a programme for drilling a cluster of four wells around either the N-1 or N-3 should be initiated as soon as possible, with a spacing of 50 metres between wells. The N-2 well is regarded as being too close to the apparent margin of the field for it to be a reliable producer of steam over a long period, and it should accordingly be utilized as an injection well for the waste water from the production wells. While the management of geothermal fields is as yet not well understood, experience at the Wairakei field in New Zealand showed that the withdrawal of large quantities of reservoir fluid over a long period of time can lead to a serious pressure drop in the field. Experience of reinjection of reservoir fluids in the Ahuachapan field in El Salvador has shown that recycling of cooled reservoir fluid is apparently negligible, at any rate in the short term. The comments expressed in the P.G.I. feasibility study regarding interference between closely spaced production wells are regarded as being unsupported by



evidence from the development of other wet steam fields, where no interference has been noted between producing wells spaced even closer than the 50 metres recommended above.

- 7) The Feasibility Study has been discussed in some detail above because the writer is of the opinion that it is based on too narrow a technical foundation, and on insufficient technical data, to form a sound basis for the construction of a power station. The production records of one well cannot be considered as sufficient justification for the size of investment required, and it is considered that many of the assumptions made in the report are invalid or unjustified. The case of the interpretation of the resistivity survey has already been discussed; a further example of what is regarded as an unjustifiable assumption is that given on page 6 of Section 2 which states "Potable water was assumed available by drilling .... a well ... Potable water will be used for initial cooling water tower start-up". This would be a risky assumption at any power-station site unless proper ground-water studies had been made, but in a geothermal field such an assumption is completely unjustified. In fact, one shallow well near the proposed plant site actually found steam. Despite the technical sophistication of the thermodynamic and other calculations contained in the report, its factual basis is regarded as being too flimsy to justify the recommended investment, and it is suggested that the NPC should insist that a closely spaced group of productive wells should be drilled and tested before a feasibility study can be accepted.

- 8) This report has not so far discussed the technology used in drilling the wells at Tiwi. Although the drilling is not the direct responsibility of the N.P.C., this organization nevertheless has a vital interest in ensuring that development costs are kept to a minimum because the contractor is entitled to recover these costs from payments for steam delivered to N.P.C. The drilling techniques used have been standard rotary drilling as practised in the oil industry, including the use of drilling mud having a much higher specific gravity than that of the reservoir fluid. The result of these methods was slow drilling, with repeated loss of circulating fluid, and very heavy expenditures both for materials and lost time. The drilling equipment itself appeared to be in good condition and well maintained, and was not a source of trouble.

There is no recorded case of a geothermal field having a bottom-hole pressure higher than the hydrostatic pressure for depth, and it is therefore possible to contain the reservoir pressure with a column of cold water alone, without the use of drilling mud. However, the use of water alone as a circulating medium while drilling is undesirable since it will not remove the larger cuttings from the hole. The most desirable drilling fluid for a geothermal well is therefore water containing an additive to increase its viscosity without appreciably increasing the hydrostatic pressure of the column of drilling fluid. Such additives are available commercially. Control of the well while drilling is achieved by a rapid circulation of cooled drilling fluid so that the flow-line temperature



never exceeds the boiling point of water. This condition has not been achieved at Tiwi, and in the case of the N-3 well there were at least three occasions on which the well nearly blew out because the temperature of the drilling fluid was too high. There is evidence that the productivity of the N-1 well was impaired by the heavy losses of drilling fluid and materials such as rice hulls, mica, or chopped cellophane which may have been used to control mud loss to the hole while drilling. In a geothermal well such damage is usually permanent and cannot be remedied. There is no evidence that an adequate reserve of water is maintained at the well-site during drilling. In case of difficulty the ultimate method of controlling a geothermal well is to cool it by flooding it with cold water, and when lost circulation is encountered the quantities of water required can be very large. It is recommended that in future all well-sites should be provided with an excavated reserve water tank containing some 5000 cubic metres of cold water. Such an excavation is relatively simply made with a bull-dozer, and can be lined with thin plastic sheet to prevent water-loss if necessary.

A further criticism is that the casing programme for the wells is in general too small for optimum production with respect to drilling costs. The production of a geothermal well increases in proportion to the cross-sectional area of the casing until such time as the reservoir permeability limits the mass flow of fluid into the well. The 7 inch diameter casing used for completing the wells is considered to be too small, and it is

recommended that a minimum of 9 5/8" diameter casing should be used for the completion casing string. Experiments should also be carried out to see whether the wells can be completed "bare-foot"; that is, without a slotted liner in the lower part of the hole.

The system of two well-head master valves in tandem is considered very desirable, but in view of the relatively high static well head pressures observed at the time of the writer's visit it is suggested that the rating of the lower valve should be increased from 600 psi to 900 psi to allow for any weakening with time due to thermal stress and corrosion.

The writer wishes to stress that in his opinion, despite the foregoing criticisms of the contractor's feasibility study and drilling technology, that the potential of the Tiwi field is large; just how large cannot be determined without further drilling, and no estimates of potential should be accepted which are not based on actual proven production of steam. In the writer's opinion, further exploration drilling is needed in the area between Carayan village and the Putsan Ridge, and also south and east of wells N-1 and N-3 towards the village of Bagumbayan and the town of Tiwi. The prime requirement at the moment, however, is to drill a closely-spaced group of producing wells which can form the basis of a valid feasibility study for the construction of a power station.

It is suggested that N.P.C. should consider purchasing a small skid-mounted "packaged" turbine and generator of about 5 MW capacity which can be used for well-testing, or alternatively



for supplying local demand until such time as a full-sized power station has been constructed. It is believed that Ansaldo of Italy, among other manufacturers, offers such a machine. The purchase of such a unit would give the staff of N.P.C. valuable operating experience in the utilization of geothermal steam before the construction of a full-size power station.

#### Tongonan Field (Leyte)

The writer visited the Tongonan geothermal field on 2nd November 1973 in the company of officials of the N.P.C. The field is being explored with the aid of bilateral assistance from the New Zealand Government. At the time of the writer's visit the site for the first exploratory well was being prepared, but no New Zealand personnel were present.

The Tongonan field is approached from the town of Ormoc by a dirt road which climbs the outside of an old volcanic cone, the slopes of which, although partly eroded, are clearly visible in profile on the ridges. The road passes over a sharp crest and descends into the deep narrow valley of the river Bao in the bottom of which are a number of fumaroles. The rocks in the sides and bottom of the valley show intense thermal alteration, so much so that what were originally agglomerate boulders have been completely converted to clay, despite which they have retained their original angular form and outline.

The geological structure at Tongonan is almost certainly of the caldera collapse type, with the Bao River and its tributaries running along the line of the marginal boundary faults. This explains why the principal thermal activity takes place along the general line of the river. The inside of the caldera is largely filled with a slumped mass of volcanic material rising to a higher topographic elevation than the

rim, which may be the remnant of the old original volcanic cone, but which more probably represents secondary parasitic cones which grew up subsequently to the formation of the caldera. Due to the steep slopes, high elevations, heavy rainfall, and the incompetent nature of the rocks forming both the caldera wall and the central cone, superficial slumping has destroyed much of the original outlines of the structure. Because of the massive central core filling the caldera, visible surface thermal activity is confined to a narrow strip of land on either side of the Bao River and its tributaries, giving the field a superficially linear surface expression.

Well sites Nos. 1 and 2 are both located in the bottom of the valley approximately along the line of what the writer believes may be the boundary fault of the field. Site No. 4 may be outside the field. In the opinion of the writer sites Nos. 6 and 7 appear to be the most favourably located. Admittedly, this opinion is based upon a very brief and superficial examination of the area, without any detailed study of the problem.

At the recommendation of the New Zealand engineers, attempts were being made to grout the immediate subsurface around the No. 1 well-site. As already remarked, the rocks in this area have been thermally altered to a dense clayey mass which apparently has little or no permeability, and grouting of the site would appear to be unnecessary. Grouting was adopted as a standard procedure at the Wairakei field in New Zealand because the surface rock there is unconsolidated pumice of very low specific gravity which is liable to erupt spontaneously if saturated with boiling water. Where surface conditions are different there would appear to be no need



to adopt this tedious and expensive procedure, and in fact it is not done in any other geothermal area as far as the writer is aware.

It was not done at Tiwi, for example. A far more important safety precaution is the provision of an emergency water reservoir at the drilling site, as recommended for drilling at Tiwi.

#### Other Thermal Areas

Time did not permit visits to other thermal areas in the Philippines, but on a previous visit the writer visited the Pansol-Los Baños area in Laguna Province and recommended exploration of the area.

The report of Grindley (1964) gives a good description of many other thermal areas in the Philippines, many of which appear to merit investigation as an energy source. Based on two criteria, namely temperature and silica content of the thermal water, the following areas seem to deserve priority:

<u>Thermal Area</u>	<u>District</u>
Batong-buhay	Kalinga
Malinit-Sadanga	Bontoc
Pansol-Los Baños	Laguna
Mambucal	Negros Occ.
Magaso Palimpinon	Negros Or.
Villavieja	Abra
Itogon	Benguet

Generally speaking, any thermal area which shows temperatures in excess of 75° C, a silica content in excess of 150 parts per million, extensive thermal alteration of the country rock, or a combination of these factors, merits investigation as a possible power source. It seems probable that there are many such areas in the Philippines which show such characteristics

but have not yet been investigated.

#### Utilization of Geothermal Heat

Apart from the development of geothermal resources for power there a number of industries which can utilize large quantities of cheap low-grade heat such as can be obtained from geothermal fields, among which are the lumber, pulp and paper, and food processing industries. Consideration should be given to siting such industries in proven geothermal areas so as to take advantage of the energy available. Where both power and heat are available in adequate quantity the processing of certain types of minerals is feasible.

In most rural areas of the Philippines there is a great need for simple crop-drying facilities. For instance, a large part of the rice crop is at present dried on the road surfaces or along the road-verges, which is both wasteful and not very effective. Wherever hot springs exist with a temperature in excess of 50° C it would be a relatively simple matter to drill shallow wells to increase the flow of water and to utilize this in simple drying sheds constructed of local materials. The only mechanical parts required would be the control valves and the piping in the drying shed. It is recommended that this should be done by the Government as a public service, without charge to the users, otherwise it is likely that the facilities will not be used. The benefit to the national economy obtained by reducing crop losses resulting from mould and rot would more than offset the cost of the operation. This type of project should be regarded in the same light as rural electrification programmes, which always contain an element of subsidy but are regarded as socially desirable on other grounds than economics.



### Energy Planning in the Philippines

Little attention has in the past been paid to energy planning or policy in most countries, but the present crisis conditions are making many governments aware of the need for a co-ordinated energy policy. In the past the transport sector, electrical power generation, petroleum refining, coal mining, and other energy generating and using activities have been carried on virtually independently of one another with resulting overlapping and waste, together with an excessive dependence on imports and a neglect of potential indigenous energy sources.

The prime requirement for effective energy planning is the establishment of an energy balance for the economy, and a forecast of demand by sectors over at least a five-year period. Such forecasts should be revised annually to take account of changing developments and new discoveries. Unless and until petroleum is discovered in large quantities in the Philippines, it is likely that petroleum will continue to be imported on a fairly large scale to supply the transport sector. Since there is already a domestic petroleum refining industry, supply of automotive fuels will result in production of an excess of fuel oil over local demand for this product. Consideration should therefore be given to siting new power stations adjacent to petroleum refineries in order to minimize the cost of transport of fuel oil. Since petroleum refineries are themselves heavy users of electrical energy, integrated development of this nature could lead to overall economies in fuel consumption and capital expenditure. Every effort should be made to stimulate the use of indigenous energy resources, of which coal and geothermal are both known to exist in appreciable quantities, and both of which are seriously under-utilized. In fact, geothermal development is only just commencing. In

the case of both geothermal and coal resources there is an urgent need for drilling programmes which will enable quantitative estimates of their reserves and potential to be made, for use in forward planning. At the present time estimates of both coal reserves and geothermal potential are little more than educated guesses based on surface geological evidence. As such, they are worthless for actual planning.

The Philippines are at present an energy-deficit area and are likely to remain so for at least five years even if petroleum is discovered in adequate quantities. Under these circumstances, and given the rapid increase in the cost of imported fuel, it is reasonable to consider how imported fuel demand could be restricted. The largest single consuming sector of imported fuel in the Philippines is transport, and this results in the imbalance mentioned earlier between the pattern of petroleum product demand and the supply pattern from the refineries, causing a net surplus of fuel oil. Apart from rationalization of the transport system, which is an internal administrative problem, it is noticeable that many of the vehicles in daily use are overpowered for their actual duties, resulting in a wasteful use of fuel. It is suggested that all private vehicles and many classes of commercial vehicle should be taxed on the basis of the manufacturer's rated brake horse-power of the engine. This would encourage the use of lower-powered and more economical vehicles and so reduce the fuel consumption per passenger-mile or per ton-mile, as the case may be.

Under the discussion of the coal resources it was suggested that consideration should be given to the production of smokeless fuel briquettes for domestic use, as a substitute for charcoal and bottled gas for many purposes. Certain grades of coal in the Philippines would certainly be



suitable for this purpose, and it is recommended that testing and pilot-plant production should be commenced as soon as possible.

Solar energy is not suitable as a source of power at the present time and in any case the climatic regime of the Philippines is not suitable for large-scale solar utilization. Nevertheless, consideration should be given to the possibility of encouraging the use of solar water-heaters for domestic use and of the construction of communal solar crop-driers in rural areas.

The Commonwealth Scientific and Industrial Research Organization (CSIRO) of Australia is one of the leaders in the field of solar energy utilization and could certainly give useful advice on this subject.

Administrative Aspects of the Petroleum and Coal Industries

Both petroleum and coal development in the Philippines have suffered in the past from a multiplicity of small enterprises which were inadequately equipped, either financially or technically, to undertake serious exploration and development. The result is a long history of activity, most of which has no relevance to modern requirements.

The system of granting service contracts for petroleum exploration was a major step forward in providing for properly financed and technically competent exploration, but the Government at present lacks the necessary administrative machinery to benefit fully from the production-sharing system upon which the service contracts are based. It is therefore suggested that the Government should establish a state-owned oil company which would be empowered to enter into service contracts with foreign partners, and which would take over the existing contract agreements. The state oil company should also be empowered to carry out exploration on its own account, and should be encouraged to do so, especially in the landward areas which are still relatively unexplored. It might possibly be made a condition for the grant of further offshore service contracts, that the contractor must simultaneously undertake exploration in an onshore area. Such a condition would require amendment of the clauses in the existing contract agreements which relate to work obligations, since these are at present transferable between different areas covered by the agreement. This is in any case considered to be an undesirable principle and should be modified in future agreements.

The state oil company should be subject to the same regulations with regard to operating practices and safety regulations as in a private



company, since it is an undesirable administrative principle that an executive organization of this nature should have the task of policing both its own activities and those of its commercial partners. The oil company should be entirely free to set its own salary scales and to hire consultants, specialists, and contractors as its work requirements dictate. Without such freedom from civil service salary restrictions the oil company will always be liable to lose its qualified and experienced staff to private companies offering higher salaries.

The organization of a state oil company, such as is proposed, is similar to that of a private oil company. Beneath the general management are department heads responsible respectively for exploration, engineering and production, finance, and administration. If the state company proposes to sell its own share of any crude oil on the international market it will be necessary to add a marketing department also.

Apart from providing an appropriate administrative mechanism whereby the Government can effectively participate in the existing service contract agreements, the functions of a national oil company would be to retain a nucleus of professionally qualified people with experience of the oil industry, upon whose advice the Government can call at any time, and to obtain and store information relating to petroleum exploration in the Philippines. As mentioned elsewhere in the report, most of the information relating to earlier petroleum exploration in the Philippines has been destroyed in a fire at the Bureau of Mines. It is therefore doubly important that the results of the present petroleum exploration should be preserved.

Among the principal items in this information are the following:

- a) Geological and geophysical data, maps and reports

- b) Drilling records, electric logs, and test results of the wells
- c) Samples of cores and bit cuttings from the wells.

Service contractors should be required to furnish all such information and material to the Government free of charge, and this should become the absolute property of the Government upon relinquishment or termination of the contract area. Oil companies frequently attempt to insist that such records are their property and shall be kept confidential even after exploration has ceased. The Government should resist this attitude and insist on adequate reporting by all organizations engaged in petroleum and mineral exploration or exploitation of any kind.

Limits to offshore exploration The present phase of offshore petroleum exploration raises the question of the limits of jurisdiction of the Philippine Government with respect to neighbouring countries. A clear distinction has to be drawn in this respect between the concept of territorial waters, and the jurisdiction of over minerals on and beneath the sea-bed. While the legal position on both these matters is in a state of change, custom has generally accorded any riparian country the right to exploit minerals on and beneath the sea-bed adjacent to its coasts, out to the limits set by technology or by the claims of neighbouring countries. Because of this uncertain situation it is recommended that the Government should take immediate steps to reach agreement with Malaysia and Indonesia regarding their mutual limits of jurisdiction for mineral exploitation. Such agreement is difficult to obtain at the best of times, but if once oil is discovered in or near a possible zone of dispute the chances of reaching amicable agreement are greatly reduced. This situation could arise as a result of current exploration in the neighbourhood of Palawan Island.



### Conclusions

The known mineral fuel resources of the Philippines can offer no relief from the present oil shortage in the short term. In the medium term, however, (say 3 to 5 years) development of indigenous resources could alleviate the situation somewhat even if oil or gas are not discovered.

The Philippines possess moderate reserves of coal which are at present under-utilized, and probably possess large reserves of geothermal energy which have not yet been developed.

Despite of a long history of petroleum exploration no commercial discoveries of oil or gas have been made. The natural gas deposit at Ipil in the Cagayan basin is too small to make any impact on a national scale. Any attempt to develop it for local use would require a careful study of the cost, in view of the relatively small reserve.

The prospects of finding oil and/or gas in the Philippines cannot be discounted and the Government should do everything possible to encourage exploration by organizations possessing the necessary financial and technical resources. Much exploration in the past has been performed by companies having neither of these requirements.

The present world oil situation will probably lead to further applications for service contracts and the Government should attempt to negotiate for more advantageous terms before signing such agreements.

The United Nations, through the UNDP, can provide the Government with advice and assistance in any of the above-mentioned fields, if requested to do so.

Recommendations

- 1) The establishment of a national oil company to handle the existing service contracts and to foster petroleum exploration in the Philippines.
- 2) Every effort should be made to ascertain the amount of mineable and recoverable coal reserves by means of geological surveys and test drilling. Present reserve estimates are only tentative and do not represent proven mineable reserves.
- 3) More rapid geothermal development should be encouraged by examining other thermal areas besides Tiwi and Tongonan, and by encouraging drilling to prove reserves.
- 4) The feasibility study for the Tiwi geothermal power station is considered inadequate and the Government is advised to insist that the contractor shall drill a group of closely spaced production wells as soon as possible, in order to demonstrate that sufficient steam will be available for the power station.
- 5) Future geothermal development contracts should not be related to the price of fuel oil, or to any other fuel, but to the cost of developing and producing steam.
- 6) Technical specialists from the Commission on Volcanology and the National Power Corporation should visit Mexico and El Salvador, as well as to Italy and New Zealand, in order to study the development of wet steam fields.
- 7) A geochemical laboratory should be set up for the analysis of geothermal waters and gases. This could possibly be done within the scope of the present technical co-operation agreement with the New Zealand Government.



Mr. Gold  
" Frost  
" Bailey

Cleared: R.K. Basu  
C. Kandhanagom

Mr. W. Goodkind, Director  
Office for Departmental Finance and Administration

12 November 1973

TE 344/1PHIL

B.A. El-Tawil, Acting Director, OTC  
W van der Heide, Acting Deputy Director

R.K. Basu, Chief, Physical Resources Projects Section  
Asia and the Middle East Branch, OTC

PHI-73/002 - Official travel - Mr. D. F. Bailey (amendment)

It would be appreciated if request for travel authorization dated 11 September 1973 could be amended to include extension of Mrs. Bailey's stay in Manila to 9 November 1973.

Traveller

Name:	Mr. D.F. Bailey	Grade:	Level 6
Functional title:	Technical Adviser	Room	2382
Division:	Resources and Transport Division, Energy Section	Ext.:	4072

Itinerary

New York/Manila/New York

<u>Original duration</u>	- 15	Two weeks beginning 15 October 1973
<u>Actual duration</u>	-	Two weeks from 19 Oct. - 1 Nov. plus 8 additional days till 9 Nov. at \$18.00 per day \$144.00

By cable No. 403 (attached) the Government had requested the extension of Mr. Bailey's services to 9 November 1973. The substantive office had agreed to the extension.

Project PHI-73/002 was expressly established to finance this consultancy mission by Mr. Bailey. The total cost of the mission including the extension is \$1,494.00 (\$1,350. + 144.00) as against provision in the project budget of \$2,500.



6 JAN 1974

BH/pb

Mr. R. K. Basu, Chief,  
Physical Resources Section, AME/OTC

13 December 1973

ORIGINAL ON FILE  
EC 132/226 PHIL (9)

FILE → TE 311/1 PHIL

V. Kandaswamy, Chief,  
Technical Co-operation Section (Asia, Europe and the Middle East)  
Centre for Housing, Building and Planning

PHI/72/004, PHI/72/013, PHI/73/007 and PHI/73/009 - Evaluation.

1. On the question of projects PHI/72/007 and PHI/73/009, please refer to our memoranda of 28 June, 11 July, 23 August, 28 August, 7 September, 26 September and 8 October, covering the proposal for an evaluation mission, before these projects are activated. Although this mission was approved by OTC and UNDP headquarters, it was never fielded because of resistance by UNDP, Manila. However, in light of recent developments in the Philippines, we think it would be appropriate to reactivate the mission proposal and programme it for early in 1974.

2. At the same time, the scope of the mission should be expanded to encompass project PHI/72/012 and the National Physical Planning component of PHI/72/005. Mr. Hyland reviewed the status of both these projects as part of his recent mission to Manila, and, in due course, a Mission Report will be submitted detailing his findings. However, the general situation may be summed up by saying that the projects are technically inadequate, organizationally confused and administratively ineffective, and that a complete reorientation of effort is required if there is to be any worthwhile output. Some of the fundamental problems are as follows.

Manila Metropolitan Region Plan.

3. This is the "core" operation of the programme and should be receiving the maximum possible UNDP and counterpart inputs. However, as it stands, we only have two experts assigned to this project, with the Project Manager to arrive in Manila in about six months' time, plus 60 man-months of short-term consultants' time and a sub-contract allocation of \$150,000 (about 25 man-months) yet to be taken up. According to the Prodec, there should be 28 full-time counterpart professionals assigned to the project but, in fact, there are four full-time and three part-time professionals, i.e. about 20 per cent of the required effort. Clearly, past reports from the field have been misleading in this respect.

4. Furthermore, the staff numbers do not reflect the real seriousness of the position, since the quality of the staff is of equal importance. In fact, most of the professionals are graduates of only the Institute of Planning course in Manila and do not have adequate practical experience.



We have been led to believe, in the past, that the counterpart staff was well qualified and highly skilled, but it is now apparent that this assessment is not correct.

5. With respect to our own experts, Mr. Sah seems to be a well-qualified and conscientious professional, but it appears that neither Mr. Urner (actually attached to PHL/69/324) nor Mr. Ida (actually attached to PHL/72/004) has performed up to our expectations. Mr. Urner has now separated from the United Nations, and Mr. Sah is on three months' sick leave, so that Mr. Ida is the project's only active expert. Taken all around, this project requires very close attention and continuous support from the Headquarters until it takes firm roots.

6. Mr. Hyland had the opportunity to make a preliminary review of the technical work, and his assessment is that the quality of work requires considerable improvement. The Japanese transportation study, which was represented to us as a major input and which seems to be the main basis of the planning proposals, is inadequately geared to local needs and capacities. Mr. Sah, with Mr. Ida's assistance, is attempting to extract from it workable and practical proposals, but how successful he will be remains to be seen. As to the overall urban planning strategy, a second-cycle report was to have been completed this month, but Mr. Hyland reports that its proposals are inadequately analyzed and remain unsubstantiated.

7. In addition to this, many crucial areas are receiving no attention at all. For instance, the project has no expert or counterpart input in rural planning, although a large part of the Manila Region is agricultural in character. There is no provision for technical services expertise, because it was, apparently, assumed that information and proposals in these fields would somehow be provided by other agencies and would simply be compiled into a plan without any need for evaluation or for reconciling inconsistencies. Finally, the question of community services infrastructure and housing is being ignored, probably because it comes largely under the jurisdiction of other agencies and involves mainly operational expenses rather than the capital investments to which the Department of Public Works is oriented.

8. Some immediate action is required to retrieve the situation. The subcontract component should be allocated to a study of technical services infrastructure, as soon as a Job Specification can be prepared and a contract let. The bulk of the short-term consultancy funds should be re-allocated for long-term Experts in fields to be identified, plus Associate Experts in appropriate disciplines. Mr. Ida's contract should not be extended, and a replacement should be sought. Along with these changes, there will have to be a complete review of the Work Plan, to put it on a rational basis at last, a recasting which has not been possible all this time because of resistance from the field.



National Physical Planning Strategy.

9. Mr. Nowakowski is our only expert attached to this study, and he claims to have a full complement of competent counterparts working with him. The main problem we have with this project seems to be the lack of coordination with other projects and the lack of information being transmitted to headquarters on the project activities.

10. There has been a difficulty with all the Philippines projects that we have been kept in the dark about any progress on the technical work. Prior to June 1972, we saw one or two preliminary documents which we evaluated as being of low quality (see, for instance, our memorandum of 12 June 1972). Perhaps as a result of that criticism, there seems to have been a deliberate policy followed in the field of not sending any further copies of technical reports to headquarters. Mr. Hyland discovered a great number of technical documents in Manila which we had not seen before, and it does seem that, if we had been kept informed, we might have been able to head off some of the problems sooner, by pointing out inconsistencies and deficiencies which should be rectified.

11. As it is, the individual projects seem to have been proceeding with no coordination, to the extent that the National Physical Planning Strategy has produced recommendations contrary to the proposals of the Metropolitan Manila project and the Mindanao project, despite the fact that all the projects are housed in the same building and that differences can be discussed simply by walking across the corridor. The proposals of the National Physical Planning Strategy were examined by Mr. Hyland insofar as they affect the Manila and Mindanao plans; surprisingly, he found that these proposals were contrary to the findings of our other two project operations, including the fundamental aspect of delineation of regional boundaries.

12. The result of this uncoordinated activity is that the Metropolitan Manila project has now hired Professor Dotson, on a short-term United Nations consultancy, to recommend diametrically opposed suggestions to those of the National Physical Planning Strategy. In Mindanao, it is almost too late to take any effective action, because the National Economic Development Authority has adopted and is implementing the recommendations of the National Physical Planning Strategy, even though this will cause considerable problems for our Mindanao project. It is intolerable that this position should have arisen, and our experts should have resolved their differences internally before allowing this to become a major issue. If they could not settle it, they should have referred it to headquarters for reconciliation.

13. It is understood that there is a proposal with the National Economic Development Authority for the extension of the present project to provide regional plans for all the country, presumably excluding Manila and Mindanao, although that is by no means certain. We are not informed of what the status of this proposal may be, as the responsible NEDA official was out of Manila during Mr. Hyland's visit. However, it would clearly



not be acceptable to allow any request for further assistance to be submitted to UNDP without a proper scrutiny.

14. It was our contention, since the beginning of these projects, that they should have been combined into one operation. If this had been the case, we might well have been spared this current embarrassment. It is fortunate, in a sense, that this phase of the work and Mr. Nowakowski's contract only have about nine months to run, since we can properly limit future problems. However, it provides a clear lesson of what could happen again, if other independent projects are set up cutting across the Manila Plan responsibilities.

#### Indonesia/Canada Projects.

15. These projects have been the subject of extensive correspondence and discussion. Although, strictly speaking, they did not fall within the terms of reference of Mr. Hyland's mission, the question of their execution inevitably arose, and the Deputy Resident Representative sought his views on the situation. Accordingly, Mr. Hyland did have a brief discussion with the Officer-in-Charge and several of the counterparts, and examined some of the background material which has been collected so far.

16. These projects are being directed, on an ad hoc basis, by Mr. Derting who is, apparently, an FAO employee carried over from a previous project. Since there are no actual projects -- not even preparatory assistance activities -- at present, Mr. Derting's status is somewhat obscure. However, he is directing a counterpart group, mostly with engineering skills, in mapping and data collection work, and he has prepared a preliminary Position Report on the two areas. It is understood that Mr. Derting may shortly be reassigned to Indonesia, as his current contract is expiring and there is no provision for continuing his appointment in Manila.

17. Mr. Hyland had a meeting with Mr. Rao, of Water Resources Section, before leaving headquarters, to be briefed on some of the points relating to these projects, and he followed up Mr. Rao's queries with Mr. Derting and, at another meeting, with Mr. Gedney. As we understand it, the position is much as Mr. Rao suspected it would be, i.e. that there will have to be about a year's preliminary work in data assembly, mapping, model-building, equipment installation etc. before any substantive work is possible. Furthermore, there seems no doubt that the present expert team is inadequate and badly distributed.

18. Since Mr. Derting is a soils expert and Mr. Gedney is not actually associated with these projects, Mr. Hyland's conclusions have to be treated as tentative only, insofar as they are based on the above conversations. However, we have no doubts that the current budgeting is inadequate and that the projects cannot be executed as now formulated. It should be noted that UNDP has suggested that the Asian Development Bank should be made the Executing Agency and should carry out these works through subcontract, so that UNDP will have to act now if it wishes to take responsibility for this work.



Conclusions.

19. Before leaving Manila, Mr. Hyland met Mr. Halford for a discussion on the immediate steps to be taken on these projects. Mr. Halford indicated unofficially that he was sympathetic to the idea of a review mission and, subject to his reviewing the background in more detail, that he would be willing to support such a proposal if it were submitted to the Government. It was agreed that, if a mission is to be fielded, it should be at the earliest possible time.

20. The function of such a mission would be

- (a) to review the preparation for the PHL/T3/007 and PHL/T3/009 projects, and to draw up a revised Prodec with suitable manpower, budgeting, work plan and counterpart support provisions; and its relationship to PHL/T2/013.
- (b) to outline a future programme of the PHL/T2/013 project and to recommend revisions to the expert component, the subcontract and the work plan;
- (c) to discuss the possibility of obtaining additional funding for the completion of the PHL/T2/013 project and to consider whether future work should be carried out by subcontract or by directly recruited experts; and
- (d) to review the status of the National Physical Planning Strategy and to recommend a programme for completion of the work in 1974;
- (e) to discuss with the National Economic Development Authority the proposed National Planning project and to assess its practicability for execution;
- (f) to examine other projected studies in the Manila area and to recommend whether they should be incorporated in the work of the PHL/T2/013 project.

The mission might also consider, if appropriate, the question of the counterpart agency for the above projects.

21. Since it has already been agreed with the UNDP for a two-man mission to undertake a review of PHL/T2/007 and PHL/T3/009 we should reopen this with the field. In addition, there should be a third expert, in the field of urban technical services, who would have to be recruited on a consulting basis. Thus, the mission would cover a total of nine man-months which should be charged against the Consultant component of PHL/T2/013 which has about 36 man-months unutilized.

22. This proposal should be immediately transmitted to UNDP Manila for clearance with the Government. On the basis of present commitments, the mission would probably be able to arrive in Manila in the first week of March 1974. We shall forward terms of reference in due course.





# UNITED NATIONS DEVELOPMENT PROGRAMME

OFFICE OF THE RESIDENT REPRESENTATIVE  
IN THE PHILIPPINES

METROPOLITAN BANK BUILDING  
ST. ADDRESS: 6613 AYALA AVE., MAKATI RIZAL  
TELEPHONE: 88-40-11 TO 25

REFERENCE:

POSTAL ADDRESS:  
P.O. BOX 1864 MANILA  
CABLE ADDRESS: UNDEVPRO \* MANILA  
TELEX - RCA 7222250  
EASTERN 8557

3 October 1973

Dear Mr. El Tawil,

Subject: Rephased budgets for Country Programme Projects  
(Your reply requested by: **NOV 14 1973**)

..... We have just completed our review of the above. Our comments in respect of the projects executed by your Agency are detailed in the attached sheets. Where the recorded 1973/onwards inputs are clearly not needed for completed projects, we have initiated Project Revisions to cancel them.

In this exercise we also thought we should include a request for financial information regarding Country Programme fellowships administered by your Agency.

To recapitulate, we would very much appreciate your assistance in 1) reviewing the points we have raised and returning 1 annotated copy of our Comments Sheet; 2) endorsing the enclosed Project Revision and returning 4 signed copies, where applicable; 3) providing the detailed breakdown of expenditures for each of the fellowships listed; and 4) designating the completion dates of completed projects, where applicable.

We shall very much appreciate your giving these requests your preferential attention.

Yours sincerely,

*William M. Harding*  
William M. Harding  
Resident Representative

Mr. Bahgat El-Tawil  
Acting Director  
Office of Technical Co-operation  
United Nations, New York

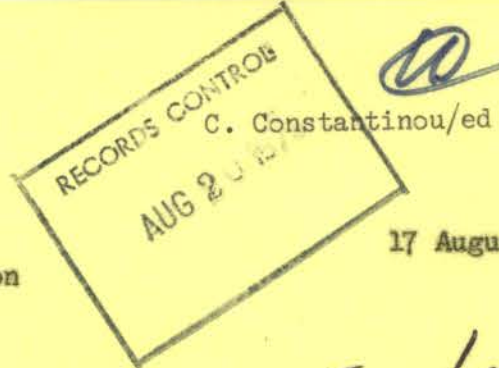
cc: BAFE, UNDP, NY  
MIS, UNDP, NY

**RECEIVED**

OCT - 9 1973

**OTC**

ORIGINAL DIRECT



17 August 1973

Mr. R. K. Basu, Chief  
Physical Resources Projects Section  
Asia and Middle East Branch, OTC  
Attention: Mr. A. Al-Futaih

TE 34/1 Phil

C. Constantinou, Officer-in-Charge  
Energy Section, RTD/ESA

PHILIPPINES: Assistance in Hydrocarbons

With reference to our recent meeting with the UNDP on a request from the Government of the Philippines for assistance in the field of hydrocarbons, we feel that our Technical Adviser on Fuels, Mr. D. G. F. Bailey, could be made available for a two-week mission in October to advise the Government on:

- (a) the collection, storing, analysis and evaluation of data from exploration activities in hydrocarbons;
- (b) the possibility of conducting surveys aimed at the identification of prospective areas for hydrocarbons;
- (c) a work programme to establish the feasibility of utilizing such resources, including natural gas for energy and non-energy uses.



ORIGINAL DIRECT



TE 314/Phil

26 June 1973  
BY POUCH

Dear Mr. Manos,

We thank you for sending us a copy of the Report of the Fact Finding Mission on Siltation, Pulupandan Port, Philippines.

The report has been studied here, and we find that the discussion of the problem is professionally sound. In order to analyse and evaluate the problem, it is necessary to collect additional data as suggested by Mr. Gole in para.5.9.6, including the proposed studies of siltation by radio isotopes. Based on the data thus collected, tidal model experiments should be conducted in the Central Water and Power Research Station, Poona, to find solutions. The terms of reference for model studies mentioned in para.6.8 seems to be in order.

We hope the above comments will be useful to you.

Yours sincerely,

R. K. Basu, Chief  
Physical Resources Projects Section  
Asia and Middle East Branch  
Office of Technical Co-operation

Mr. Aldo Manos, Chief  
Technical Assistance Unit  
Economic Commission for Asia  
and the Far East  
Sala Santitham  
Bangkok, Thailand

ORIGINAL DIRECT

NF/ja

cc. Mr. Lastovka

22 June 1973

Mr. Bahgat El-Tawil, Acting Director  
Office of Technical Co-operation

RECORDS CONTROL  
JUN 29 1973

FE 311/1 Phil

Mr. Guy Gresford, Officer-in-Charge  
Resources and Transport Division

PHILIPPINES - Country Programme. Projects in the field of Transport

1. We refer to Mr. van der Heide's memorandum of 15 June to Mr. Falzon regarding the interest we expressed in our memorandum to you dated 7 June in assisting in the implementation of two large-scale projects in the field of transport mainly:

<u>Project</u>	<u>UNDP input (US \$)</u>
Further Road Feasibility studies in Luzon	500,000
Feasibility Study of Road and Highway Networks in Mindanao and Vizcaya	1,000,000

2. In his answer, Mr. van der Heide states that these projects were discussed with the Resident Representative, Mr. Harding, during his recent visit to Headquarters, and that, as the above projects are tied up with the loan programmes of IBRD, IBRD would be the Executing Agency.

3. We deeply regret that we were not invited to join OTC staff when these projects were discussed with Mr. Harding.

4. Moreover, we cannot accept the fact that if IBRD is to supply the follow-up to a pre-investment project, it should automatically be designated as Executing Agency of the pre-investment phase.

5. Indeed, as IBRD mostly finance investment projects, it is likely to supply investment loans follow-up to any of the UNDP pre-investment projects. In several instances, such as Upper Volta-10 Hydrological and Railway Studies in connection with the Mineral Development in the North-East and the Africa Regional project entitled Technical Studies of the Trans-Sahara Road, the Resources and Transport Division has had substantive responsibility for UNDP pre-investment projects to be financed through an IBRD investment loan.



6. The two road feasibility projects which have been under paragraph 1. above fall completely within the field of competence of RTD. The Resources and Transport Division has been entrusted with several such projects in the past and is currently implementing projects of the same kind. I am giving you below a list of some of these projects:

Afghanistan-12 - Survey of a Direct Road from Kabul to Herat

Indonesia - INS/72/019 - Highway Planning

Indonesia - 72/069 - Road Development in Irian Jaya

Nepal 16 - Road and Highway Construction and Maintenance Feasibility Studies

Tonga 72-005 - Road Development Project

Yemen PDY-510 - Road Construction and Maintenance Training.

7. In conclusion, I believe it should be the common goal of OTC and RTD as well as any other substantive office as underlined by Commissioner Farah, at our joint meeting on 8 June, that the United Nations performance as a UNDP Executing Agency should be improved and enlarged. I do not think that we will achieve this objective by relinquishing to other agencies the right of the United Nations to provide technical cooperation in fields where it has an outstanding experience.

8. Consequently, we should be grateful if you would convey to the Resident Representative in the field our comments on these two projects together with a record of our experience in this field and reiterate our readiness to send technical advisers to the Philippines to assist in the preparation of the project document for presentation at the UNDP Governing Council.

Drafted: Shrestha/pl

cc m. Basu

15 June 1973

ORIGINAL DIRECT

Mr. Norbert Falzon, Assistant Director  
Resources and Transport Division

TE34/1 Phil

W. van der Heide, Acting Deputy Director  
Asia and Middle East Branch, OTC

Philippines Country Programme

Please refer to your memorandum of 7 June 1973 concerning projects in the field of transport included in the Country Programme of the Philippines. We have discussed with the Resident Representative, Mr. Harding, during his recent visit to Headquarters, the question of implementation of the two projects mentioned in your memorandum. We understand that for both these projects, the Executing Agency will be the IBRD, since these projects are tied up with the loan programmes of IBRD.



ORIGINAL DIRECT



RVH/NP

7 June 1973

Mr. Bahgat El-Tawil, Acting Director  
Office of Technical Director

Mr. Norbert Falzon, Assistant Director-in-Charge  
of Co-ordination of Operations, RTD/ESA

Zdenek Lastovka, Chief  
Transport Section, RTD

TE 311/1 Phil

PHILIPPINES. Country Programme. Projects in the field of Transport

1. Our review of the Country Programme for the Philippines indicates that action is now required in regard to the following projects which fall within our field of competence.

<u>Project</u>	<u>Starting date</u>	<u>Duration</u> (years)	<u>UNDP input</u> (US \$)
Further Road Feasibility studies in Luzon	1972	2	500,000
Feasibility Study of Road and Highway Networks in Mindanao and Vizcaya	1972	2	1,000,000

2. You are kindly requested to ascertain through the Resident Representative whether the Government is ready to proceed with the implementation of the above-mentioned projects, indicating also that, owing to their relative magnitude, we would be prepared to field a technical adviser who would assist the Government in drafting project documents for submission to UNDP.



ORIGINAL DIRECT

Drafted: Shrestha/pl  
cc: Mr. Gresford  
Mr. Basu

RECORDS CONTROL

JUL 10 1973

Ref TE 210(2) IBRD  
E 311/ Phil

I should be most grateful for your cooperation in carrying out the above considerations are taken duly into account before a decision is reached on the Executive Agency for the two projects 9 July 1973. I should further like to inform you that the United Nations would stand ready to send technical advisers to the Philippines to assist in the preparation of the project documents.

Dear Mr. Harding,

Yours sincerely,

You may recall that during your recent visit to UN Headquarters you informed us that, for the following two large-scale transport projects, the Executing Agency is expected to be IBRD since these projects are tied up with their loan programmes to the Philippines:

- (a) Further Road Feasibility Studies in Luzon
- (b) Feasibility Study of Road and Highway Networks in Mindanao and Vizcaya

After further review of these projects, we feel that we should draw to your attention that they fully fall within the technical competence of the United Nations and that we stand ready to execute them. The fact that IBRD is to supply the follow-up financing should not automatically lead to the designation of IBRD as the Executing Agency for the pre-investment phase. Indeed, there are several instances such as Hydrogeological and Railway Studies in Upper Volta in connexion with the mineral development in the North-East, and the technical studies of the Trans-Sahara Road where pre-investment studies made by the United Nations are to be followed up by IBRD investment loans. In our opinion, such studies should not necessarily be tied up with loan programmes, but be entrusted to the most appropriate agency. In this connexion, we note that we have been entrusted with several road feasibility projects in the past, including the following:

- Afghanistan - 12 - Survey of a Direct Road from Kabul to Herat
- Indonesia - INS/72/019 - Highway Planning
- Indonesia - 72/069 - Road Development in Irian Jaya
- Nepal 16 - Road and Highway Construction and Maintenance Feasibility Studies
- Tonga - 72-005 - Road Development Project
- Yemen - PDY-510 - Road Construction and Maintenance Training

Mr. William Harding  
Resident Representative of the UNDP in the Philippines  
P.O. Box 1864  
Manila  
Philippines



2.

I should be most grateful for your co-operation in assuring that the above considerations are taken duly into account before a decision is reached on the Executing Agency for the two projects under discussion. I should further like to inform you that the United Nations stands ready to send technical advisers to the Philippines to assist in the preparation of the project document.

Yours sincerely,

W. van der Heide  
Acting Deputy Director  
Asia and Middle East Branch  
Office of Technical Co-operation



ORIGINAL DIRECT

GANR/sz

RECORDS CONTROL

MAY 22 1973

Mr. Bahgat El-Tawil, Acting Director  
Office of Technical Co-operation

16 May 1973

Mr. Norbert Falzon, Assistant Director  
Resources and Transport Division

Alagappa Alagappan, Chief  
Water Resources Section, RID

PHILIPPINES - Report of Fact Finding Mission on Siltation  
Pulupandan Port

TE 311/Plul

The report sent with the routing slip dated slip dated 30 March 1973  
from Mr. Shmygov has been received.

We find that the discussion of the problem is professionally sound.  
In order to analyze and evaluate the problem, it is necessary to collect  
additional data as suggested by Mr. Gole in para. 5.9.6, including the  
proposed studies of siltation by radio isotopes. Based on the data thus  
collected, tidal model experiments should be conducted in the Central  
Water and Power Research Station, Poona to find solutions. The terms of  
reference for model studies mentioned in para. 6.8 seems to be in order.

..... The report is herewith returned.



UNITED NATIONS



NATIONS UNIES

ECONOMIC COMMISSION FOR ASIA AND THE FAR EAST  
SALA SANTITHAM  
BANGKOK 2, THAILAND.

RECORDS CONTROL

29 OCT 1975

TE 311/1 PHIL

TELEPHONE : 813544

CABLE : ECAFE BANGKOK

TE 622/3 (2)

BULK ENCLOSURE  
FILED SEPARATELY

TEC 120/73 (9-3)

16 February 1973

B-23/2

Dear Mr. El-Tawil,

TE 311/1 PHIL

X-Ref TE 622/3 (2)

Fact Finding Mission on Siltation in  
Pulupandan Port, Philippines

...

Please find enclosed one copy of the report of the team, comprising Mr. C.V. Gole and Dr. A.S. Tarapore of the Central Water and Power Research Station, Poona, Government of India, and Mr. P.R. Subramanian, Regional Port Adviser, which was deputed to the Philippines, on the above mission.

With kind regards,

Yours sincerely,

M. Manos

Aldo Manos

Chief

Technical Assistance Unit

BULK ENCLOSURE  
FILED SEPARATELY

Mr. Bahgat El-Tawil  
Deputy Director for the Asia and  
the Middle East Branch  
Office of Technical Co-operation  
Department of Economic & Social Affairs  
United Nations  
New York.

NATIONAL PROGRESS THROUGH REGIONAL CO-OPERATION  
JUNE 1947 - JUNE 1972

Mr. Igor Radovic, Officer-in-Charge  
Section for Asia and the Far East, OTC

DM/pc

7 February 1973

Gerald Wen, Chief  
Regional and Community Development Section  
Social Development Division

Establishment of a United Nations Centre  
for Regional Development in Manila

I refer to Mr. Evner Ergun's memorandum to you dated 26 January 1973 on the above subject and particularly to his suggestion that Mr. Weissmann's report should be referred to the Project Manager of PHI/72/504 for his comments and suggestions. As you will see from Mr. Weissmann's report

..... - copy of which is attached - the "draft understanding" has been left with the national authorities and the Resident Representative for elaboration and clearance, after which the formal proposal will be presented by the Government through the Resident Representative. In fact, the determination of priorities and the re-allocation of available resources have been left to the authorities in Manila, and I am certain that the Project Manager will be closely involved in those exercises. According to the Project

..... Manager's letter to me dated 26 January 1973 with copy to you, discussions on the proposed UN Centre are still proceeding, and he is hoping to get some agreement shortly.

I would guess that the new policy of regionalization for development purposes and the reorganization of the Government administration have induced the authorities to think in terms of a broader programme of training and research, extension and co-ordination which could be accomplished through a new institution suitably organized and equipped for the purpose. In any case, I believe, we shall have to await some formal proposal from the Government before any definitive action can be taken by us.

cc: Mr. G. Howard  
Mr. E. Ergun, CHBP  
Mrs. P. Wilmington



ORIGINAL

RECORDS CONTROL

FEB 21 1973

Mr. Hyland  
Mr. Wen  
Mr. Garcés

BH.

BH/mm

Mr. Igor Radovic, Officer-in-Charge  
Section for Asia and the Far East, OTC

26 January 1973

RECORDS CONTROL  
FEB 21 1973

TE 311 / Phil

Evner Ergun, Officer-in-Charge  
Technical Co-operation Section  
(Asia, Europe and the Middle East), CHBP

Establishment of a United Nations Centre for  
Regional Development in Manila

1. We have recently received a memorandum from Mr. Wen, enclosing a proposal by Mr. E. Weissmann for the establishment of a new United Nations-sponsored development planning and training organization in the Philippines. Mr. Weissmann apparently visited Manila at Mr. Wen's request to discuss this proposal with the Resident Representative and with university and government representatives, and it seems that some agreement in principle has been reached on the idea. Since this affects technical co-operation activities of the Department, we think there are some relevant points on which you should be informed.
2. The possibility of establishing a Regional Development Centre in Manila has been discussed periodically for several years, although usually in the context of a Centre serving the Asian Region. Mr. Weissmann's latest proposals represent a considerable change of emphasis, since what is now suggested is more properly described as a National Development Centre, concerned almost exclusively with the internal development requirements of the Philippines.
3. Mr. Weissmann identifies six objectives of the Centre (page 1, paragraph 2 of his report), principally in the fields of training, extension and backstopping. Five of these objectives are already the responsibility of ongoing project PHI/72/504 — Institute of Planning of the University of the Philippines. This allocation of responsibilities is officially accepted by the Philippines Government and is incorporated in the signed PRODOC which is now being implemented. The sixth objective concerns only international collaboration and is not of a substantial nature.
4. Mr. Weissmann also proposes (page 3, paragraph 8) that the Project Manager of PHI/72/504 should be the Director of the Centre and (page 2, paragraph 5) that the programme will be carried out by "a suitable pooling of resources already available... (and) by rearranging... the priorities within certain ongoing regional development and other related projects." The only ongoing regional development projects are PHI/72/012 (Mindanao) and PHI/72/013 (Manila) which are already co-ordinated by the Project Manager of PHI/72/504, under the terms of the

/...



PRODOC mentioned above, and whose priorities are already established. It appears, therefore, that the practical effect of Mr. Weissmann's proposals will be to reduce the authority of our Project Manager by bringing in a counterpart director with joint power to plan and execute the programme (page 3, paragraph 8).

5. In the light of the above, the only new element in Mr. Weissmann's report is a suggestion to provide 12 man-months of consultant and advisory services in programme planning and evaluation. We would welcome these additional resources which can easily be absorbed by our PHI/72/504 project. These expert services would cost only \$30,000, and the Philippines Country Programme contains an unprogrammed reserve of about \$2.5 million, so that the change can be effected through a Project Revision form, if the Government is seriously interested in taking it up.

6. In the first instance, Mr. Weissmann's report could be referred to the Project Manager of PHI/72/504 for his comments and suggestions. However, our opinion at this time is that the proposed Centre is unnecessary, since it merely duplicates existing project activities.



cc Mr Harding  
My Gold  
WF

Recd SAFE/OIC  
26 Jan 73  
M. Radon's  
23.1.73

UNITED NATIONS  
DEVELOPMENT PROGRAMME

UNITED NATIONS  
FUND FOR POPULATION ACTIVITIES



PROGRAMME DES NATIONS UNIES  
POUR LE DEVELOPPEMENT

FONDS DES NATIONS UNIES  
POUR LES ACTIVITES EN MATIERE DE POPULATION

UNITED NATIONS  
NEW YORK

TELEPHONE: 754-1234

INTEROFFICE MEMORANDUM

CABLE ADDRESS: UNDEVPRO • NEW YORK

TO: Mr. Stig Andersen, Director  
Office of Technical Co-operation  
Department of Economic and Social Affairs

FROM: Rafael M. Salas  
Executive Director

SUBJECT: PHILIPPINES: Assistance to the Population Commission's Programming,  
Evaluation and Research Division

RECORDS CONTROL  
MAR 28 1973  
Date: 18 January 1973  
C/TPA/551/PHI/25  
FILE NO.: DP/212/45  
SENDER'S TELEPHONE EXTENSION: 3597

This is with reference to the abovementioned project which was submitted to UNFPA for assistance.

For your information, we list down the components which UNFPA financed as pre-project activity for this project:

International Travel . . . . .	\$ 3,450
Local Salary . . . . .	20,927
Consultancy Services . . . . .	9,400
TOTAL:	\$33,777

On the budget submitted by the Government, \$284,510 is the total amount requested for this project. With \$33,777 previously allocated as pre-project activity, we have the pleasure to inform you that the balance of \$250,733 has been approved. The allocation advice will be issued immediately.