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Peru is a resource-rich country whose rather fragile economic growth during the course of the century has largely depended on the bringing on-stream of new, generally capital-intensive projects which have promoted raw material exports. Despite its abundance of resources, however, Peru's economic history has been disappointing. Thorp and Bertram, in their authoritative study of the modern Peruvian economy, have argued that the growth process itself was radically flawed and that 'the economic trends set in motion by successful export growth have consistently eroded the potential for self-sustained development.'[1]

After 1968, however, the Peruvian economy changed in one fundamental respect; the state took a major part in direct capital formation. One important recent study of the mining industry, by David Becker, has suggested that this transformation has indeed materially strengthened the Peruvian economy and its ability to promote a viable pattern of growth.[2] Becker argues that Peruvian governments since 1968 have pursued a strategy of 'bonanza development' in which surplus was to be extracted from the traditional export sector (where minerals and oil, rather than agriculture, played a key role) in order to foment industrialisation. Moreover, 'bonanza development' consists in using the resource "bonanza" for financial support of the state and for purposes of cooptation...but coupling these to greatly expanded state activity oriented toward industrial promotion.'[3] The term 'bonanza development' does seem extremely apt as a description of what post-1968 Peruvian governments have tried to do although Becker, in his thought-provoking work, may be too optimistic in his belief that bonanza development was substantially achieved during this time, or even that the strategy itself was without serious internal flaw. In this context one might mention governments' lack of control over the international prices of their exports and also the difficulties of creating an efficient local manufacturing through state spending and subsidy. We will return to these more general themes later in the paper.

This discussion will focus on the largest recent export-led development in Peru (with the possible exception of cocaine), namely the oil development in the Amazon area. In one key respect, this oil development was quite different from the pattern of mining development described by Becker — it involved a sharp discontinuity from previous oil developments which were almost entirely confined to the coast and offshore. Its physical remoteness also differentiates it from the fishing 'bonanza' of the 1960s where substantial local linkages were possible.[4] One would therefore expect oil development to be 'disadvantaged' in these two respects — the sharp discontinuity reducing the value of previous expertise, and the geographical remoteness reducing the spin-off advantages to local industrial development. Both of these reduced the importance of local private capital *vis-à-vis* that of foreign companies and the Peruvian state. Even so, oil industry conditions were by no means wholly adverse from the Peruvian perspective; during the 1970s international conditions were more favourable to the producers of oil than they had ever been before and possibly than they will ever be again.

If we are to consider how far the increasingly state-led 'bonanza development' attempted since 1968 differed from the earlier, more transnational-led variety, it becomes crucially important to make a thorough evaluation of the role of the state oil company, Petroperú. It seems reasonable to do this according to three criteria. The first is financial. Has the state company captured a financial surplus for potential re-investment which is significantly greater than might have been expected to result from the operations of private capital? The second is technological and is particularly important where the industry involves significant or major technical complexities. Has the state company significantly improved domestic technical capacity and thus reduced its dependence on foreign sources of technology? Finally, has the state company proved to be a national asset in negotiations with the private sector — particularly the foreign private sector? These three questions will be discussed in detail below. Before this, however, one must briefly give an account of what is subsequently to be analysed.

The Selva Oil Development

The Peruvian Amazon (Selva) has been known as a potential oil producing area since the 1920s but the very high cost of exploration and development limited oil company interest; small finds were, however, made in 1938 and 1955. There had also been some unsuccessful exploration; during the late 1950s Texaco drilled four dry holes and a consortium led by Mobil drilled unsuccessfully in 1960-61 and in 1968. It has been estimated that prior to 1969 some 30 wells were sunk in the area to establish two small finds. Company interest was renewed, however, by exploration success in neighbouring countries — the Putumayo find in 1964 in Colombia and, even more significantly, the 1967 find in the Oriente in Ecuador. These exploration campaigns had become easier as a result of the development of the cargo-carrying helicopter, first used in this area during the 1960s. In 1968, oil company interest in the Peruvian Selva was growing markedly.

For much of the century Peru has been a net exporter of oil although never on a large enough scale to enjoy a significant influence on world markets. At first the Peruvian economy derived rather little net benefit from these oil developments but, as an increasing proportion of its oil production came to be absorbed by the domestic market, price controls ensured what taxation apparently could not — a substantial increase in the returned value from oil. Until around 1960 Peru's oil production came overwhelmingly from onshore fields on the North Coast which had been discovered in the nineteenth or early twentieth centuries. After 1960 a limited amount of production became possible from the offshore. This did not prove sufficient to meet growing domestic demand and after 1962 Peru switched from being a net exporter of oil to becoming a net importer. Although a small state company was set up in 1939, almost all oil production was in the hands of foreign companies. There had, during the 1950s, been some signs of exploration interest from local capitalists; these had, however, almost entirely withdrawn by 1968 with little to show for their efforts.

In 1968-69 the main foreign company, the IPC, was expropriated by the incoming Velasco government under dramatic conditions which have been extensively analysed elsewhere.[6] Following this, a new state enterprise, Petroperú, was set up and organised around the body of men who used to operate the IPC, only a few of whom had left after the expropriation. Initially the military government hoped that a state company, developing the same north coast fields, would be able to increase oil production substantially. This turned out not to be the case and, soon after the nationalisation, Petroperú began looking to the Amazon as the last unexplored frontier with oil potential in the country.

Oil exploration in the Amazon, however, would be expensive, difficult and commercially dangerous. Exploration and development would be expensive enough but the economics of transportation provided an even more severe barrier. Very small oil output would suffice to supply the Amazon region and if substantial amounts of oil were discovered it would have to be transported by pipeline across the Andes — a venture which would certainly cost hundreds of millions of dollars.[7] In 1970 Petroperú estimated that a trans-Andean pipeline would cost at least \$200m ; Petroperú's own net worth in 1971 was \$73.3m.

Petroperú therefore decided to mount its own exploration campaign (choosing the best area of the Selva for its venture) while throwing open the rest of the territory to foreign capital. This was brought in under a 50-50 crude oil-sharing 'Peruvian Model' contract (which will be discussed in slightly more detail below). At first, things went almost embarrassingly well. Petroperú made a commercial oil discovery with its first well (in November 1971) and went on to find smaller quantities of oil with its next four wells — a tally (at the beginning of 1973) of five wells, five hits did promise a bonanza. Meanwhile, foreign companies showed themselves eager to enter Peru. By the middle of 1973 sixteen contracts had been signed, each covering 1m hectares, with a variety of foreign companies which had clearly shown themselves unworried by the dramatic nationalisation of IPC. Occidental Petroleum, the first contractor and a company which had worked hard to get into Peru,[8] had also made a number of oil discoveries with its early wells. By the end of 1973 it seemed certain that the Peruvian Amazon would be a commercial venture and the government had already decided to construct the trans-Andean pipeline.

The period 1974-77, however, saw a marked deterioration in these Amazonian prospects despite the sharp 1973-74 increase in world price levels. One major reason for this is that the geology itself proved disappointing; many large geological structures, which promised oil in abundance, turned out to be empty although some smaller structures did indeed turn out to contain oil. An abundance was no longer in prospect and all of the private contractor companies, except Occidental, left the country without making an oil discovery (although as we shall see, geology was not the only reason for their going). Occidental did develop commercial operations which, it later calculated, had only become worthwhile as a consequence of the post-1973 world price increases.[9] Petroperú's own exploration luck had turned comparatively sour. It discovered only one new commercially exploitable field between 1973 and 1977 while also encountering unexpected problems with its existing discoveries.

This series of disappointments by no means turned the Amazon venture into a white elephant (as some contemporary critics suggested). In April 1976, when exploration success was at around its lowest ebb, the authoritative *Andean Report* provided a detailed survey of the Selva venture. This gave, as the most reliable figure available, De Golyer and McNaughton's estimate that 440 million barrels had thus far been proved to exist (180 million by Occidental and 260 million by Petroperú); some small amounts of oil were already being produced and transported locally by barge, but large-scale development would start when the trans-Andean pipeline was complete. At 1976 world price levels, and prevailing cost assumptions, Occidental's venture would just be profitable while Petroperú, taking into account its 50% share of Occidental's production, was comfortably placed. Peru would generate a modest export surplus which would at least enable it to pay the debts contracted for exploration and pipeline construction. Yet these conclusions, more optimistic than some others at that time, were a far cry from 1973 when the (military) head of Petroperú and the (also military) Minister of Mines and Energy were talking of established production of between 200,000 b/d and 500,000 b/d as if these figures were certainties. In 1974 General Fernández Maldonado even announced Peru's eventual intention to join OPEC.

Although it is true that many experienced geologists were disappointed with what they found in the Amazon, there appears also to have been a degree of wilful over-optimism on the part of the Velasco government. Certainly one of Petroperú's contracted senior geologists soon afterwards wrote:

> One reason that I left Petroperú was that I think the whole Peruvian oil play is extremely exaggerated for political reasons.[10]

It appears that certain members of the Velasco government were concerned to provide optimistic accounts of Amazon oil development in order to impress foreign bankers and secure the best possible terms for Peru's foreign borrowing.

During the 1974-77 period policy tended to reflect both an increasing nationalism based on rising world oil prices and on the assumption that there were indeed vast oil reserves in the Selva and also an increasing lack of government coherence following Velasco's illness early in 1973 and continuing infirmity. Attitudes toward foreign oil investment changed considerably. It is of course true that a contract expressed in terms of a division of crude oil is disproportionately favourable to the private company if the price of oil rises. It was thus beginning to appear that successful foreign investors might make excessive profits from their operations despite the care with which the original 'Peruvian model' contract had been constructed (this will be discussed again below). Consequently, in mid-1973 it was decided that no more contracts of this type would be signed; Petroperú's request to resume contract negotiations in 1974 was turned down. Moreover, certain members of the government made clear their eventual intention to change some aspects of the contract unilaterally.[11] Finally, informal administrative procedures were used to make it clear to some of the oil companies that their continued presence in the country was unwelcome. Beyond the limits of Peruvian action, but of interest to the US oil companies, were changes made in 1975 to US tax laws which made foreign exploration less attractive. While it is likely that at least some of the oil companies would have been willing to overlook this change in climate had the Amazon area lived up to its geological promise, the combination of disappointing geology, a worsening tax regime and an unfavourable political environment proved too much in almost all cases. By 1977 Occidental was the only private oil company operating in the Peruvian Amazon.

1974 was also the year in which serious work began on the trans-Andean pipeline. The original decision to build a pipeline was taken at least provisionally as early as 1972 — a law dated 6 June 1972 declared its construction to be a national priority. It was in 1974, however, that financing was finally secured and the first construction contracts placed. During the same year the daily press was nationalised and two influential weekly magazines were closed down for criticising government policy; the next two years mark a period for which it is extremely difficult to secure information as to the progress of Petroperú or of the oil venture generally. Moreover the government was particularly sensitive to criticism relating to the pipeline construction. This appears to have been mainly the result of public opposition from the Lima Bar Association to a large fixed-interest loan from Japan whose terms included a provision for the international arbitration of disputes.

From the material that is available, it appears that during this period Petroperú substantially lost control of a number of decisions affecting pipeline construction and that this contributed substantially to the costs of the enterprise. Thus, for example, the Peruvian Air Force was given a monopoly of helicopter transport within the Amazon oil development areas and unashamedly set tariffs at a level which would subsidise the very rapid expansion of the helicopter fleet.[12] In any case, and for whatever precise reasons, the pipeline — when finally completed — ended up costing some $729m rather than the $550m or so widely estimated in mid-1974.

The construction of the pipeline involved the Peruvian government in a further set of negotiations with Occidental (described by one inside source as 'arduous and difficult')[13] over transportation. Until then, Occidental had invested only in exploration activities; these were expensive enough but did not involve the still larger sums required for oil development. (Occidental itself later stated that it had invested $70.7m up to the end of 1974). Apart from the main pipeline, it would also be necessary to build a feeder line to move oil from Occidental's fields to the main junction. This would cost around $160m. Occidental originally expressed willingness to build such a line, but the government refused to permit this (allegedly on grounds of national security) and instead offered to build the feeder line itself and to charge Occidental cost plus depreciation for throughput. Occidental happily agreed to this and Petroperú shouldered the extra financial burden. Agreement was finally reached in January 1976.

Crisis and Recovery

From 1977 onwards oil development moved into a new phase. Regarding national politics, there was a clear move to the Right; Velasco himself was overthrown in August 1975 and the last of the military Radicals resigned in June 1976.[14] Rather than a sharp political swing, however, policy on oil moved gradually and not always securely in a more liberal direction until 1979 when (as we shall see below) serious renegotiations with Occidental began. Petroperú itself did not recover from the decline which had started around 1974; indeed it suffered further as the Peruvian economy as a whole went through severe recession between 1976 and 1979.

Petroperú's organisational and financial problems have been discussed elsewhere and need not be treated in detail here.[15] It is, however, worth mentioning three factors which played an increasing part in limiting the contribution which Petroperú was able to make to the development of the Selva. The first of these was that oil product prices, which had remained largely frozen since 1959, were not increased until the middle of 1975 despite warnings from government technocrats, particularly after 1973, that low domestic prices were becoming increasingly onerous. After 1975 prices did increase rapidly in local currency terms but the impact was partly offset by some heavy devaluations of the Peruvian Sol. It was, however, agreed in 1973 that Petroperú would be compensated for its domestic price subsidy (to the extent that this involved actual loss) by the Banco de la Nación. Petroperú, therefore, continued to import oil (until mid-1977) which was marketed at a loss but, as the subsidy from the Banco de la Nación was in practice paid late or not at all, covered its position by short-term borrowing on the international market. This both increased its debts and greatly confused its financial position.[16]

Secondly, there was a legal problem with the 'Peruvian model' contracts. In 1974 the Peruvian government ruled that Petroperú was liable for double taxes on the oil produced by contracting companies in such a way that it ended up paying over 100% of the income which it received (i.e. it paid the contracting company's taxes and then had to pay taxes again on the 50% oil share which it had itself received from the company). This problem was more difficult to resolve than appeared at first sight because the US companies operating in Peru (Belco which operated offshore, as well as Occidental) themselves had a difficult relationship with the US tax authorities; this relationship was crucially dependent on taxes notionally paid by the companies themselves but actually paid by Petroperú. This became a highly complex matter in which scope for confusion was endless; nor were matters helped by the government's fears that nationalists would criticise any change in taxation provisions which could be construed (however implausibly) as involving 'under the table' payments to the companies. A new oil tax law in 1977 which aimed to resolve the situation had the unintended effect of seriously compromising Belco Petroleum which protested energetically until the measure was withdrawn (the repeal then led to nationalist criticism of the government).[17]

The final reason for Petroperú's problems was simple inefficiency. A series of reports for the government in 1976 and 1977 made it clear that the operating level of Petroperú had fallen substantially after around 1974; this was blamed mainly on red tape and the creation of a 'civil service' rather than an enterprise mentality within the agency.[18] It appears that despite these problems Petroperú was (until 1977) able to continue its Selva operations at a fairly high level at the price of an increasingly chaotic financial position and it indeed preferred to run up debt than to curtail its operations. From around the middle of 1978, however, Petroperú became largely unable to borrow (due to the national economic crisis) and the company had no choice but to begin a major reduction in its level of operations. Petroperú drilled eighteen exploration wells in 1976, fifteen in 1977, fourteen in 1978 and only two in 1979.[19] Meanwhile equipment needed for oil development, which would have increased Petroperú's Selva production from the actual 20,000 b/d (after July 1977) to a notionally possible 40,000 b/d, was held up by a shortage of cash. Even more seriously, wage controls imposed on the company as a part of the government's austerity measures after 1978 led to an outflow of technical specialists to countries such as Venezuela which were still recruiting. Several hundred departed in this way and the damage done to Petroperú was lasting; once they find lucrative employment elsewhere, such men rarely come back.

While Petroperú was weakening, Occidental was becoming increasingly strong. When the other companies all withdrew, the government finally came to the conclusion that more foreign investment in the Selva would be necessary and in December 1975 Petroperú was again given the legal right to sign contracts with foreign companies. Early in 1976 it was clear that Petroperú was willing to negotiate seriously with any interested party.[20] No companies came forward, however, and a formal re-opening of the Selva contract areas in 1977 did not alter this position.

While Peru was seeking fresh foreign investment, it could not afford to antagonise Occidental for fear of discouraging the others. Occidental itself, well content with the final pipeline agreement (made in January 1976), once more began expanding its investment in Peru; this rose to $137.6m at the end of 1976 and $201.9m at the end of 1977. In mid-1977 Occidental discovered the only genuinely large field to have been found so far in the Peruvian Amazon — Capuhuari Sur, with an eventual production potential of around 65,000 b/d. Thus in July 1977 Occidental made the decision in principle to increase its investment in Peru and approached the government in September with a firm proposal. This was to take over a territory formerly explored by Union Oil in which heavy oil had been discovered but abandoned as uncommercial. Occidental believed that this heavy oil could be mixed with Occidental's own light oil and thus transported through pipeline; it hired Union's former exploration manager and offered to undertake the work if it were offered especially favourable terms. Occidental also teamed up with Bridas, an

Argentine company with military connections (especially useful given Peruvian-Argentine military links), to offer a contract for secondary recovery on the Peruvian coast. After several months of indecisive negotiation, Armand Hammer, the President of Occidental, flew to Lima in March 1978 and, after talking to the President and Finance Minister, secured the signing of the contracts on April 4, 1978.

In March 1978, Occidental began to send its own oil through the pipeline to the coast. Production began at 45,000 b/d and quickly built up to 80,000 b/d; later in the year Occidental added pumps to the spur pipeline to increase its output to 100,000 b/d. During 1978 Petroperú was producing some 28,000 b/d from its own fields and had completely stopped drilling for lack of funds.[21] Occidental was still producing according to the terms of the 'Peruvian model' contract agreed in 1971. Even though its exploration success was only moderate, Occidental was making heavy profits as a result of the higher world prices, which increased still further after the second 'oil shock' in 1979. According to an inside source, Occidental had by April 1980 'almost recovered its original investment' after just two years of oil production.[22] There was, to be sure, some nationalist criticism of Occidental's position but the government — in serious financial difficulty and eager to attract fresh foreign investment into oil — was in no position to renegotiate seriously.

In late 1978 the government did in fact make known privately its intention to renegotiate.[23] Occidental first believed that the government would begin by negotiating with new foreign companies who were now starting to take a serious interest in Peru; following such new agreements, the same terms would then be applied to Occidental. However, the actual pattern of events was different. In May 1979 a team of international investment bankers was contracted to draw up an alternative on which renegotiation could be based. Once this had been reported, the government in December 1979 legislated its intention to renegotiate directly with Occidental. After several months of negotiation, terms were not so much agreed as imposed on the company and signed at the end of April 1980.

These terms amounted to an attempt by the government to reduce company profitability to a small amount at the margin. It was accepted that this would be insufficient to encourage re-investment or to attract new companies to explore but the aim was instead to re-capitalise Petroperú from the extra revenue raised and keep the state company as the dominant operator in the Selva. According to the new terms, the crude oil split was maintained as before but profits taxes would, in addition, be levied upon the companies in respect of the 50% oil share which they received. These tax rates, levied at 68.55%, would still have left some profit for Occidental,[24] but insufficient to persuade them to expand their investment. The government negotiators — economic nationalists — believed this to be a way of guaranteeing gradual nationalisation.

Following the election of Belaúnde to the Presidency in July 1980, policy moved back in a more liberal direction. The tax regime applied to the companies formally remained, but tax credits were offered for re-investment in the oil industry up to a maximum of 40% of the pre-tax profit. This proved sufficient to attract investment from Superior and Royal Dutch/Shell, both of which signed contracts for Selva exploration during 1981. Occidental, meanwhile, stepped up its investment in Peru further and made two more small oil finds at Ceci and Jibarito. There was also a notable increase in foreign oil investment in the coastal and offshore areas which is beyond the scope of this discussion. Despite everything, however, the increase in foreign investment was less than the government had hoped. One reason for this was a downturn in the world oil market which became apparent in 1981 and became increasingly serious towards the end of 1982. This liberal oil policy met domestic opposition from within Congress and also from some military officers leading to procedural delays in the approval of certain contracts which were then aborted when some members of the consortia lost interest.[25]

The Belaúnde government did, however, make serious efforts to improve the performance of Petroperú. Legislation early in 1981 changed the legal status of the company to a Sociedad Anonima which meant that it became exempt from the wage controls applied to central government employees. Petroperú's financial position was also strengthened, largely with the aid of a $32.5m loan from the World Bank in 1980 (and a smaller loan from the IDB). Thus Petroperú was able to resume an exploration programme in the Selva and in late 1980 made a significant find in Nueva Esperanza. Despite some improvement, however, Petroperú continued to suffer from a lack of funds — one consequence of which was that the agency became particularly keen to develop any discoveries made even though this meant taking resources away from further exploration activity.[26] In 1982 a further World Bank loan of $81.2m was made to Petroperú and the company underwent further internal re-organisation following a management report from A.D. Little.

Meanwhile Selva oil production did not change markedly between 1979 and 1982 (the 1983 figure will be somewhat reduced due to a break in the main pipeline resulting from flooding); official reserve figures have not changed markedly either (remaining at around 500m barrels) and there should be no problem maintaining production levels for several more years. Within the overall Selva production figure of around (or a little under) 130,000 b/d, Occidental has consistently produced around 100,000 b/d and Petroperú a further 30,000 b/d or a little less. This suggests that rather more than 200m barrels have so far been produced from the area with a market value (allowing for the sharp price increases of 1979) approaching $5,000m. With the possible exception of the cocaine trade, this is certainly the largest single venture in the economic history of Peru.

The Role of Petroperú: an evaluation

It is time to return to a more general discussion of the role of Petroperú in this development, in terms of its financial, technological and negotiating performance. It is worth bearing in mind, however, that *ex post* evaluations depend upon contingencies which were not always foreseeable; in this case Petroperú was unlucky with the geology of the Amazon area but lucky with the international price. Yet it would also be wrong to ascribe everything to luck or to the unforeseen and unexpected. The Selva campaign does in many ways (apart from its intrinsic importance) provide a reasonable basis for evaluating the effect of state enterprise upon an otherwise fairly standard form of activity in terms of Peru's economic history.

Let us look first at the financial criterion. According to a survey reported in July 1980,[27] Petroperú had proven Selva reserves at that time of some 185m barrels, having already produced around 25m barrels from the area. Since then at least one significant new find has been made, at Nueva Esperanza. Moreover, estimates of proven recoverable reserves almost always turn out to be too low. Petroperú's total oil discoveries to date could therefore be placed, very conservatively, at between 250 and 300m barrels. Even at $25 a barrel, these would have a market value of around $7,000m. The *AR*[28], with inside information, estimated that in its Selva operation Occidental spent $1.89 a barrel in running costs, not including depreciation, and a further $1.52 a barrel in transportation cost (i.e. for use of the pipeline); this latter figure fell to $1.17 in 1980. Thus, if Occidental had made Petroperú's discoveries (250 to 300m barrels) but with its own costs, it would have generated a surplus (after running and transportation costs, but before taxation and accumulated depreciation were taken into account) of over $20 a barrel. Setting Petroperú's discoveries against Occidental's running costs and its accumulated total investment in Peru — not just in the Selva — of some $500m (to end 1980), one would have a surplus of around $5,000m without discounting for time preference. Only an enormous discount rate could turn this into anything but a hugely profitable venture. Even if we make ample allowance for Petroperú's lower operating efficiency, its non-pipeline investment in the Selva must still have been heavily profitable.

Would it have been more profitable still for Petroperú to have given way to a private concern which could have been taxed on its production? There seems no reason to believe that a private company would have discovered much more oil than Petroperú did (many private companies pulled out of the Selva without a commercial discovery). It is, indeed, unclear whether a large foreign operator or consortium (the only kind that could have been expected to invest in these conditions) would have had the patience to persevere with a difficult block capable of producing, at best, only around 40,000 b/d. Prior to the 1979 oil price increases this would have seemed, at best, only a marginal venture. Conversely, a foreign operator would not have been hit, as Petroperú was in 1978 and 1979, by a severe cash squeeze and would therefore have been able to produce rather more oil rather more quickly.

Yet foreign investment is not cheap. In 1980, following the renegotiation of the Peruvian model contract, Occidental was expected to make around \$134m profit in 1980 (on its entire Peruvian operation) on an accumulated capital investment of around \$500m (at end 1980) — this rate of return, just under 27%, without allowing anything for previous years' amortisation/depreciation, was judged inadequate if the company was going to continue investing in Peru.[29] In the event, Occidental repatriated \$378m during that year, [30] around \$10.35 per barrel produced. If we remember that Occidental was spending \$3.52 per barrel in running cost (not including depreciation), Petroperú would have had to be nearly three times more inefficient than Occidental in order to contribute less to the Peruvian treasury (and this assumes that 'inefficient' local spending by Petroperú confers no benefit at all on Peru). When one bears in mind that a high proportion of both Occidental's and Petroperú's budget consists of payment to specialist contracting companies and that nearly half of Occidental's running cost involves payment to Petroperú for pipeline charges (both of which would have afforded a multinational no margin over a state company), these figures are eloquent indeed. Even if we assume that Petroperú's genuinely variable running costs (which largely involve keeping teams in the Selva in order to repair breakdowns) and original capital costs (and therefore depreciation) were four or five times those of an efficient private concern, it would still have generated more public income than a private operator operating Petroperú's block, even before taking into account the effect of Belaúnde's tax credits which came into effect in January 1981.

Petroperú's decision to build the pipeline, however, is not so clear cut. On the basis of the discoveries that were actually made, it was possible to set a tariff which would pay for the pipeline without upsetting the economics of exploration and development. At around \$1.50 per barrel, 130,000 b/d of throughput yields around \$70m per annum. The original cost of the pipeline was \$579.3m in terms of foreign debt[31] plus a significant local content coming to \$729m in total[32] — this debt was substantially fixed interest, contracted at the single-figure rates normal in 1974 so that \$70m p.a. would at least service the foreign debt and pay for the cost of pumping. The \$180m investment carried out by Petroperú to link Occidental's fields to the main pipeline was to be amortised by Occidental over a ten-year period.

Yet the crucial point here is that the financial viability of the pipeline has depended on continuing operation by Occidental. There can be no doubt that Petroperú's discoveries, on their own, would not have justified construction of the pipeline; without the pipeline, moreover, Petroperú would have been restricted to a very limited degree of local production from the Selva — perhaps 10-15,000 b/d. Nor is it the case that Petroperú could simply have taken over Occidental's territory and produced the oil. Petroperú was constrained by financial and technical limitations and not by any shortage of territory to explore. Even after Occidental had made its discoveries, this position did not change decisively. Rose suggests that in early 1980

> a possible expropriation of Occidental was discarded as unfeasible by the government when Petroperú informed it that they lacked the necessary technicians to run the Occidental oilfields.[33]

The conclusion here, then, is that successful operation by Occidental (or, under different circumstances, by a different private company) was essential to the financial viability of Petroperú's investment and, indeed, to the whole Selva programme.

With hindsight, it would seem that Peruvian oil policy with respect to Selva development was roughly correct in outline (in the sense that it involved both state and private investment) although undoubtedly open to criticism on a range of fairly important secondary issues. Would it not have been better for Petroperú to have allowed Occidental to build its own spur line in 1976-78? A major project with almost no externalities which would self-finance over a ten-year period could surely not have been at the top of Peruvian developmental priorities in the mid-1970s. It may be, of course, that had the Peruvian government guaranteed the loan — as Occidental would have insisted — its own borrowing capacities would have been compromised in the same way, but this is by no means clear. Could Peru have got Occidental to build the whole trans-Andean pipeline? This seems unlikely and it also would have deprived Petroperú of a possible bargaining counter against Occidental — but not one that could in the event be used to much effect (on which see below). In any case, military and strategic considerations would surely have ruled out such an option for a Peruvian military regime, even though it might have released hundreds of millions of dollars for use elsewhere.

The second criterion was technological. Given that the oil exploration project, and Petroperú's participation within it, were both substantially profitable in the narrow financial sense, it is hard to imagine how the technological balance could actually be negative. Petroperú has undoubtedly learned a good deal from its Selva operations. It deliberately set out to learn as much as it could from its private sector partners (all operating companies were obliged under their contracts to provide Petroperú with full geological data for their blocks). Petroperú in 1981 attempted unsuccessfully to persuade Superior Oil to accept Petroperú as minority partner in its venture, and in the same year came close to a joint-venture agreement with a consortium led by Hispanoil, although this was also aborted when Hispanoil withdrew. There is, however, undoubtedly a negative side to Petroperú's technological performance as well.

Petroperú was always a little thin with regard to top technical staff.[34] It had taken over a well-run organisation from IPC — but IPC's activities had been concentrated in the far easier coastal area of Peru and there had been no serious history of Selva exploration. The Selva was, moreover, difficult by world standards; there are few harder natural terrains for oil exploration and development than Amazonian jungle and many of the private companies were unpleasantly surprised by the intensity of the problems encountered. What was worse for Petroperú was that the state company was unable to keep all of its own top technical staff. A number left in 1972 and 1973 to go to work with foreign oil companies (leading to considerable mistrust on the part of the Peruvian nationalists for those who remained); even more left in the late 1970s to go and work in Venezuela or in the domestic private sector due to salary restrictions and the generally low morale prevailing within the state company. Although, after the Peruvian economy recovered in 1979-80, successive Peruvian governments did take active measures to strengthen the state company, it did not prove easy to make good the damage already done. In November 1981 the *Andean Report* commented that

> the policy with oil exploration and production seems to be to put Petroperú more or less on hold partly because of local shortage of the risk capital needed to prove and develop new reserves and partly because Petroperú is so run down in terms of technical and managerial capacity that the government does not think it practical to spend its own money on building the company back up.

One of the consequences of this was that in 1981 Petroperú was able to spend only $102.6m of a $215m exploration and development budget.

The implications of this situation are worth discussing. It has often been pointed out by Left-wing critics of state companies (and of foreign transnationals) that almost every aspect of oil industry activity can be, and frequently is, contracted out to specialist companies. While this is true, the implication sometimes drawn — that technical expertise is relatively unimportant in the oil industry — is misleading. This is partly because sub-contracting, even if easy, is not necessarily cheap. The main point, however, is that the overall planning of a project involves contracting the right functions to the right people and co-ordinating a number of stages (making sure that all necessary inputs arrive in time, that drilling sites are selected when drilling rigs become available, that expertise is quickly on hand when there is a mechanical breakdown, etc.) in a way that requires a high level of managerial and technical talent. A state oil company cannot be run efficiently without this.

Moreover, while certain kinds of oil technology can be taught formally, there is in practice no real substitute for experience. (Not that there is a substitute for formal training either). It would be wrong to be dogmatic about particular cases, but certain highly sensitive jobs within the industry can be done well only after a decade or more of serious experience. For this reason, top technicians who leave an industry cannot simply be replaced by young recently-trained graduates. A brain drain can have a damaging effect for many years — YPF in Argentina suffered such a brain drain under Perón and has perhaps never fully recovered[35] — and there are indications that Petroperú has also suffered badly. It is to be hoped that the state company will not suffer as badly as YPF and there are already some encouraging signs of improvement since 1978-79 (a resumption of Selva drilling with some success, some increase in production from earlier discoveries, a better financial structure) but one should not underestimate the vulnerability of state companies to a major haemorrhage of top technicians.

There were always severe technical limits to the extent to which Petroperú could explore and develop the Selva. In 1970 Petroperú was, by any international standard, a very small company and the Peruvian Selva was one of the most difficult terrains in the world. From this point of view, as well as from the purely financial, it is not easy to see how the Amazon venture could have been a success without the participation of at least one very active foreign company. But this intensified dangers of a brain drain.

Another general point should also be made here. Peru's economic history has been one of export-led growth generated for the most part by the incremental incorporation of new resources (mines, oil wells, agricultural properties) into world markets. All other things being equal, one would expect the most accessible resources to be developed first. Then either because of rising world prices, changing world tastes or improving international technology, the less accessible resources would be progressively brought in. Of course all other things are not always equal, and potential resources often are left undeveloped due to oligopolistic world strategies, political difficulties of some kind, or sheer ignorance of what resources are available. Even so, the last project to be brought in is, generally speaking, the marginal project — either because of the very heavy development costs involved (true of many Peruvian mining ventures) or because of the difficult technology, or (as in the case of Selva oil) due to a combination of the two. Certainly projects which are marginal at one time may turn out later to be highly profitable — Arabian oil was once regarded as marginal — but one cannot automatically expect them to provide a bonanza in Becker's sense (i.e., to generate a substantial surplus to be distributed to other sectors of the economy). Moreover, Peruvian state enterprises, if committed to pursuing such a strategy, are likely to be thrown into the deep end with a vengeance if the new project involves a sharp discontinuity with what has gone before. Any technical or management failures could easily turn a marginally profitable venture into an outright and maybe heavy loss-maker. Thus, for Peru after 1968 there remained only the Selva as a potentially important source of oil production (just as there only remained the formidably difficult and expensive irrigation projects and the relatively low grade and high cost mineral developments); the easier prospects had been exhausted during the previous hundred years. Yet if development of the Peruvian Amazon proved (as it did) to be a highly difficult task for large and experienced international companies with vastly greater human and financial resources than those of Petroperú (or the whole Peruvian government for that matter), then one can hardly expect Petroperú to have found the task easy. If it had been easier, private companies would in all probability have developed the area during previous decades. (The Mexican case provides a revealing contrast. Here foreign companies were forbidden to explore after 1938 — few had actually done so since 1925 — leaving geological prospects available which were within reach of Pemex during the 1970s).

Finally, and even allowing for these difficulties, the military government must take some of the blame for allowing Petroperú to deteriorate. One can, perhaps, feel some sympathy for their position. The Velasco government was undoubtedly radical — its own members described it as 'Revolutionary' — and it nationalised IPC as a blow against 'imperialism' in general and the USA in particular. Yet the military regime found itself compelled to work with men who had been trained by, and worked happily under, a US top management and who, in very many cases, had little or no sympathy for the aims of the 'Revolution'. Moreover, Petroperú in 1970-71 produced and negotiated a contract for foreign investors which later appeared much too favourable to the latter and came under strong nationalist criticism. To cap it all, some of the best technicians in the company eagerly seized jobs with the foreign companies which they had just brought back into the country. Even apart from this, officials in the Mines and Planning Ministries frequently complained that Petroperú executives behaved in an arrogant fashion and paid very little attention to their political seniors. (A Petroperú executive, in contrast, described the National Planning Institute as being 'full of young graduates who dream').[36] There can be no doubt that Petroperú in its early days went to considerable lengths to avoid even that degree of control and accountability that almost any government would have considered reasonable.[37]

For these reasons, therefore, Petroperú's nationalist opponents in the government went to considerable lengths to try to control the company by various measures which Petroperú executives regarded as red tape or worse. Some of the most senior ex-IPC executives were also unhappy with a top layer of military senior managers (at times, as many as five) who had no previous experience of the oil industry (or of any kind of commercial concern) and whom one well placed observer described as being 'not particularly easy to work for'.[38] Later the political climate changed and, after 1975, the military regime increasingly became willing to promote civilians to top management positions. But in late 1976 economic crisis struck and Petroperú came to suffer the consequences — a sharp reduction in real wages and, in 1978 and 1979, an almost complete freeze on fresh investment even though at that time quite small amounts of money could have produced a significant increase in output. Again with hindsight one might say that the political authorities — besieged as they undoubtedly were by economic claims from all sides and uncertain of their own long-term survival — did too little to protect Petroperú from the recession. Certainly there was a long period of indecision and throughout the crisis the imperatives of short-term survival took precedence over any long-term economic planning. The political economy of crisis management and its relation to Peru deserves more attention than it can be given here, but studies of this have highlighted the difficulty of avoiding long-term structural damage to the economy from austerity measures.[39]

Ultimately these various problems with Petroperú raise a more general question about any project of nationalist reform in Latin America (many of them also applied to Peronist Argentina and Goulart's Brazil). A reform project will depend heavily on state enterprise because foreign companies will be put under direct political pressure and local capital will tend to side with 'foreign interests and the oligarchy' rather than supporting reform (some nationalist-reformists have been surprised and disappointed by such behaviour although it is difficult to see why).[40] Yet the top managers and technical specialists of the state enterprise may sometimes secretly (and sometimes not so secretly) sympathise with the conservative groups under attack. After all, such men have an international market value, which is their ultimate political protection, and they move in the same circles and talk in the same terms as their private sector counterparts. This is not to say that they will inevitably be active opponents of reformist-nationalist governments but there is likely to be a good deal of mutual (and sometimes justified) suspicion between such governments and state enterprise managements. Yet a reformist-nationalist government cannot ultimately do without a class of technicians and managers — and an attempt to run state companies through narrowly political appointments or by tightening bureaucratic controls is likely to end in disaster. Ironically, the country which has developed probably the most efficient state-capitalist system in Latin America in recent years — namely Brazil — is rhetorically very strongly *laissez-faire*. This rhetoric may be necessary to reassure the state elite as much as the private sector.

The third criterion to be discussed here relates to the impact of a state company on bargaining between the host government and multinationals. In the Peruvian case an interesting if rather unexpected pattern appears. The first occasion on which Petroperú asserted itself was in 1969-71 when it opposed the Mines and Energy Ministry's draft oil law, won the right to prepare its own contracts, undertook negotiations with Occidental and won government approval (against some opposition) for the 'Peruvian model' contract.[41] It subsequently signed another fifteen contracts with foreign companies for Amazon oil exploration. Such criticisms as were made of the 'Peruvian model' contracts came from a nationalist direction but there was general recognition within the military government that some foreign investment in the region would be necessary if the Amazon oil industry was to be developed. Petroperú's influence lay in giving shape to this recognition and turning it into actual arrangements with foreign companies. Petroperú's main motive was to turn its own limited effort in the region into a vast international venture which would guarantee a substantial role to the state company. Certainly the effect was to bring in more foreign investment, more quickly, than would otherwise have been the case.

After the 'Peruvian model' contracts fell into near disgrace from the end of 1973, Petroperú itself largely lost control of negotiations with foreign companies and never really regained it. After this it was the existence and economic position of the state company which influenced events more than the expressed wishes of the state company managers themselves.

The first real occasion on which Petroperú's position became important was in 1974 when negotiations began over the tariff for the trans-Andean pipeline. Petroperú, seriously embarrassed by criticism that it had offered too much to the companies in the 'Peruvian model' contracts, sought to recoup by setting an artificially high tariff. Its first request was for a $6.80 a barrel throughput fee,[42] at this time more than 50% of the world price. It is likely that this prospect helped discourage the various other foreign companies which pulled out in 1975-76 without establishing any commercial discoveries. Occidental, meanwhile, in the words of a former executive of the company,

> was going slow on exploration and drilling while it tried to finalise a pipeline and crude oil sales contract with Petroperú.[43]

The Peruvian government, and Petroperú, clearly failed in their efforts to use the pipeline as a bargaining counter against Occidental and the other private companies. Occidental later accepted a throughput charge which would help cover the cost of the pipeline but no more.

One reason for this failure was that Occidental had not by then invested heavily enough in its exploration venture — the more expensive development phase only began when agreement with Petroperú was reached. Even more fundamental was the fact that Petroperú, once committed to building the trans-Andean pipeline, needed Occidental's petroleum (or at least its own 50% share of this petroleum) very badly. As we have seen, the financial viability of Petroperú's whole venture depended upon Occidental's oil discoveries which Petroperú itself was in no position to take over and run. Occidental merely had to wait for the financial pressure on Petroperú to begin to tell before being in a position, if not exactly to name its own price, then at least to dampen down Petroperú's attempts to alter the 'Peruvian model' contracts in its favour.

In this case, therefore, Petroperú's own operational requirements inhibited it from driving a harder bargain with Occidental. (A harder bargain, incidentally, does not necessarily mean a better one as the Peruvian economy as a whole was at this time very dependent on Occidental's continued, and indeed expanded, operations in the country.) Just as in 1971-73, Petroperú needed foreign investment to complement its own and could not afford to wait too long in order to try to improve the terms.

Serious renegotiation with Occidental did take place during 1979 and 1980. By the end of 1979 Occidental had largely amortised its original investment (due to the high profits made in 1978 and 1979) and was therefore willing to be more flexible as to its future operation in Peru. The first renegotiation was headed by Silva Ruete and a group of nationalist economists in the Finance Ministry rather than by Petroperú itself. The second renegotiation was led by Kuczynski at the Mines Ministry. By this time, Petroperú had begun to recover from the near-bankruptcy which had complicated both its operations and its relations with the government during 1978-79 and it expressed an interest in joint-venture arrangements with the foreign companies. Such an arrangement was made with respect to the Occidental/Bridas secondary recovery programme on the coast,[44] according to which the foreign companies agreed to train Petroperú staff. After 1980, as we have seen, Petroperú made several unsuccessful efforts to negotiate joint ventures for Selva operations.

When one considers the role of Petroperú in state-foreign company relations, then, the result is rather surprising. There were some important negotiations in which the state company did not play a role, but where it was active it was less rather than more nationalist than the rest of the government. Yet where it did not play an active role in negotiations (as in 1980) its needs and requirements also played a part in softening the government's position; thus in 1980 Petroperú advised the Finance Ministry that it could not take over Occidental's fields and its joint-venture agreement in the same year provided a further justification for the presence of the foreign companies in Peru.

Nationalist critics of the company would (indeed did) attribute this moderation to the 'IPC heritage' among Petroperú executives but this explanation seems inadequate to explain the pipeline negotiations and the 1980 renegotiations in which Petroperú appears not to have played a direct part. It seems that the question is more structural. Petroperú's main interest was in elaborating its own programme of oil development and acquiring the necessary technical and financial resources in order to do this. Foreign companies could contribute by making both kinds of resource available to the state company — more exploration work would add to knowledge about the industry, and more oil production would both increase the share given to Petroperú and protect the heavy investment in the pipeline. This situation contrasts sharply with that prevailing before 1968 when all of the available onshore oil producing territory seemed to have been discovered and developed by private companies leaving little scope for the further expansion of the state enterprise; under pre-1968 conditions, EPF technicians tended to be nationalist whereas the Selva was evidently big enough for both Petroperú and foreign companies.[45]

In Conclusion

It seems clear that Petroperú's participation in the Amazon oil exploration did substantially change the character of the venture from the perspective of the Peruvian state and thus did something to confirm Shane Hunt's prognosis that

> The creation of Peruvian enterprises and Peruvian leadership within the national economy...provides the most severe challenge that Peru has faced this century. Having constructed a network of state enterprises destined to control the commanding heights of the economy, Peruvians will become obliged to manage, to administer, and to perform entrepreneurial functions as never before. The benefits to be obtained from successfully meeting this challenge are the greatest of all. It involves nothing less than changing a nation's character in a way that can bring development out of underdevelopment.[46]

Yet the effect of this change was by no means as one-dimensionally beneficial as earlier optimistic forecasters tended to suggest. Thus, despite some undoubted recent improvement in its technological and financial capacity, Petroperú soon found itself playing a relatively junior role in the exploration and development effort, with the viability of its own efforts being conditional on Occidental's continuing satisfaction with operating conditions in Peru.

It seems certain that Petroperú did secure a positive social return from its Amazon campaign by any reasonable measurement. The rising world price of oil more than offset the disappointments of Peruvian geology and ensured that Petroperú's oil discoveries, very limited by world standards, were more than enough to finance their heavy development cost. It is also highly probable that the profit rate required by a foreign company operating in this area would have more than offset any greater efficiency that such a company might have brought to bear.

There is, however, one way in which Petroperú did not increase returned value in relation to total investment — namely, in its negotiations with foreign companies. Its early negotiations were concerned, above all, with the speed at which substantial foreign investment could be attracted to supplement Petroperú's own exploration. Subsequently Petroperú's heavy fixed investments in the area – above all in the pipeline – ensured that it could not afford any cutbacks in Occidental's own production and could not therefore afford to drive too hard a bargain. Some bargaining theorists have suggested that a state company operating in an area increases the power of a host government because it creates a credible threat to nationalise. Yet Petroperú could never credibly threaten to nationalise Occidental — its limited technical capacity was more than fully extended as it was and its own desire to expand further in its own area ensured that it would continue to lack the spare technical/financial capacity to take over Occidental.

There may have been something in nationalist criticism of Petroperú's lack of hostility towards foreign investment. It is perhaps a general truth in almost any country that two technical oil specialists, one of whom works for a state company, will have more in common than two state employees, one of whom is an oil specialist. The corollary of this is that reformist-nationalist governments may well be forced to rely for their economic success upon state enterprises whose technostructures are unsympathetic to the aims of government policy. Yet attempts to meet this situation by the imposition of clumsy bureaucratic controls can only make a difficult situation worse. Furthermore, it is by no means clear that Petroperú's reluctance to confront private companies stemmed mainly from a 'political false consciousness'. On the contrary, Petroperú executives were surely motivated by a desire to strengthen the basis of the whole Amazonian venture which they would have seen, from within their own corporate perspective, as meeting Peru's national interest.

Critics have generally seen three, possibly four, mistakes in the way in which the Amazon oil venture was handled. Briefly these were the government's early over-confidence and the development of a 'Klondike' mentality, its failure to prevent (and in some respects its complicity in) the financial and technical deterioration of Petroperú, its consistent policy towards foreign investment and, perhaps most fundamentally, the over-commitment of resources to a capital-intensive modern sector project whose direct benefits to Peruvians were, at best, indirect and long term.

It is evident that the Velasco regime did quickly become over-confident after the first few oil discoveries in Peru.[47] This over-confidence was also, it is true, shared by some of the private oil companies and international bankers (some of whom will, it seems, believe anything) and was in any case genuinely based on some attractive-looking, though in the event highly deceptive, geology. It is harder to specify exactly what impact this over-confidence actually had on government policy.[48] It may well have contributed to the government's willingness to spend heavily on subsidies, often to the not-particularly-poor, and to allow its financial position to deteriorate markedly in the years after 1973. Yet the allure of foreign borrowing, and the government's own quest for popular support, may have led to similar results in any case. Nor can one state with confidence that bankers would not have lent to an oil-less Peru — particularly when one considers the many dubious loans made to a whole variety of Latin American governments during the past decade.

Even so, the early over-optimism about oil cannot have helped the voices of prudence within the Peruvian government. Moreover, one of the earliest super-optimists was the head of Petroperú General Fernández Baca, who in April 1972 estimated that Petroperú would produce 200,000 b/d by 1976 and 500,000 b/d by 1980. It is true that Fernández Baca was by no means the only figure to have made some quite unrealistic estimates of future production but, had Petroperú been determinedly cautious, it would have been much more difficult for other members of the government to make wild statements. Yet Petroperú's geologists were by no means over-optimistic in this way; in March 1974 Zuninga, the head of Petroperú's exploration team, personally told the author that Petroperú could guarantee Selva production of no more than 38,000 b/d (and even that proved too high).

It was, of course, a heady experience for a newly established state company, brought into existence in dramatic emotional terms following the removal of IPC, to go on to explore in the Selva and find oil with its first three wells. Even apart from this, there do seem to be some systematic factors behind the over-optimism of state companies. Petroperú's dwelling on its exploration success could be seen as an assertion within the government of its own role, and thus of its importance and priority claim on resources. A more cautious response might have led to reductions in its budget and, still worse, to greater delay and scrutiny of its investment plans. Optimistic forecasts by state companies are part of the stock-in-trade of intra-government bargaining over the use of resources. Against this, foreign companies tend to be, if anything, over-cautious. A stress on the difficulties rather than the advantages of their operations both makes nationalisation less likely (since there seems to be less to nationalise) and may also discourage competitors from exploring for oil in the vicinity. (A private oil company which predicted vast reserves in an area and finally produced no more than around 30,000 b/d would also be subjected to a certain amount of ridicule within oil industry circles and to unfavourable comment from city editors and shareholders).

It is perhaps a mark of the general inexperience of the Velasco government in dealing with state enterprise (there having been very little such enterprise prior to 1968) that these claims were made so readily and amplified so ambitiously, although it must be said that the 'good news' of a Klondike oil boom has been presented, spread and widely believed in many other environments and at many other times. Moreover Petroperú has since 1976 influenced government policy in the direction of caution on a variety of oil related issues. After its original mistake, Petroperú may have influenced government policy for the better by making available to policy-makers first-hand experience of actual operating conditions in the Selva and thus dampening down naive over-optimism.

A second mistake frequently cited was the way in which the military government allowed the financial and technical position of Petroperú to deteriorate after 1974 (with some recovery after 1980). This, too, seems largely indefensible although one must bear in mind the newness of large-scale public enterprise as a serious economic force in Peru and the difficulty of coping with it. The impact of policy-making errors of this kind is always hard to quantify, but the loss to Peru was undoubtedly substantial. The policy of low gasoline prices – pursued until mid-1975 – added several hundred million dollars to Peru's foreign indebtedness and did nothing either to redistribute income in a positive direction or to improve Peru's capital stock. Borrowing (particularly at high international interest rates) in order to subsidise short-run consumption is the direct opposite of a development strategy since it involves sacrificing the future in the interests of the present. Similarly, cutting back on Petroperú's investment in mid-1978 almost certainly deprived the state company of around 10,000 b/d of oil production in the short run — around $100m p.a. in lost exports at 1979-80 prices. This amounted to some 3% of total exports and probably — given the impact of austerity measures then in force in order to strengthen the balance of payments — at least 2% p.a. of GNP. The long-term loss resulting from the emigration of technical staff will certainly be much greater than this.

During this period Petroperú's experiences in many ways reflected those of the public sector as a whole. While unfavourable international trends played an undoubted part, a major contributory factor to the 1976-79 recession in Peru was the wholly unsatisfactory financial position of the public sector; some writers have attributed the economic failures of the Velasco government mainly to this.[49] Some of the structural characteristics of public enterprise played a role here as well. It is, for example, hard to see how a foreign company could have been expected to sell oil products on the open market at a heavy loss, at least without receiving a subsidy which would have led to outcry from economic nationalists (and which would actually have had to be paid). Yet a state company could be made to sell at a loss and to borrow internationally in order to finance its losses. Such a policy, apart from seriously misallocating resources and excessively boosting current consumption, had the further effect of disguising the magnitude of Peru's economic problems until later than would otherwise have been the case — making the corrective austerity measures harder still. This is because the role played by borrowing (in Peru as often elsewhere) in subsidising consumption during the 1970s was somewhat disguised by the role of state enterprise in both subsidising consumption and carrying out investment. The 'investment' role was stressed to foreign bankers while subsidies took up an increasing part of state enterprises' actual revenues.

When austerity did come to Peru, state companies suffered disproportionately.[50] This is largely because of the inherent difficulties of stabilisation policy in Peru.[51] Essentially the problem is that there are very few things that can be cut which do not threaten mass impoverishment, political instability or heavy unemployment — or, indeed, a combination of all three. The Morales Bermúdez government on the whole chose to play it safe and protect such 'politically necessary' items as military spending and public sector employment at the price of a serious deterioration in living standards generally and a sharp cutback in state investment. One certainly appreciates the difficulties here but the government may well have underestimated the long-term impact of some of its investment cut-backs and, even more so, of the 'brain drain' that resulted from its across-the-board policy on wages. There is, it is true, some evidence that the state mining companies did not suffer from a 'brain drain' as seriously as did Petroperú. Becker finds that neither Mineroperú nor Centromin lost senior staff on a particularly significant scale during this period.[52] It is not immediately obvious why this should be so, although two possible explanations spring to mind. It may be that the Selva oil development, being less traditionally a part of the Peruvian economy than the various mining ventures undertaken after 1968, attracted men who were less emotionally committed to Peru and less willing to stay when times were hard. Alternatively (or perhaps as another partial explanation), the oil industry was simply more favourable to international job seekers during this period than was mining; oil was booming, mining was in recession. In any case, it remains true that state enterprises tend to invest too heavily in good times and suffer with disproportionate severity when there are cutbacks to be made.

The third criticism of oil policy during this period has concerned its inconsistency towards foreign companies — or, perhaps more accurately, criticism has come at different times from nationalists and also from those who were keen to see more foreign investment lured into the Selva. Critics of the latter kind would mention, above all, the government's unwelcoming attitude toward foreign companies in 1974 and 1975; having been given the opportunity of getting the whole Selva properly explored, the critics argue, the regime then threw it away and instead became unnecessarily dependent on Occidental. Nationalist critics would mention, above all, the delay in renegotiating the 'Peruvian model' contracts with Occidental and Belaúnde's offer of tax credits to attract foreign companies back.[53]

Without going into a blow-by-blow account of events,[54] it is worth noting that the ability of a country such as Peru to control foreign investment (except within very broad outlines) can easily be exaggerated. The 'Peruvian model' contracts appeared to work because at least some of the companies anticipated higher world prices and thus higher profits for themselves than did Peru.[55] If any of the foreign oil companies operating in the central or southern Selva had found commercial quantities of oil they would have sought cast-iron guarantees before undertaking serious development. As far as the northern Selva was concerned, there seems to be some plausibility in the nationalists' argument that this area could be satisfactorily explored over a longer period by Petroperú and Occidental without bringing in a whole army of foreign companies. (The recent exploration by Superior in the northern Selva and by Royal Dutch/Shell in the central-southern Selva may alter this pattern of an Occidental/Petroperú duo, but at present this seems unlikely). Thus, the oil boom conditions of 1973-74 were both unnecessary for Peru and – in any case – unlikely to last.

Conversely, since Petroperú could not, as we have seen, credibly threaten to expropriate Occidental — except, perhaps, as a semi-suicidal gesture under sufficient provocation — there were limits to its bargaining power. Occidental's main concern was to get back its initial investment in Peru as quickly as possible — in the event this took just over two years. After that it could either passively accept a high tax rate while cutting back on fresh investment (the Silva Ruete solution) or invest more heavily on the basis of a more favourable financial position (the Kuczynski-Belaúnde solution). Since 1980 the government has chosen the solution of more investment rather than more revenue; the nationalist opposition would have made the opposite choice but neither could have got something for nothing.

Finally, it has been suggested that after 1968 and despite the reforms, Peru simply invested too much in export-oriented industries and not enough in alternative sectors of the economy. These criticisms are given point in a recent study by Portocarrero, who analyses the main investment projects undertaken in Peru during the 1970s and concludes that these were capital-intensive, had long gestation periods, depended heavily on foreign technology and were substantially foreign financed.[56] Meanwhile, social infrastructure (education, health, etc.) and projects to develop the domestic market were both neglected. In general terms these criticisms are substantial and seem to be well founded. One could only say, in defence of the Selva development, that many other projects carried out by the military had similar disadvantages without the balance of payments benefit provided by oil (c.f. investment in the steel industry and in several coastal irrigation projects). Thus, even allowing the objection to resource-based, export-led growth to be substantially valid, it remains true that the exploration campaign was one of the more productive projects undertaken by any post-1968 government and the activities of Petroperú contributed significantly to the benefit provided.

In many ways, therefore, the picture of oil development presented here ties in well with Becker's own portrayal of bonanza development. It is certainly interesting that Mineroperú demonstrated much the same concern for its operating independence and much the same ambition to maximise its own role as did Petroperú. Both companies were also willing to play for high stakes with the development of new and substantially untried technologies (although, as we have seen, technological risk may not be easy to avoid if state companies are persistently confronted with the need to develop marginal projects). Moreover, in both oil and mining, state companies have become pressure points within the system and have sought to increase the flow of resources into their own area of operation. In neither case were state companies hostile to foreign investment *per se* and rather tended to judge it by its potential contribution to their own efforts and projects, i.e., in helping to increase the total volume of resources devoted to the sector as a whole. State mining companies were also keen to develop good relations with the domestic private sector; there was very little domestic private sector in oil but there is no reason to believe that Petroperú's attitude, had such a sector existed, would have been very different. The operation of these companies, therefore, has thus locked Peru even more deeply into a pattern of seeking development by bringing onstream new natural resources, predominantly for export.

It is, however, far from obvious that the interests of the majority of Peruvians are best served by this form of development. The external dimension remains far from satisfactory even though the international system may be less crudely exploitative than might appear from *dependentista* caricatures. A system which may be relatively open with respect to the spread of capital and technology will not necessarily facilitate economic development in peripheral countries. Mineral and oil exports, in particular, because of their heavy capital costs and long gestation periods, are particularly vulnerable to shifts in world demand. There is, thus, something of a lottery here. On occasion, oil and mineral projects may indeed generate heavy profits to be devoted to industrial development (although this is by no means an easy task), but at other times the results may be extremely disappointing.

NOTES

1. R. Thorp and G. Bertram, *Peru 1890-1977; Growth and Policy in an Export Economy* (Macmillan 1978), p.322.
2. D. Becker, *The New Bourgeoisie and the Limits of Dependency: Mining, Class and Power in 'Revolutionary' Peru* (Princeton U.P., 1983).
3. *Ibid.*, p.64.
4. On fishing, see M. Roemer, *Fishing for Growth: Export-led Development in Peru* (Harvard U.P., 1970).
5. Thorp and Bertram, *Peru 1890-1977*, pp.95-111.
6. G. Philip, *The Rise and Fall of the Peruvian Military Radicals, 1968-76* (Athlone, London 1978), Ch.2; A.J. Pinelo, *The Multinational Corporation as a Force in Latin American Politics: a case study of the International Petroleum Company in Peru* (Praeger, 1973); and P. Sigmund, *Multinationals in Latin America; The Politics of Nationalization* (U. of Wisconsin, 1980).
7. The idea of transporting the oil down the Amazon and thence to Rio de Janeiro was quickly dismissed as hopelessly uneconomic.
8. G. Philip, 'Policymaking in the Peruvian Oil Industry, with special reference to the period October 1968 — September 1973' (D.Phil.: Oxford 1975).
9. Interview with Garcia Rivero, Occidental Petroleum, in Lima, September 1981.
10. Personal communication, 7 May 1974.
11. *Peruvian Times*, 20 September 1974.
12. *Ibid.*
13. S.F. Rose, *The Peruvian Revolution's Approach* (W.S. Hein, New York 1981), p.427. Stan Rose worked for several years for Occidental Petroleum in Peru and was involved in negotiations with the Peruvian government.
14. Philip, *The Rise and Fall*, Ch.6.
15. Philip, *Oil and Politics in Latin America; Nationalist Movements and State Companies* (Cambridge U.P. 1982), Ch.20.
16. *Andean Report*, March 1979.
17. Rose, *The Peruvian Revolution's Approach*, pp.429-30.
18. Becker (*The New Bourgeoisie*, pp.208-210) makes it clear that many of the complaints from the nationalised industries during 1975-76 about red tape, etc., were part of a concerted and partially successful effort to free civilian public sector managers from military control. There can be little doubt, however, that most of these complaints were well founded.
19. Ministerio de Energía y Minas, *Lineamientos Preliminares de Política en el Sector Energía y Minas 1980-85* (Lima, 1980).

20. *Andean Report*, April 1976.
21. *Andean Report*, June 1978.
22. Rose, *The Peruvian Revolution*, p.309.
23. In 1978 Rose wrote privately to the author that 'Petroperú want a new deal but don't know a good deal from a bad one and don't know how to negotiate.' Undoubtedly much time was taken before the Peruvian government sorted out its approach.
24. A. Pontoni, *Transnacionales y el Petroleo en el Perú* (Lima, 1981) and the *Andean Report*, June 1980, both analyse these terms in detail.
25. *Andean Report*, September 1982.
26. *Andean Report*, November 1981.
27. *Andean Report*, July 1980.
28. *Ibid.*
29. *Ibid.*
30. *Andean Report*, November 1981.
31. This figure is given by the Banco Central de Reserva, *Reseña Económica*, July 1981.
32. This figure is given by F. Portocarrero, 'The Peruvian Public Investment Programme 1968-78', *Journal of Latin American Studies*, Vol.14 No.2 (November 1982) 443.
33. Rose, *The Peruvian Revolution*, p.309.
34. A. Stepan, *The State and Society; Peru in Comparative Perspective* (Princeton U.P., 1978), pp.264-65, contains a discussion of Petroperú's lack of skilled professionals.
35. See Philip, *Oil and Politics in Latin America*, Ch.19.
36. Quoted in Philip, 'Policymaking', p.285.
37. Becker, *The New Bourgeoisie*, Ch.8, arrives at very similar conclusions with regard to both Centromín and Mineroperú.
38. Private Communication.
39. For an important study, see R. Thorp, 'The Stabilisation Crisis in Peru, 1975-78', in R. Thorp and L. Whitehead, *Inflation and Stabilisation in Latin America* (Macmillan, 1979), pp.110-143.
40. Thorp and Bertram (*Peru 1890-1977*) do well to point out that 'In a case where foreign capital comes into conflict with and drives out a dynamic national capitalist class, it may be reasonable to suppose that the exclusion of foreign capital would be a sufficient condition for a revival of local capitalism. Where foreign capital enters as an ally of local capital...no such conclusion can be drawn. An attempt to exclude foreign firms, far from clearing the field for local initiative, may serve rather to discourage local capitalists...and to damage the general confidence of private investors.' p.296.
41. On this, see Philip, 'Policymaking', Ch.7 pt.3.

42. Rose, *The Peruvian Revolution*, p.184.

43. *Ibid*, p.191.

44. *Andean Report*, July 1980.

45. On the Peruvian oil industry in the years before 1968, see Philip, 'Policy-making', Ch.2; and Thorp and Bertram, *Peru 1890-1977*, pp.221-230.

46. Shane Hunt, 'Direct Foreign Investment in Peru; new rules for an old game' in A. Lowenthal, ed., *The Peruvian Experiment; Continuity and Change under Military Rule*. (Princeton U.P., 1975), p.347.

47. For examples, see Philip, 'Policymaking', Ch.7 pt.3.

48. In a recent article, J. Cotler, who is particularly well informed about military politics in Peru, argued that the government had planned its economic policy 'on the expectation of massive state revenues from huge mineral and petroleum exports' (p.27). 'Democracy and National Integration in Peru', in C. McClintock and A. Lowenthal, *The Peruvian Experiment Reconsidered* (Princeton, 1983).

49. For an analysis which places a good deal of emphasis on this point, see E.V.K. Fitzgerald, *The Political Economy of Peru, 1956-68* (Cambridge U.P., 1979).

50. See F. Portocarrero in *J.L.A.S.*, Vol.14 No.2 (November 1982), 433-454

51. Thorp, in Thorp and Whitehead, eds., *Inflation and Stabilisation*.

52. Becker, *The New Bourgeoisie*, pp.160 and 211.

53. See, for example of a nationalist critique, A. Pontoni, *Transnacionales y el Petroleo en el Perú* (Lima, 1981).

54. For which, on 1979-80, see J. Silva Ruete, *Yo Asumi el Activo y el Pasivo de la Revolución* (Lima, 1982).

55. Philip, 'Policymaking', provides details.

56. Portocarrero in *J.L.A.S.*, Vol.14 No.2 (November 1982).

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