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Editor: John Millett

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I.N.A. FORESTRY SEMINAR

Papers submitted and presented to an I.N.A. Seminar
(together with edited discussion)
held in Port Moresby on 28 and 29 November 1988

Editor : John Millett

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Institute of National Affairs
P.O. Box 1530
Port Moresby, Papua New Guinea
Telephone: 21 1044/45

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FOREWORD

This discussion paper presents the proceedings of a seminar on proposed forestry legislation held on 28 and 29 November 1988 in Port Moresby.

Representatives from land owners, provincial governments, national government departments, industry, financiers, and academe participated in the seminar. It was not the purpose of the seminar to forge a concensus of these diverse points of view; it was merely to bring those points of view togther in a single reference. It is understood that the Premiers' Council Working Group and the Forest Industries Association are using the seminar as a basis for preparing specific submissions to government.

The material is organised in two parts. The 19 papers submitted to the seminar are contained in Part B. Part A is in three sections: the third section comprises point-form summaries of the papers in Part B (prepared by the editor, not the authors); the middle section contains an edited summary of the discussion; and the first section of Part A provides a brief summary of main issues which emerged from the seminar.

I.N.A. thanks all those who participated, particularly those who prepared and presented papers. Specific thanks go to Dr. C. Sargent, Director, Forestry and Land Use Programme, International Institute for Environment and Development based in London, to the UNDP/FAO project team and to Dr. Neil Byron and Ms. M. A. Quintos in the Australian National University for their kind permission to reprint their paper in the seminar proceedings.

John Millett
Port Moresby
20 December 1988

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SUMMARY OF MAIN ISSUES

General:

- Despite the need for reform evidenced by the two interim reports of the Commission of Inquiry, and the positive aspects of the proposed reform legislation, its flaws are of such a fundamental nature that rethinking rather than amending its provisions offers the better remedial approach. Rethinking would be most effective in an environment more conducive, than currently exists, to consultation with all affected parties and to economic analysis. Establishing this environment may require a more discriminatory assessment by government of the industry, than appears to have been done, distinguishing the cooperators from the defectors amongst operators.

  For alternative proposals for the required policy and legislative review see pages B17 to B22, B37 and B48.

Roles: Owner, operator, regulator

- Clans own the forests. They engage operators under contract, mostly foreign, to develop and use their forest. The use of the forests and making the policies and legislation regulating their use must include the owners. Restricting the owners' use to assigning their forests to the state as managing agent would be unconstitutional and could result in subsequent disruption to operations.
- Government has said often that its role in the economy should be restricted to regulation. There is nothing in forestry that would require deviation from this policy. Ownership, operational and regulatory roles and responsibilities might best be performed through registered development agreements between owners and contractors, complying with clear and comprehensive operational processes, procedures and performance requirements set out in the legislation.
- Proposed additional charges and taxes will come out of owners' rent not contractors' profit.

Regulatory organisation:

- Ownership of the forest by clans does not bestow upon them rights to unrestricted use of the forest; nor does it release government from its responsibilities to safeguard the national interest. Rather, government has constitutional obligations to regulate the rate and quality of logging the forest, both industrial and subsistence.
- All forests occur in provinces and all provinces are mostly forested. Forestry is a concurrent legislative subject. Denying provincial government a role in forestry would be unconstitutional. It contradicts general government policies in national-provincial relations. The minerals sector offers a model for consideration.

- There is no substantive evidence relating the ills of the sector to inadequate state powers. Rather, the ills, though manifest in places as poor or sharp operational practice, appear to be the result of weak regulatory organisation and misuse of available powers.

- Legislation can't fix organisational deficiencies. Without first fixing organisational deficiencies, legislation, old or new, will be ineffective, no matter how strong it is. A possible means of fixing them lies in the Programme Management Unit.

Sustained yield:

- Sustained yield management of the forests appears at risk in the light of growth objectives for the sector coupled with weak management, particularly regulatory management.

- Too little is known in quantitative terms about sustained yield to feel comfortable about growth objectives for the sector. Yet, sufficient is known about it to feel uncomfortable about current methods of resource allocation.

Value-adding processing:

- There is too much evidence questioning the benefits of prohibiting log exports in favour of processing to be ignored - economic reasoning from a market perspective rather than a production one, our own experience since the early 70s, the experience of other countries in the region and the greater difficulty financing it due to its higher risk.

Second order consequences:

- Allocating resources on the basis of promises rather than performance could be the undesirable, unintended result of blanket processing policies.

- Spreading corruption could be the undesirable, unintended result of empowering field officers with unrestricted access to premises and records and to impose severe penalties for breach of the regulations.

Effect of delay:

- Legislative reform is needed - not primarily to give the state more powers, but to up-date it, e.g. to recognise provincial government, to increase the monetary amounts of penalties. Addressing the issues raised in this seminar would mean delays in introducing new legislation. Would regulation of the sector be made worse by these delays? Revenue collection from the sector is progressing well under existing legislation.

Opening Remarks

Hon. Karl Stack, M.P.
Minister for Forests

Thank you Mr. Chairman. Ladies and gentlemen good morning.

I have tabled a four-page speech and I am sure the I.N.A. will give you copies later. I simply want to ad lib for a short space of time. I think I know what the main issues in your mind are so I will pre-empt them as best I can.

There is the question on why bring in draft legislation at this point in time prior to a policy being in place? That's sounds to me like a fairly normal average academic and bureaucratic reaction. I say that deliberately because the vast majority of legislations in this country are in place with no policy attached to them. That doesn't mean that we have to follow that lead but it is a fact. The minerals and energy legislations which are some of the most important in this country were in place long before there was any policy on minerals and energy which was put in 1979 by myself. The trade and industry policy was put in 1985 by myself. There were many legislations prior to that. However, I will go back one step. There is a forestry policy. It has been there since 1979. In June this year we circulated a review document on that policy for public comment - for institutional comment anyway, I am not sure how public it was since it was prior to my time but the Department did circulate it. So let's go back one step. There is a policy in 1979 it is up for review and has been since June this year. So I get a little bit snarly when someone says why are you bringing in draft legislation before a policy. The policy is out there; the public comments have been received; there is still time for more of them; and in February, when the drafting instructions become legislation, at the same time a policy will be tabled. Now that I have got that off my chest I will go to the next area which I believe is in contention.

Why produce a draft legislation prior to the Commission of Inquiry's report being finalised? We are a little sceptical, we being politicians, we are little sceptical of any reports. In the long run nine-tenths of them are not read. And the ones that are read are only read by addressees. Very few get wide acknowledgement (and I am sure I.N.A. can back me up on this,) get wide support or wide acknowledgement. They are a very necessary thing but they certainly don't mean that governments and machinery wait. We know most of the findings to date apropos administrative matters in forestry from informal discussion and public comment that is coming from the Commission of Inquiry. We don't know specifics, we don't know case histories; these will come out in the judge's report. We do know the administrative problems that have been identified in the industry already. They have all been addressed in the draft legislation. Subjects such as our lack of monitoring control in the department and subjects such as the land tenure problems, obviously price transferring is one, obviously the provincial government and the national government system where they interlock is another one and there is another four or five that we have gleaned from discussions and from listening to the public comments on the Commission of Inquiry. There may be case histories. Someone may tell me that Angus has done something naughty in specific details later but for purposes of drafting legislation we think we know most of the administrative problems that are likely to arise from that report. However, I emphasise that February is the target date for the legislation and the policy. By February we hope to have the Commission of Inquiry Report anyway. Nothing is lost; it all gels at about the same time.

The other thing is that most of the things you are worried about in the draft legislation, are all in the regulations section; they are not in the legislation itself. If there is something contentious in a certain levy, then fine, we can address that issue at any point in time with regulations, you don't even have to go to the floor of parliament. Ninety-nine per cent of what you say is contentious in the draft legislation is in the regulation section not the legislation itself. I thought these were pretty basic things but obviously some people don't understand the system very well and I have to say them.

The industry is complaining about, or starting to complain about, the processing levels that we are setting in that new legislation. I have no sympathy whatsoever with the industry's complaints. I am quite convinced the industry has been lying its teeth out for many years. I have been told that you cannot process and export from this country because our cost of labour is too high and it is very hard to develop a market for tropical species of sawn timber or whatever. The arguments have been going on for a long time and we have been accepting them. I for one no longer accept them. I put pen to paper 24 hours ago to prove my point and I hold in my hand a signed order for the next twenty years from one of the biggest operators in Australia for 1,500 cubic metres per month of sawn tropical timber for building, landed on the coast of Queensland at any port for $A370 per cube. Now 1,500 cubic metres a month for the next 20 years, just work that out on an annual basis, that alone is about four times the annual production of the whole industry in this country; so someone is having me on. Now it only took me twenty-four hours to go to a big organisation in Australia to get that written signed order for the next twenty years at four times the present production rates of processed timber. I have been assured that in the next 24 hours I will have a second order in my hand from another organisation of the same magnitude. Together these would mean about eight to ten times the present processing levels with two efforts on my own in a week. So someone is lying to me - so I have no sympathy. The processing levels will be set. The markets are there. Fine, the profit level is not as high but quite frankly that is not my concern.

Reafforestation. The industry has been saying that that is not a very practical proposal in the past and there have been problems where to reafforestate and how. The new legislation is very definitive. We have a levy for reafforestation which we will collect and we will employ the youth groups and we will do the reafforestation but not on the project area. The project area reafforestation will be done by the company that has the permit as part of its permit conditions. The levy that we collect will be for the state to reafforestate in areas outside of the permit area. In other words we will send youth groups around Hanuabada or the Ramu Valley or around Goroka where there aren't any trees and we will plant the trees there. Now with the levy that we are imposing on the industry in the first year of operation we employ 16,000 youth and plant three million trees. Of course that will increase as the size of the industry increases. Our projections for the industry increase are that by 1991 we will have a K500 million industry revenue-wise. It is now sitting on K118 million.

The other little interesting titbit for you, which is not in the draft legislation but will be announced today in parliament: in two years time we will cease issuing export permits for log exports. We do not mean that you have to stop exporting. We will just not issue permits for any more log exports for new projects in two years time. You have two more years of new permits for log export and in two years time that is it. Existing operators who have a permit with say fifteen years of their operation left, will continue to run for that period of time, naturally; but any new permit after two years time will only be for processing.

Government-Industry Relationship

Gault: Unless we do something fairly drastic about them (the drafting instructions) it will be too late and we will have to live with the consequences.

Chairman: Proceedings of this seminar will be published and distributed to all elected representatives, in the I.N.A.'s normal manner.

Power: The drafting instructions are perverse - they make no recognition of those operations which are doing what government wants - they are a disincentive to carry on.

Chairman: The Minister did say that he would be pleased to receive the recommendations of this seminar. Perhaps you might consider activating a drafting committee.

Hart: We are talking to ourselves. The Department of Forests is not well represented. Perhaps we need some public advertisements.

Ridges: Was the Forest Industries Council (FIC) formally asked to comment on the drafting instructions, did it respond and what was the feedback?

Awason: We made a presentation but we have not heard from either the Minister or the Secretary.

Ridges: Are there no fly-by-nighters? How does the industry blackball them?

Crequer: I am sure that there are. But who they are and how they operate I don't know though I can suspect how.

McNeil: The Forest Industries Association (FIA) check carefully the bona fides of applicants for membership. It was the FIA which brought the problems in the industry to the attention of the previous Prime Minister. The FIA is not aware of any allegations of malpractice against its members. It does not know which companies are the subject of the K20 million tax assessments understood to have been issued - under existing legislation it should be noted. It is also worth remembering that existing legislation provides for action to be taken in the case of breaches of permit conditions, provided they are monitored by the proper authorities in the way intended.

So the term "fly-by-nighters" might be applied a bit too generally to the industry. The proposed new legislation will be no more effective than existing legislation without the political will to enforce it.

Brunton: The FIC, I believe, does have de-registration powers. Given that the FIC is itself a subject of the Commission of Inquiry, yet to be reported on, the industry might consider its tactical stance. It might be better to admit its faults but point mainly to government incompetence and the poor structure of the legislation.

Higham: The FIA and the FIC are two different bodies. The FIA represents a section of the industry. An operator is not a welcome member of the FIA if he carries suspicion of corruption.

Awason: The previous FIC board was dismissed for not acting properly in its role as State Marketing Authority.

Krans: The impression is projected by the drafting instructions that both FIC and FIA have been properly tried and found guilty - the drafting instructions being the sentence - while there is the presumption of state innocence throughout. The truth is different - the state itself is defaulting. Our company finds itself heading towards technical default because of the inaction of government - the response vacuum I referred to earlier.

Higham: There is no point pretending that there are not bad elements in the industry. The message to government has got to be that effective monitoring is a better remedy than increasing the export tax from 10 to 15 per cent, which is a perverse stick likely to beat the good into joining the bad. Of course, in taking this message to government, the industry would run the risk of suffering a surge of petty bureaucracy while the serious infringements continue.

Brunton: More important than promoting increased monitoring to the government is the need for FIA and FIC to be united in their approaches.

Awason: Government believes that the FIC leans towards the industry because of its numerical representation. Better enforceable legislation is what both FIC and FIA want.

Krans: We do have to act together - our righteous indignation won't be enough.

McNeil: The gap is not between FIC and FIA : it is between government and the industry, whether you consider the industry to be represented by FIC or FIA. Government doesn't use the instrument it set up, the FIC, to meet with industry. Mostly, relatively junior officers attend FIC meetings and they cannot answer industry's questions. These questions have to be put to government through correspondence which tends not to be answered.

Power: We, too, have difficulty communicating with the Department of Forests. The department needs the assistance of the Programme Management Unit (PMU) in the Prime Minister's department to improve its organisation. Nevertheless, its draft policy of June 1988, was a worthwhile document. Unfortunately the Minister's drafting instructions bear very little relationship to it. The officers of the Department of Forests don't support the drafting instructions. This probably explains why the department is not better represented here.

Higham: My discussions with PMU were not encouraging. They see their job to assist the provinces whereas Forests appear to want to bring the best back to headquarters, turning the clock back on national-provincial relations.

Brunton: On neither sustained yield nor processing has the government done its work - at least it doesn't show in the drafting instructions. The industry must do that work if it is to survive. I think the government would be receptive and doesn't really intend to attempt to force the legislation through in February. But if the government isn't given an alternative it will proceed and the industry will get something it doesn't want.

O'Neill: The FIA is preparing a response to the drafting instructions for the Prime Minister by the end of January. However, it is clear that more is needed. We need to put forward an appropriate forest policy.

Gault: As well, a strenuous effort will be required to prevent the elimination of the FIC. FIC was effective until destroyed by a Minister - not the current one. The department might be happier without it, but the industry needs FIC.

Brunton: The FIC legislation itself is dated and needs revision. Its membership needs broadening. However, the concept is sound. The constitution is quite pluralist and recognises a place for foreign investment. Modern business and modern government depend upon consultation. Provincial government and industry are allies in this issue.

Macroeconomic Considerations

Chairman: Your (Tarata) paper seems to have accepted that the industry is not wholly bad, in contrast to the drafting instructions as seen by the industry and discussed yesterday. Another point made yesterday is that your department's improved revenue collection is being achieved under existing legislation - the proposed new legislation is not necessary for that purpose.

Tarata: Yes, we have been working on improving our revenue collection for some time.

Brunton: I am concerned that the proposed legislation and the forest development programme are revenue-driven when the administrative problems in the department have been so starkly highlighted. Won't the situation get worse? Couldn't forestry be given time to overcome these problems in light of enhanced revenues expected from mining?

Tarata: The long-term strength of Papua New Guinea lies more in its renewable resources, including forestry, than in mining. Moreover it provides more employment than mining and is better able to transmit activity in the rest of the economy.

Komtagarea: Current relaxed policies towards log exports have to be changed with more emphasis on value-adding. No longer will industry be able to simply harvest one resource and expect to get another. We still need more data on growth rates. In the meantime, we are insisting on forest working plans, logging plans and environmental plans before logging commences. This means logging companies having to establish planning units manned by competent foresters. Industry should see themselves as the policemen not only the government. We are committed to providing resource to processing.

Siriosi: Our concern as land owners is that while national government revenue will gain how much will flow back to the resource owner. We think it will be used to fund projects elsewhere.

Tarata: That is a fair comment. Lands is the appropriate department to cover that aspect. I dealt only with macroeconomic considerations.

Kila Ai: If the forest development programme appears revenue-driven it is because we want to be fiscally self-sufficient i.e. to not rely on Australian aid, and all sectors, not only mining, must contribute. Import duties do not discriminate against timber processing - it is a standard rate applicable to all machinery.

Resource Ownership and Development

Gault: Permits are to be issued in the name of the landowner company. This company may have no financial interest in the venture whereas the contractor, developer, or operator may have. The latter will require protection against non-compliance of permit conditions by the former.

Power: Financial interest is not the only sort of interest in the venture. The landowner company's interest in the success of the venture lies in resource depletion and changes to environment and lifestyle. The way to minimise the risk of non-compliance by land owners lies in the effort put into developing the understanding of the land owners themselves as corporate entities.

Donigi: There is room for a new system. Do away with timber permits. Replace them by a process in which an agreement entered into by the parties is approved and registered.

Komtagarea: The forest management agreements, proposed to replace the TRP and the private dealings system, is designed to overcome the fears expressed by Mr Gault. These agreements are intended to get the land owners prior agreement to necessary performance covenants. Only after they agree does the normal allocation process begin. Perhaps "company" is the wrong name; perhaps we should call them, say, land groups.

Ilaisa: Landowner companies in Milne Bay are dismayed at the impact of the proposed new legislation. But noting the marked absence of Department of Forests' officials and having heard the Minister this morning I wonder what has to be done to get the government to listen. The proposed new legislation risks alienating the real resource owners, the land owners. The models presented by Mr. Power and Mr. Crequer are good ones.

Siriosi: I would like to know what concrete steps are going to be taken to protect landowners' companies from the proposed draconian-type legislation.

Chairman: I understand that the Premiers Council's working group on forestry is in attendance and will carry on after this seminar preparing its submission to NEC.

National - Provincial Government Relations

Curtin: The proposed forestry legislation is in striking contrast to what is happening in the mining sector for which development forums have been established to involve all parties in evaluating and approving new projects.

The project path described by Tony Power is well established in the mining sector. Following it in forestry should improve the quality of developer selected and reduce transfer pricing and other malpractice.

Brunton: Three materialities have caught my attention. The materiality of customary property rights and of national-provincial government relations have been dealt with. But we have also to deal with the reality of political patronage. This system flourishes under the colonial pyramidal system, in which the person at the top has all the authority and is difficult to move. We need a formal, open, group decision-making process to cater for the diversity of interests, beginning with a warden's court type hearing on site. The process must be codified in the legislation. The legislation must also provide for a system of review which will enable an aggrieved party to have his grievance dealt with publicly and judicially when the bureaucracy proves unresponsive whether for administrative or political reasons.

Financier's Perspective

Waite: Could you (Hutchinson) elaborate on your reference to rattan.

Hutchinson: Rattan might become profitable; but at the moment operators are not covering costs and cannot afford a 10 per cent export levy.

Brunton: Wouldn't a single department issuing export licences be better than the current situation.

Hutchinson: At first glance one would think it should. But in our experience it is at least possible that it was the Department of Forests bit that wasn't working, so giving that Department more to do might not work.

Brunton: Are you presenting a common view of the banks.

Hutchinson: The banks haven't taken a common view. The banks will probably be guided by their major customers.

Marketing

Chairman: Do users of tropical hardwoods pay for the cost of growing the wood as well as the costs of harvesting and transport or just of harvesting and transport? What chance is there for reforestation if they don't?

Power: I have found the discussion on the current market reality persuasive. But I do not necessarily accept that it ought to be as it is e.g. the Japanese getting the resource very cheaply. Government clearly wants to change the situation. It will not be enough for the industry to say there is nothing it can do about it. The industry must outline to government a staged plan to move to a better market structure.

Eddowes: Though I agree, it would appear that the Minister does not want a staged plan; he appears to want to change the situation sooner and worry about the consequences later.

Vatasan: What are the end-uses of Papua New Guinea timber in Japan, Korea, Taiwan?

Eddowes: In Japan lesser-known species from all sources are pooled, identified, segregated by specie and auctioned to merchants.

Chairman: Is log sorting feasible in Papua New Guinea before export?

Eddowes: I doubt that it would be practical.

Belford: What is your opinion (Eddowes') of the end-use survey outlined by the Secretary of Forests - 80 per cent poor and low-grade veneer and plywood, 12 per cent packing materials and only 8 per cent high quality furniture?

Eddowes: I cannot comment on the specific numbers but the general proportions sound reasonable.

Chairman: Does this reflect the relative quality of our logs?

Crequer: I don't think so. I believe the Japanese make much better use of our timber. To say otherwise is a typical buyer's technique.

Vatasan: Clearly we need to do some research in this area.

Higham: The industry is now contributing substantially to government revenues; targeting and, if necessary, subsidising a couple of central processing facilities might be the way to get into processing.

Barker: The concept of fair price is difficult to translate into practice. In agriculture there isn't a fair price - just a price determined by mismatches between supply and demand. Attempts by producer cartels to raise prices by restricting supply have produced uneven results. Different supply response in forestry might provide an opportunity for more international collaboration to boost prices to make reforestation, for example, more economic. Is there an aid concept worth developing, as can be seen in America in coffee for example?

Sargent: The International Tropical Timber Organisation (ITTO) supplies advance market information to producer and consumer countries. It also has a strong remit to the environment. An idea is being developed to raise a surcharge on the importation of tropical timbers into Europe, to be spent by ITTO on sustained management in producer countries.

Chairman: Any comment on leasing the resource to industrialised countries as mentioned briefly by the Minister?

Power: Exploitation of tropical moist forests is becoming an international issue and we should examine the situation closely. What can we learn from the principles and practice of Stabex? An important aspect of managing the tropical forests is subsistence agriculture technology. Slash and burn techniques both for food and cash cropping accounts for much forest removal. More land-efficient techniques are needed and technology transfer should be part of the international approach. We should come up with positive dialogue with government on these emerging developments.

Crequer: I would like to correct an impression given by previous speakers. Log buyers pay a great deal more than the cost of harvesting and transporting - about twice as much. The surplus goes to government and the landowners. There is sufficient revenue to reforest. The cost of reforesting the flatter lowlands should be judged against the extra costs in pushing further back into the mountains. On the matter of environmental damage by loggers, I think that it is exaggerated; we take only 10 per cent of the biomass.

Sargent: The Tropical Forest Action Plan (TFAP) is a first expression of the international concern described by Mr. Power. It is about to reach Papua New Guinea. It needs a coordinated response from industry, environmentalists and the community here to facilitate the preparation of an issues paper.

Value-adding, Processing

Curtin: As recently as 1982, Papua New Guinea exported substantial volumes of sawn products; now they are virtually nil. I don't believe that either companies or the workforce have become suddenly less efficient. What has changed, though, is the value of the kina, particularly in relation to our competitors; and I have a feeling that its change may have affected the processed product more than the unprocessed. On the other hand, changes in our output mix may be a rational response to changes in relative prices of logs and processed timber. Of course these factors are not independent. They need to be investigated. Meanwhile there is not much to be gained by coercing exports of a product that has become unprofitable. Could you (Krans) comment on the drop in sawn timber exports since 1979.

Krans: Sawmilling in Papua New Guinea is high cost. The exchange rate makes exporting even more difficult. But increasing domestic demand has also affected exports.

Higham: Previous output mix - higher levels of processed exports - reflected prevailing policy (similar to the one now being proposed) i.e. a processing plant earned the right to export logs. The higher processed output wasn't necessarily profitable.

Gault: The Minister would be filling his order to supply to Queensland for $A370 c.i.f. at a price well below our domestic price. The land owner will be lucky to get his royalty under full processing. The case needs to be put to the politicians not to the Minister.

O'Toole: What benefits will be given to sole processors who have no log exports to subsidise their milling operations? Will processors be given minimum ten years guaranteed log supply to support investment in processing? Why will processors be asked to pay higher duties on imported processing machinery?

Tarata: They are the sorts of issues we will be addressing once we have the full report of the Commission of Inquiry.

Chairman: If the proposed legislation goes through in February won't it be too late to benefit from the Inquiry?

Tarata: My bureaucratic answer is that I believe relevant agencies have sought deferral.

Belford: In evaluating the costs and benefits of value-adding it is not correct to consider only particular species - whole standing forests must be the basis of the evaluation.

Eddowes: I agree. Remove the high-value species from a log parcel and its value will drop dramatically. Approaching from the opposite angle, blanket processing will pose an identification problem - we have difficulty now identifying half a dozen of our best species; we will have a great deal more difficulty with those at the bottom of the range.

Krans: The state's stance seems to be based on an obsession rather than on economic evaluation. It is not just company profit that will suffer - the whole economy including the landowner will lose. My efforts to convince the authorities of this fact appear to have been totally rejected.

Belford: A blanket policy whether on processing or log export is illogical. Each area of standing forest has to be considered on its own particular merits - species, location, logistics, etc.

Vatasan: Jant seems to be the only surviving processor. But all logs exported from this country are processed somewhere. Isn't there any chance at all of processing here?

O'Toole: Jant, of course, is a solely wood-chip operation. I have worked over a long time with many companies exporting sawn timber, mostly to Australia. At no time have we got a profitable return on investment. The value of the kina is one consideration. The species mix is another. Sure, selling some species is no trouble - but you've got to sell the log. We can't sell whites to Australia because we can't compete with radiata pine of which there are bounteous supplies in the world. As well, Malaysia, with few species, well-known, enjoys a marketing edge over us with our great range of less well-known species.

Eddowes: The 1985 Austas Conference projected large oversupply of radiata pine in the mid-90s - from Chile, New Zealand, North America - which will compete with mixed tropical hardwood.

Higham: There is a whole body of analysis available to government for evaluating the processing option. This is the 1977 policy review. That review looked at all of the factors affecting the viability of processing, which clearly had not been working. Rather than simply assume that it will work now, why not revisit the 1977 review and see what has changed since then?

It is Papua New Guinea's choice; but the choice as I see it is : a bit of foreign hardward on an isolated port or log export surpluses invested in agriculture and other rural development. There may be processing opportunities depending on the outcome of the current capacity war between Japan and Indonesia. But these opportunities must be viewed selectively. A blanket policy is inappropriate. It won't be implemented - what it will do is allocate resource on the basis of promise not performance.

Eddowes: In five years, if proposed processing policy is implemented now, we could be at another seminar discussing a return to log exports.

Krans: Log export and sawmilling are a natural combination. Markets must be the starting point in evaluating the economics of processing. The processors that we would be competing with (Japan) are located in the middle of massive, fully-developed markets. They find uses for more of the log than we can. Exporting the left-overs is prevented by bulk density and transport considerations. What we can't use, costs us to dispose of.

Sustained Yield Management

Leasing the forest to an external agent:

Question: Where we have a timber operation now we are able to build other projects around it. Would the proposal to lease or deed the forest to an external agent in return for national budget support include the value of those spin-offs.

Minister: Yes. When I said the value of the industry in kina terms I meant employment, export earnings and the associated spin-off industry.

Sargent: Throughout the world we have found that the only way to protect forests at the village or community level is to give the forests a value to the community. Leasing or deeding the forest to an external agent would take the incentive for business management away from the village communities. If you do this I think a great deal of though about environmental considerations will be needed. Would you like to comment?

Minister: I know that if I tell the landowners that they can no longer sell their timber I will have a problem for which I have no ready solution. But generally the government would have to ensure that its lease revenues are spent in the rural areas on roads, schools, aid posts, etc.

Follow-up land use:

Comment: We are logging on government land. For five years we have sought land for forestry purposes. Although only part of the land is suitable for agriculture, the Department of Agriculture and Livestock seems to be most reluctant to release any portion of it for forestry.

Freyne: I agree that follow-on land-use needs a lot of attention. I believe that a Land-use Development Committee will be instituted next year to do this.

Wayi: Land-use potential is derived from considerations of soil, climate and topographic characteristics as well as factors such as distance from roads.

Freyne: Our evaluations are qualitative and the physical evaluation implies an economic one. However, we do not have the data to give a quantitative economic evaluation e.g. the difference between "high" and "moderate" is "x per cent" change in yield.
Dr. Sargent's comparative analysis of the economics of tree cropping and timber harvesting is the first I have seen. While income per man day is a relevant consideration, so is total income per hectare per annum which is very much higher for agricultural tree crops than for timber. As well we agriculturalists believe that we practise sustained yield management.
We have not yet been able to get to the economics of reforestation.

Sargent: Do you consider the environmental value of the land in your evaluation - catchments, need for reforestation, and genetic conservation which is lost in reforestation and agriculture?

Freyne: We do consider catchment control and planting methods and densities but we don't go further than that.

Wayi: Our methodology for conserving the environment is based largely on topographical considerations e.g. slopes exceeding 15 degrees are excluded for agriculture.

Siriosi: We discourage big plantations. After logging contractors have been through we cut only small areas for plantations.

Sargent: I would like to make a plea for more discussions for combined extension efforts between forestry and agriculture.

Krans: Landowners do not wish someone else to plant on their land because planting is an expression of ownership, as I understand it. This means that government cannot get land for reforestation to give to logging companies who therefore cannot fulfil the reforestation requirements of the logging permit. But is there a need for reforestation under selective logging?

Mongko: The proposed legislation is too optimistic about reforestation. The land owner won't appreciate large plantations or commercial estates. When government officers approach them to secure TRP areas, the people's principal and first concern is with monetary benefits; they are not inclined towards talking about follow-up land-use plans.

Belford: The Secretary for Forests' paper said : "As a minimum wood flows will need to be fully sustainable on a provincial basis". The starting point must be provincial forest development plans leading to negotiations between provincial and national government for national balance. For example, as a result of uncontrolled overcutting in New Ireland, that province's plan needs to be very different from that for Western Province whose resource has hardly been touched.

Sustained yield principles:

Brunton: From memory, a paper presented by Sagarai Gadaisu to an I.N.A. seminar (in 1982) said their operations were or would be based on sustainable forest management.

Siriosi: North Solomons Province has a well-defined policy, discouraging land owners from cutting trees after the logging company, and it is working. National government could learn something from provincial governments and I think it was quite disrespectful of national government not to have involved provincial governments.

Power: Dr. Sargent's method is an excellent way to present information to village communities. However, I question her figure (K100 per man day from 25 year rotational logging on 25 hectares of forest); I would say K25 per man day. Thirty cubic metres of good planks per hectare from a wokabout sawmill is too high as an average across the forest.
I agree with her judgement that we aren't planning for sustained forest management. This is the centrepoint of the whole issue. The only people who have a perpetual interest in the ground are the land owners; unless they are fully integrated into the planning, sustained forest development simply won't happen.

Ilaisa: I wonder whether the large estate required for sustainable forestry proposed by Dr. Sargent is compatible with the involvement of village people as seen essential by Mr. Power for sustainable forestry but who could be scared off by large forest estates. I wonder whether enrichment planting wouldn't be better.

Sargent: What is required is not a large estate as worked by a logging group, but a permanent area of land committed to long-term sustainable management and this can be made up of a number of small areas. To achieve this we are working with the land owners, with the village communities.

Brunton: Do large logging operations chase villagers off the land? What is the industry's relationship with them?

Krans: The opposite is the case. As we move around our timber area, the people are right behind us. There is a problem here for us for sustained forest management. After we have taken a light cut, the land is cleared by somebody else.

Jones: The villagers slash and burn technique must be taken into account in evaluating environmental protection.

Murray: In West New Britain, the land owners are very happy to see a logging company - it doesn't do much for sustained yield but the villagers are able to grow cash crops and get them to markets?

Organisation:

Chairman: A monolithic structure will require skill in managing the responsibilities split between national and provincial governments.

Vatasan: I don't see a problem. The hierarchical pyramid system will need to be well codified, of course. There are many federal countries with a powerful national forest service. Of course 19 provinces is a large number in a small country like Papua New Guinea and this could complicate matters.

O'Toole: A processor couldn't invest in an operation with only 3,000 hectares of resource.

Vatasan: The 3,000 cut-out area is the maximum a person can know in detail and supervise well. The operational unit would comprise a number of such areas.

Chairman: How large an area under sustained yield management is required to service the investment required in logging and processing?

Hart: We can't answer this question until we know growth rates, and it will take us a long time - many years - to find that out.

Vatasan: I think that after 30 years an area properly maintained and defended against diversion to other uses would be loggable forest again, perhaps of a different composition of species, but who knows what the market will be in 30 years?

Sargent: I am very interested in your (Vatasan's) extremely strong organisational approach; though I am a bit doubtful about it working. On regeneration, data from Indonesia and Malaysia indicate an interval of 50 to 70 years between monocyclic harvests.

Vatasan: It is possible that 30 years is too short; but it is better than current practice. If we continue without any plan the chances are that we end up with grasslands, e.g. Markham Valley; 8 per cent of the total land area is covered by anthropogenic grasslands.

Hart: Current harvests around Madang and Vanimo are thought to be about 90 years old. I would put the range at 80 to 100 years.

Vatasan: So you divide the forest into 100 units of say 20 blocks (of 3,000 hectares each).

Belford: The rule of thumb in North Queensland is around 40 years from pole size, depending on specie and other variables.

Mungko: In trying to estimate the minimum economic size for an operation, knowing the volume of wood is more important than the area of land.

Cortez: Assuming a cut of 30 cubic metres per hectare and an annual production requirement of 120,000 cubic metres, then for a 40 year cycle, an area of 160,000 hectares would be needed.

Brunton: The proposed legislation appears to be driven by macroeconomic growth objectives. The distinction has been made between non-renewable minerals and renewable forests. But we have also heard that forests are renewable only under sustained yield management. Since we agree that we don't know very well what that means in a practical sense don't we need a moratorium until we are more sure of what we are doing?

Environment:

Belford: What additional staffing will be available to the Department of Environment and Conservation to evaluate the mandatory environmental plans?
How effective is liaison between the Departments of Forests and Environment?
How long will it take the Department to approve the environmental plan? It is important to minimise this time because the operator can't afford to prepare the plan until after the permit has been issued, from which time overheads are incurred.

Nagare : The 1989 budget provides for more staff. There is at the moment a lack of cooperation between the two departments e.g. Forests is the main regulatory agency and sometimes the first we know of a project is when the permit is issued. We are working on the problem.
We would very much want the permit not to be issued until the environmental plan is approved and have made that recommendation to the Minister.

Jones: We heard earlier how land owners following up on logging can damage the environment. As well, unauthorised company personnel using company equipment sometimes damage the environment, e.g. land owners clearing land with a bulldozer. The company should not be held responsible.

POINT FORM SUMMARIES OF PAPERS PRESENTED AND SUBMITTED TO THE SEMINAR
(Full copies of the papers are presented in Part B)

The Forestry Development Scene in Papua New Guinea
M. Komtagarea

- The forest being the central feature of the environment its development is constrained by the constitution.

- After 3 years of consideration a draft forest policy was circulated for comment in June 1988.

- The core features of development policy are -

  - 30 per cent processing within 5 years
  - central marketing authority.

- The drafting instructions followed somewhat independently in September 1988. Principal provisions are -

  - No more private dealings and timber rights purchase agreements.
  - Reforestation will be a must and youth groups will be involved.
  - Establishment of a Forest Industry Office (incorporating the FIC).
  - Export levy will be increased to 15 per cent of f.o.b.
  - Penalties for breaches to be increased.
  - More local processing.
  - Timber royalty determination - gross 10 per cent f.o.b. less deductions.
  - Timber royalty distribution - 100 per cent to land owner; provincial government gets K1 per cubic metre follow-up land use fund.

- The new levies represent a shift from the current negotiated land owners premium.

- Papua New Guinea's operable forest resource comprises an estimated 500 million cubic metres on 15 million hectares; 3.7 million hectares have been acquired from land owners and 2.2 million hectares allocated; the remaining 1.5 million hectares have been assessed for volume at 22 million cubic metres.

- Export performance characterised by -

  - increasing log exports
  - decreasing sawn exports
  - virtual loss of higher-value (e.g. plywood) exports.

- Japan takes 61 per cent of our logs and South Korea 31 per cent, Taiwan and India the remainder.

- In Japan 80 per cent of Papua New Guinea logs go to core and low grade plywood, 10 per cent packaging and 8 per cent into high-quality end uses e.g. furniture and face veneer.

- In South-East Asia only Papua New Guinea (8 per cent), Sabah and Sarawak (approximately equal shares) export logs.

- Australia and New Zealand take our sawn exports in about equal shares.
- Our high-value export opportunity lies in Europe, Japan and North America, currently totally unexploited.
- Domestic demand (250,000 cubic metres in 1987) for processed timber is expected to grow strongly.
- The 1989-93 national forest development programme projects export values increasing in real terms from K118 million in 1988 to K405 million; new projects expected are 1988 (23), 1980 (33), 1980 (20), 1991 (18).
- The system of allocating resource comprises 10 well-defined and known steps and all 1988 allocations have followed them.
- Sustained yield management explained in subsequent paper.
- Potential : large high-quality resource, rapidly decreasing supply in the region, stable economy, proven government, commitment to sustained yield and professional management, strong domestic demand.
- Constraints : multiplicity of species not well-known, poor operational standards and efficiency, lack of centralised marketing.

Forest Legislation and Land Tenure
A. P. Power

- Compulsory acquisition of timber rights should be resisted by land owners.
- Proposed new legislation is a recipe for corruption.
- All projects are in provinces on private land; to be successful the expectations of all stakeholders must be clearly stated, understood and accepted by each other as must a single clear project planning and decision-making pathway.
- National and provincial governments should enter into a memorandum of understanding identifying authorised action officers in order to neutralise attempts to bypass or short-circuit the system and to maintain a consistent and unified stand.
- Detailed definitions of expectations, specification of pathway and proforma memorandum of understanding given in the paper.

Commentary on Forestry Legislation
Peter Donigi

- There is no legal entity "land owner company"; the term must be defined in the legislation.
- The proposed legislation is restrictive and therefore unconstitutional; to be facilitative rather than restrictive it must provide for agreements between land owners and investors to be entered into subject to approval of the Minister.
- Transfer of shares in land owner companies and shareholder trust deeds should require approval of Minister - penalty, cancellation of timber permit.
- A resident on land may have usury rights but is not necessarily a land owner and therefore cannot be part of the required 75 per cent approving the land owner company.
- Does "negotiated payment" in respect of plantations include payment other than royalty?
- It is not made clear that royalties will be paid directly to the land owners.
- Only one department should be involved in issuing export licences.
- Could the state seize timber harvested from customary land not subject to a forest management agreement; who gets the royalty part of the value of seized logs?
- The constitution does not permit the prohibition of cutting, etc. on customary land.
- Definitions of timber, forest produce and trees need clarifying.

Reviewing the Forestry Laws in the Context of National-Provincial Relations
A. J. Regan

- Proposed legislation is flawed in that it seeks to exclude provincial government from any significant role in forestry, which is inconsistent with provincial governments' responsibility generally for planning and executing development.
- Provincial government is not as expensive to operate as is generally thought; it would be politically impossible to abolish; it provides significant benefits to nation-building; it is here to stay, evolving "differentially", the basis of national government's management of it.
- Forestry is a concurrent legislative subject which means legislation is shared between provincial and national government, the latter being restricted to matters of "national interest" to the extent that they are of national interest; Premiers Council has made this point to national government on previous occasions.
- Too much is left to the discretion of the minister, inviting suspicions of corruption and national-provincial conflict.

- Royalty provisions are inconsistent with such provisions in other sectors and mean less revenue to provincial government; the Islands Region proposal should be considered.

- The proposals to return forestry staff from provincial to national control is shortsighted and does not take into account all of the reasons for the current poor performance.

- Alternative approaches in outline -

  - The possible role of provincial government forestry legislation must be considered, particularly the possibility of a differential approach whereby better managed provincial governments are permitted to deal with matters of provincial interest in their own laws.

  - There should be a much greater role for provincial governments in the process of negotiating and permitting forestry projects.

  - Clear procedures for the project preparation path for all categories of forest projects should be carefully adhered to. Such an approach provides certainty and protection for land owners, all levels of government and for the industry. Models for such project paths might be found in the mineral sector.

  - To avoid repetition of present confusions, there should be clear provision as to the respective responsibilities of national and provincial governments in all phases of forestry management.

  - Clear manuals of procedures should be drawn up for forestry staff covering all aspects of their roles.

  - Rather than resuming control of provincial forests staff, the national Department of Forests should follow the pattern promoted by the Programme Management Unit and enshrined in the Resource Management System whereby the department provides back-up and technical support to forestry field staff under provincial control.

  - Any new forests legislation must in part be based upon the existing national government policy that the degree of independence and the extent of the powers of individual provincial governments in relation to any sector of government activity should be differentiated depending on the capacities of those governments.

In general, there must be a much greater degree of cooperation between the national government and provincial governments in relation to forestry matters overall and concerning the proposed new legislation in particular. The lack of consultation concerning the proposed act and concerning proposals to resume control of provincial forestry staff suggests a worrying trend. Again, developments in the mineral sector may provide a useful model. Recent national government initiatives to establish a development forum to enable the two levels of government and the industry to consult on mining projects, in place or planned, have been well received by both industry and provincial governments with mining projects in place or planned. It is an approach far more in line with the general improving trend in national-provincial relations than the approach which appears to underlie the drafting instructions considered in this paper.

Financier's Perspective
David Hutchinson

- How practical is the target 20 per cent of advances outstanding at 31.12.1990 to be in agriculture and forestry and fishing?

- Banks are at risk because -
  - equipment life is short and maintenance costs high;
  - prices are essentially "arm's length" with no scope for forward selling.

- Profits of loggers disappeared in 1985; the period 1986-88 has been good, but may not last; rattan has not got off the ground.

- Kina finance harder than ever to find for these reasons -
  - cancellation of export licences, seizure of logs; these actions being prompted by complaints by third parties and often without due investigation;
  - permits awarded through political influence and subsequent diversion of funds offshore;
  - production-driven rather than market-driven investment in processing, leading to dumping, a threat to the viability of the whole sector;
  - land owner disputes leading to damage to assets and violence to management;
  - arbitrary treatment by the Department of Forests.

The drafting instructions viewed by a banker -

- taxing on logs felled rather than cash availability is worrying;

- how relevant is the involvement of youth groups to reforestation?

- the commonsense approach to transfer pricing is lacking, i.e. overseas price monitoring, control of species being exported and "auctioning" of the logging and marketing rights;

- are penalties deterrants or dangerously large sums of money which can be unilaterally demanded?

- the legal drafting of performance guarantees by banks as envisaged may prove too difficult;

- processing must be strongly customer-driven; unfeasible specialist plant in a remote location is no good to a bank; pressuring loggers into processing in their first year will deter banks;

- what will be the effect in terms of delays to a project of optional environmental submissions; this aspect needs clarifying;

- will transferring responsibility for issuing export licences from Trade and Industry to Forests make the current paperwork problem better or worse?

- the operator should make royalty payments direct to land owners with advice to government;

- banks as trustees would dispose of seized logs better than the Department of Forests.

The "Proposed Forest Legislation" and Government-Industry Relations

C. R. Higham

Forest Industries Association (FIA) is concerned that in respect of the proposed new legislation -

- government does not have the capacity to enforce it;
- some of it is ambiguous and hence will be inconsistently applied;
- some of it is unreasonable.

Legitimate investors view this circumstance as a problem whereas lesser-quality investors will see it as an opportunity to enter the industry on the basis of promises rather than performance. Therefore the FIA proposes -

- Impose a moratorium (or at least a substantial slow-down) on the release of entirely new development areas (e.g. those not required to support established processing operations).

- Form a working group (given a feasible but reasonably short time to report) made up of seven members : two representatives each from national government, provincial government, and the FIA; and (say) an independent chairman from such a body as IASER). It would be recognised by committee members that the objective of the working group would be to formulate forest policy in the broad national interest.

- This working group would identify in what respects past forest policies have failed, and in what respects they have succeeded in contributing to broad national goals (revenue generation, national ownership, resource replacement, etc.). (Using the interim report and the final report of the "Commission of Inquiry" and all relevant data available within government and industry.)

- The working group would also identify in what respects existing forest legislation has failed. What does existing legislation not allow to be done that should be done, and what does existing legislation allow to be done that should not be done?

- The working group would invite submissions, information, and proposals from all sections connected with or affected by the forestry industry (including ideas presented to this L.N.A. seminar).

- The working group would prepare draft forest policy proposals for presentation to the Minister for Forests.

- Normal government procedures would then be used to have these draft policies and associated legislation approved and enacted at the same time.

This process might seem a little too involved. But it is an appropriate time for a substantial review of forest policies and legislation. If this is not done in consultation with industry and provincial governments then little will have been learnt about the failures and successes of forest policies in the years since independence.

And any legislation so derived, which should provide a framework for forest utilisation for many years to come, will have its origins in conflict, centralism and instability which is out of keeping with the spirit of cooperation that is necessary if legislation is to be effectively implemented. Ineffective implementation of legislation is the main problem at present. The best parts of the "proposed legislation" will be opposed along with the worst.

Foreign Investment in Papua New Guinea
Chris Krans

- Why hasn't government through its shareholdings and board representations in the industry been able to do anything about transfer pricing in their investments?

- The state purchase option exercised discriminately could counter transfer pricing; but exercised simply because it exists seems likely to bid prices downwards.

- If investment is sought, more regard must be had for profitability than is displayed in the drafting instructions and the Minister's opening remarks; under the proposed new legislation, shares in Vanimo Forest Products would be an unattractive investment for land owners; the load of government charges, taxes and levies should be rethought.

- Department of Forests is currently overburdened and many companies operate in a "response vacuum"; proposed new legislation will make the situation worse.

- The proposed new legislation is mostly about policing and controlling - conjoint development for mutual development would be a better basis.

- Penalties are draconian and set the scene for the unscrupulous to bribe controlling officers into looking the other way.

- The land owners, the state and the company all lose by banning exports of Kwila log and enforcing processing because logs are relatively more valuable than sawn timber to the buyer.

A Statement in Defence of the Forest (Logging) Industry
P. C. Crequer

- Dismayed by charges levied industry-wide viz that all log exporters are vandals, tax-evaders, transfer-pricing specialists, resistant to processing and oblivious to needs of land owners.

- Government over-values its timber resource; it is economic but no bonanza; it is difficult : multiplicity of species, low merchantable density, difficult topography and climate, no infrastructure.

- Export loggers remove only 5-10 per cent of the biomass; two years of benign neglect would remove the visual effect to the uninitiated. Agriculturalists, not loggers, permanently alter the environment.

- Log exporters pay very high and onerous taxes - what other industry pays 27.5 per cent of gross receipts, rising to 44 per cent under the proposed new legislation (based on US$80 f.o.b.).

- The proposed new legislation will mean a drop in land owners' returns of 28.5 per cent- not the foreign contractor's.

- Japan is the best market, taking "run of bush" for domestic consumption; Korea and Taiwan provide buying competition provided the United States and the European Community resale markets are strong; India and Singapore are species-selective; Papua New Guinea price realisations equate well with the MLH grade from Sarawak.

- Allegations of transfer pricing cannot be sustained industry wide and a further 5 per cent export tax on honest operators is unfair.

- Sawmilling cannot give the returns to government and land owners that log exporting does; it may be a useful complement to log exporting; but paying the full opportunity cost for its log feed, it is distinctly unprofitable.

- Selling sawn timber to Australia for $A370 per cubic metre c.i.f. (as mentioned by the Minister in his opening remarks) would just break even using logs at actual cost - no royalties and taxes would be generated.

Government-Industry Relationship
Aaron Nawason

- A list of industry ills from government view and list of constraints from industry viewpoint (see page B61).

- Draft forestry legislation relies on increased export taxes to counteract transfer pricing and tough penalties to deter other forms of malpractices.

- Department of Forests headquarter's requests are always given second priority by provincial forest officers.

- Land owners must be identified properly by government, involved in project negotiation, involved in exploitation and follow-up land use, e.g. reforestation, and paid their royalty promptly to avoid disruption to operations.

- Forest Industries Association (FIA) cannot be the official mouthpiece of the industry as proposed in the draft legislation; a neutral forum comprising, FIA, land owners and government is required.

- Insufficient funding and investment by major export markets makes Forest Industries Council's (FIC) job of promoting and diversifying markets for Papua New Guinea timbers difficult.

- Export duties should be payable on outward not inward customs clearance because only then are exact details of shipment and the exchange rate known.

- Department of Forests could improve relationships with the industry by promptly
  - making its recommendations on export licences to the Department of Trade and Industry.
  - making royalty payments to land owners.

- The functions of the FIC and of the Marketing Section of the Department of Forests are separate although the two should work closely together; therefore the two organisations should not be combined and absorbed within a forest industry office as proposed in the draft legislation; instead FIC should be given more funding for more manpower.

Sustainable Yield
A comment from UNDP/FAO Project Team

- Logging investigations have shown that -
  - critical damage at the pole stage is being caused;
  - more land area is being used than necessary for roads, log landings and skid trails.

- Logging companies can be established more readily than can well-trained foresters and loggers.

- Sustained yield management is discouraged by -
  - current licensing practice;
  - sporadic payments of royalties to land owners.

- Combined variability in the estimates of potentially operable area (a factor of two) and of increment (from 0.25 to 2.0 cubic metres per hectare per annum) suggests caution in accelerating harvesting rates.

Sustainable Development - Some International and Local Perspectives
Dr. Caroline Sargent

- As in many other countries, there is no sustainable management in Papua New Guinea.

- The moncyclic (clear-felling) system, though successful in lowland Malaysia, is far less successful in mixed and hilly forest (as in Papua New Guinea); it requires a minimum of 50-70 years between harvests.

- Polycyclic (minimum intervention or selective logging) systems are more flexible.

- Conditions essential for sustained forest management -

  - a permanent forest estate within the natural forest with a guaranteed long-term future as part of an overall land-use plan;
  - secure conditions for forest managers, government, private or community;
  - standards for annual allowable cut and harvesting methods;
  - adequate control to assure future crops;
  - economic/financial policies which do not require more than the forest can yield sustainably;
  - environmental policies;
  - enough information for effective operation of all of the above.

- The first two of these conditions are in the hands of land owners.

- Rotational forest harvesting provides superior returns per man hour than agricultural tree crops.

Land Usage – A Question of Ownership and Economic Decision Making or Guesswork?
David F. Freyne and Balthazar M. Wayi

- Available information on land ownership and economic potential is not being used.
- Follow-on land use plans and funding should be in place before logging permits are issued.
- Agriculturalists tend to see clearing the forest as a cost rather than a revenue.
- Timber royalties can be used as equity in follow-up projects.
- The Land Use Development Committee in the Department of Lands' Land Mobilisation Project, provided it is allowed to operate on an economic rather than a political rationale, should improve overall land use in the future.

Some Technical Forestry Problems Related to Legislation
G. S. Vatasan

- Papua New Guinea's forests need to be spatially organised into blocks, units and conservancies; the block (3,000 hectares) being well-defined both spatially and administratively concentrating the efforts of monitoring, reforestation or follow-up operations on a concrete, humanly-sized unit.
- Resource inventory should be based on the block; the current system based on areas ten times the size of the block reinforces the feeling that the forest is infinite and there is no need to care for it.
- Block boundaries can be defined at the same time as the base line and strip lines, a useful step towards registering customary land.
- This spatial organisation is one of two essential requirements for sustainable yield; the other is known rotation period or growth rates; neither requirement exists in Papua New Guinea.
- Clear-felling associated with plantations would provide higher growth rates than selective logging.
- While the right of ownership may be guaranteed by law, the use of the forest can still be made subject to management plans prepared by the authority; sometimes people must be defended against themselves; a stage has been reached where the extent and limit of ownership must be defined - forest legislation must address the land issue since forests cover 80 per cent of the country.
- The forest service should be organised as an hierarchical or pyramidal monolith.
- High chance of detection is a much better deterrent than high penalties; poorly policed enforcement combined with high penalties might lead to the disillusionment of honest operators, the proliferation of unscrupulous ones and wide-spread corruption.

- Allocation of harvesting contracts should be based on pure monetary bidding rather than the current "development proposal" approach.

- The durations of some present operations are much too short to be considered rational forestry.

- A simple clearly codified relationship between the Department of Forests, land owners and developers is needed.

Sustainable Yield in Forestry in Papua New Guinea
M. Komtagarea

- Sustainable yield probably cannot be defined at present in precise terms; but we can make a start, and it will be made at the individual operational resource unit.

- The timber rights purchase and timber permit systems include all of the procedural requirements to allow us to practise sustained yield management; but calculation of the harvesting rate is not based on sustained yield principles.

- On the other hand, the private dealings system does not allow the department to practise sustained yield; though it can get projects going much quicker it should be limited to remote areas.

- If operators were concerned about sustained yield management they would employ more foresters; inspector's main concerns are environmental matters and royalty assessment; operators tend to control the inspection officers rather than improving voluntarily the monitoring of operations themselves.

- Common operational faults : relying on departmental inventory for production scheduling; roading with formal surveys; logging without cutting boundaries; non-directional felling; excessive roading and snig tracks.

- Government could delegate monitoring to the operator or hire consultants.

Forest Resource Development in Papua New Guinea:An Environmental Consideration
T. Nagare

- The Department of Environment and Conservation's responsibilities lie in the fourth national goal of the constitution : Papua New Guinea's natural resources and environment be conserved and used for the benefit of all and be replenished for the benefit of future generations.

- The "polluter pays" principle will guide the department.

- Environmental planning, in which social planning is particularly important, must go hand in hand with economic and engineering planning; it will not be effective if it follows feasibility studies; requirements must be met prior to initial operations.

- Drafting instructions undermine the Environmental Planning Act; environmental planning cannot be an optional requirement.

- What happens to reforested areas after the 25 years provided for in the proposed legislation?

Macroeconomic Considerations
Koiari Tarata

- Problems in forestry are micro not macro-related; the core of the problem is poor management - capacity and integrity in industry and supervision in government.

- Government objectives include economic growth as well as social development; forestry, a renewable resource (under sustained yield management) is important in this regard; 7 per cent annual growth is expected over the period to 1995.

- Contribution to GDP is low; intermediate consumption accounts for 80 per cent of output, the bulk being imports; as well, high gearing reduces contribution to GDP.

- Processing must occur at prevailing wage rates and be internationally competitive at prevailing exchange rates.

- Investment has been disappointing and employment has declined 18 per cent since 1978.

- Government policies are pro-foreign investment but government is concerned with quality; procedures for selecting foreign investors will be improved.

- Back corporate tax assessment have been issued in 1988 to the value of K25 million; poor forest inspection and accounting and auditing contribute to low tax yield.

- Export taxes and royalties based on turnover, though inefficient, are simple to collect; in 1987 they generated some K15 million, or 14 per cent of f.o.b. value of exports; government will continue to rely on them until industry self-regulation and government supervision improve.

- "If the Barnett Inquiry merely sorts out the unwanted elements and in so doing puts a complete brake on future investment and development then it will have failed. The need for us to diversify our economy away from excess reliance on the minerals sector is a very real one and we must get on in the medium term with appropriate and sustainable development of our forestry sector."

Value-adding : A case study – Log Exports versus Processing
Peter J. Eddowes

- Investment will stagnate if all future operations are based solely on processing.
- Sawmilling is higher-risk than log export.
- Banning export of higher-value species makes no economic sense (costed examples given).
- What provision has government made for qualified graders to handle the increase in sawn production?
- What will the domestic market take?
- To attack the sawn export market seriously we need standard nomenclature and grading rules.
- Providing log export quotas as an incentive to increase sawn production will lead to dumping on both export and domestic markets, to the detriment of smaller sawmill-only producers.

Log Export Restrictions and Forest Industries Development in Southeast Asia (1975-1986) : The Case of the Philippines
R. N. Byron & M. A. Quintos

- Too early to draw firm conclusions.
- West Malaysia over 20 years has steadily moved towards higher-valued processed exports.
- Indonesia's oil revenue has subsidised the creation of an enormous plywood industry requiring higher rather than lower logging rates.
- Logging rates in the Philippines are declining and the industrial incentives appear not to have been effective.
- Sarawak, Papua New Guinea and Solomon Islands benefitted in the short term through higher log export prices by not following SEALPA's industrialisation strategy.

PART B

PAPERS PRESENTED AND SUBMITTED TO THE SEMINAR

Prepared Paper Tabled at the Seminar

Hon. Karl Stack, M.P.,
Minister for Forests

The forests of our country are arguably the most widespread and the most valuable long-term natural asset that the country possesses. They have the unique role of providing for the basic needs of the people, protection of the country's soils, water, fauna and ecosystems and yet under correct and sound forest management practices they can provide for a viable forest industry in perpetuity.

To balance all these uses requires a well-defined and comprehensive forest policy backed up by strong and definitive legislation and interpreted by an appropriate national forest development plan. This will be the major thrust of my ministry during my term as minister.

In preparing both policy and legislation to ensure the maximum benefit for our nation there are a number of factors that must be recognised. I will summarise these briefly and deal with a number in greater detail later. They are -

- The population of Papua New Guinea is estimated to be about 3.5 million people increasing at a rate of around 2.5 per cent per year. The increase is high by world standards.

- The population is still mainly rural-based with a heavy dependence on the forests for basic needs.

- Ninety-seven per cent of the land is held under customary land ownership and this ownership is enshrined in the constitution. Standard western techniques of obtaining contractual agreements to develop land over a long-term period for forestry are inadequate.

- Papua New Guinea standards of living and per capita incomes are increasing dramatically due to the nation's abundant wealth and this can only lead to a mirrored increase in demand for wood products.

- Export demand for Papua New Guinea logs is growing rapidly as supplies from South Sea and South-East Asian log exporters dwindle. It is important that we react to the pressure this will bring in a positive manner.

- Despite past efforts the volume of processing has decreased significantly. There is an urgent need to reverse this trend to allow the nation to share in the benefits of value-adding.

- There is a major institutional problem in the lack of manpower and finance to carry out effective monitoring and control of industry activity.

The forest sector, by way of export-orientated processing, has the potential to make a significant contribution to the overall development of Papua New Guinea, to generate more export revenue, to provide for new employment opportunities, and to provide for greater rural infrastructure development by way of roads, bridges, schools, and associated small-scale business opportunities.

However, of concern to me is the significant reduction of export processing levels over the last decade as illustrated below -

Table 1
Processed export volumes

Year	Volume (m3)
1982	27,000
1983	26,000
1984	23,000
1985	16,000
1986	7,200
1987	4,000

Processing for export is now virtually at a standstill and the problem needs to be seriously addressed.

Despite the above, the forest industry, albeit a log export-orientated industry, contributes significantly to the nation's export income. In 1987 we exported some 1.5 million cubic metres representing a value of K113 million or 10 per cent of the country's export returns. This year, 1988, that value is expected to increase to K118 million whilst other commodity prices are falling. Forestry shall retain its third spot as a major export earner behind the mining and coffee industries.

The potential for forestry industry and associated investment in our country can be summed up as follows -

- A large resource of high-quality hardwoods the potential of which has never been fully explored by international marketeers.

- A rapidly decreasing supply of tropical hardwoods in the competing countries of South-East Asia, the South Pacific, and Australasia.

- A strong desire by government to develop its forest resources on sustained yield principles with supply in perpetuity to potential investors.

- The build-up of a healthy and professional body of national foresters and the movement of these people through into the middle management roles of government and industry.

- A rapidly developing society requiring an increasing quantity and range of forest products.

- A broad forest policy that recognises the needs of the modern world yet is sympathetic to the needs of the environment and the visions and aspirations of its unique culture.

The current constraints for forestry investment in Papua New Guinea are -

- an uncertainty about the level of the resource base;

- an uncertainty about continuity of a wood supply to support the high investment levels required by processing plants;

- the general lack of support by government of my department's manpower and expenditure levels resulting in inadequate monitoring and control of industry.

I wish to state at this forum that as minister responsible for orderly and rational forestry development I will not accept, or condone, abuse of our forest resources and of our rural people by opportunists and illegal operators who only wish to further their own selfish interests and are unwilling to contribute to the nation's development.

I do wish, however, to assure you all that as readily as I will take action against errant companies I will uphold the rights and privileges of timber companies operating within the authorities granted by national and provincial governments and, within our priorities, encourage companies to contribute on a mutual benefit basis to the real development of our timber industry.

For the above reasons I have recently had drawn up and circulated "Drafting Instructions for the Review of the Forest Legislation and Regulations".

The Secretary of Forests will deal with this legislation in greater detail but very broadly it is designed to strengthen forestry development in this country and to encompass a change in development emphasis and direction.

My department now has a five-year forest development programme in which a specified number of projects are to be completed each year and for which we require investment, e.g. in 1989 we expect to complete 23 projects, 1990 (20), 1991 (18). Volumes to be harvested assuming the full national forest development plan are shown in the paper presented by the Secretary.

As well as considering the environment of Papua New Guinea as of prime importance in the process of developing our forest resources I am also mindful of Papua New Guinea's environmental responsibility on the world stage. There is no doubt that the tropical forests and woodlands are essential to the economic and social well-being of rural people in developing tropical countries yet they are being degraded and destroyed at an increasing and alarming rate.

The various models on how rising sea levels will affect populations show that, in our own region of South-East Asia and the South Pacific with its many islands and low-lying atolls, there is the potential for catastrophic change.

Our nation has a large, highly-significant tract of unmodified tropical forest and as such we have an international responsibility to ensure that these forests remain in perpetuity and to demonstrate to others the techniques and systems of management that ensure this.

Our forest policy and draft legislation recognises the global importance of Papua New Guinea's forests and is putting into place forms of management which will conserve the resource in perpetuity for the benefit of all.

In summing up I believe that the government is in a position to adopt and pursue dynamic, long-term forestry policy in the interest of the people of today for generations to come. However, it will require strong and sustained support and commitment from all sectors. No-one pretends that this commitment and support will be easy but while the cost and effort will be high, the cost of inaction alone will be infinitely greater in the long term.

The Forestry Development Scene in Papua New Guinea

M. Komtagarea
Secretary for Forests

Preamble

I thank you for the opportunity to present a paper at this seminar and to tell you something of the way my Department sees its role in providing for forestry and forestry development in Papua New Guinea.

The organisers of the seminar have asked me to report on four specific areas of forest development. This I will do in detail but I would also like to take the opportunity to present a much broader picture of the forestry scene as I and my Department see it, firstly to bring some perspective to subsequent discussions and secondly to give some background as to why procedural changes are necessary. The first part of my paper will deal with this broader look.

Introduction

Papua New Guinea consists of the eastern part of the large tropical island of New Guinea and a spread of smaller islands to the north and northeast. The total land area of 46 million hectares is largely covered with forest but because of the mountainous topography only a relatively small proportion of the forest cover is merchantable.

The population is estimated to be about 3.5 million people increasing at a rate of around 2.5 per cent per annum which is high by world standards. Port Moresby and the National Capital District had a propulation of 170,000 in 1987 with a high rate of urban drift as did the other major towns and cities of the nineteen self-governing provinces.

Papua New Guinea standards of living and per capita incomes are increasing dramatically due to the nations abundant natural wealth, particuarly in the mineral and agriculture industries, and this can only lead to a mirrored increase in per capita demand for wood products.

Responsibility for implementing government policy, research and training in forestry is vested with the national Department of Forests. Provincial forest officers, responsible to their respective provincial governments, carry the mandate for the day to day activities in each province. There is a major institutional problem in the lack of manpower and finance to carry out monitoring and control of industry activity.

Over the last thirty years Papua New Guinea has developed a substantial export trade, primarily of logs, to Japan and other South-East Asian markets. Log exports from private companies in 1987 exceeded 1.5 million cubic metres, plus some sawnwood and woodchips, with a combined export value of K113 million. The domestic demand is around 250,000 cubic metres of mainly rough sawn timber and some plywood. Development of logging has brought employment and infrastructure to many rural areas.

Ninety-seven per cent of the land is held under customary land ownership and this ownership is enshrined in the constitution. Standard western techniques of obtaining contractual agreements to develop land over a long time for forestry purposes are inadequate. For this reason the forest cutover to date is largely unmanaged and few areas of forest plantation have been established.

Under the right conditions there is considerable potential for sustained yield management of high-quality hardwoods to supply a viable, export-oriented, processing industry. Similarly there is considerable potential to develop plantations to supply utility timber to specified industries, both domestic and export.

Perceived forest policy and drafting instructions for forest legislation

Papua New Guinea's forest policy was last revised in 1979 and the White Paper issued then focused, by default, on the forest industry and related matters. It was recognised in the middle 1980s that the White Paper was inadequate and there was a need to address total forest management and to relate it to industrial development. More recently the Commission of Inquiry has highlighted many of these inadequacies.

Following some three years of consideration, a draft forest policy was circulated for comment in June 1988. This was followed somewhat independently by the Drafting Instructions For The Review of Forest Legislation in September 1988.

The Constitution of the Independent State of Papua New Guinea is the vehicle that guides the aspirations and vision of the people of Papua New Guinea.

The draft forest policy interprets the needs of the constitution with objectives that respect customary practices and beliefs and which are appropriate to national aspirations.

The principles of forestry that are recognised in meeting the aims of the constitution are -

- Forest development is constrained by the need for protection of soils, water, fauna and ecosystems and by the need to supply the basic needs of the people for fuel, food, water and shelter.

- Forest development will be guided by sustained yield management principles. Resource replacement and regeneration of high-value indigenous species will be supplemented by forest plantations in specified demand or industrial areas.

- Forest development will promote the involvement and participation of land owners and other Papua New Guinean citizens in the development of the forest resources.

The principles of forest industry development are -

- Onshore processing to be at a level of 30 per cent by input volume within a five year period. This will be achieved by a major effort in seeking out new markets and by raising the standards of product presentation and processing efficiency to cater for an ever-increasing sophistication in the international product market.

- The setting up of central market authority to search out quality and presentation needs and to control and monitor the quality standards established.

Drafting instructions for new forest legislation are now being circulated for comment and discussion and highlighted below are some of the major new initiatives and ideas in the drafting instructions and the reasons for their introduction.

No more Private Dealings (LFA) and Timber Rights Purchase (TRP) Agreements

The above two systems of acquiring timber resource have been removed in the proposed legislation.

The new system combines the best aspects of both under a Forest Management Agreement. This agreement authorises the state to manage the land owners forest resource under specified constraints.

The system will be faster than the present TRP system yet will give land owners a degree of protection which is missing under private dealings legislation.

Reforestation will be a must and youth groups will be involved

Certain areas in Forest Management Agreements will be dedicated for reforestation purposes with levies on developers to fund planting.

Organised and registered youth groups in or around the reforestation areas will be contracted to undertake planting of specified areas.

Establshment of a Forest Industry Office

To closely monitor marketing practices a Forest Industry Office within the Department of Forests is being established, combining the Forest Industries Council (FIC) and the monitoring and marketing functions of the Department of Forests.

A levy will be chargd to forest developers to run the office. With funds becoming available more effective monitoring of logging operations and marketing practices is anticipated.

Export levy will be increased to 15 per cent of f.o.b.

With all the provisions in the proposed legislation to minimise transfer pricing some investors will still find ways or loopholes to do it. The increase in export levy is to recover some of the lost revenues due to transfer pricing.

Penalties for breaches to be increased

Penalties for breach of regulations are being drastically increased in an attempt to deter companies from breaching the laws and statutes of Papua New Guinea.

More local processing

Only project proposals with suitable processing will be considered in future development areas and processing will start early in the project life.

Timber royalty determination

Timber royalties will be based on 10 per cent of f.o.b. or market value rates less deductions according to cost of production.

Timber royalty distribution

One hundred per cent of the royalty payment will be made to land owners. To replace its current 25 per cent of royalty the provincial government will get a "follow up land use fund".

In addition to the above a series of new levies are proposed. These levies represent a shift from a previously negotiated "land owners premium" to statutory charges and as such will have little effect on profit levels despite some misgivings from current industry.

As stated previously forest industry initiatives will require onshore processing to be at a level of 30 per cent by volume input within a five year period. Accompanying this will be a percentage reduction in log export levels. New projects negotiated after 1993 will be processing only and increasing levels of processing will be required on all new projects between now and 1993.

Exports and the export market

By South-East Asian standards and certainly by South Pacific standards, Papua New Guinea has a large closed forest area suitable for forest development.

Of Papua New Guinea's 46 million hectares some 15 million hectares, carrying an estimated volume of 500 million cubic metres, are considered suitable for development.

The demand for resources is expected to grow rapidly as supplies from other South-East Asian and South Pacific countries dwindle and this feature will give Papua New Guinea considerable bargaining power in the future.

The exports of forest products for the years 1982 to 1987 are listed in Table 1. In relation to processing three significant points emerge as follows -

- The extremely low level of sawn timber exports for a country with a total log harvest of two million cubic metres;

- The significant decline of sawn timber exports from a 1982 level of 21,000 cubic metres to a 1987 level of 4,000 cubic metres. This from a peak of 63,000 cubic metres in 1979.

- The non-existence of any high-level processed wood products. Yet in 1974 some 16,000 cubic metres of plywood were exported.

Table 1
Papua New Guinea exports of forest products
(000s cubic metres) and (millions kina)

	1982	1983	1984	1985	1986	1987
Logs	1063	1019	1283	1158	1314	1442
Sawn timber	21	20	18	15	7	4
Plywood	6	6	5	1	.2	.02
Woodchips	148	100	103	82	61	66
Total	**1238**	**1145**	**1409**	**1256**	**1382**	**1512**
Value	**53**	**56**	**82**	**67**	**77**	**113**

Note: woodchips in BDUs

Log exports by value and by volume have risen steadily since 1980 in marked contrast to the rapid decrease of sawn timber and plywood volumes, the latter despite considerable investment in sawmilling in the mid-1970s.

Onshore processing for the export market is now virtually at a standstill and this is a major concern to government.

Over the last decade the timber industry has been geared to generate revenue and infrastructure for the development of rural areas in Papua New Guinea. This has meant the development of export markets to take up the supply in excess of domestic consumption needs. Unfortunately in latter years the export market has become a log export market only.

Of this log export market Japan is currently the largest importer of Papua New Guinean logs with 61 per cent of the market. South Korea takes some 32 per cent and other buyers are Taiwan and India.

An analysis of the end uses of our logs reveal some startling facts. Of the total logs exported in 1987 some 80 per cent ended up as core and low-grade plywood. Some 10 per cent because packaging materials and only 8 per cent went into high-quality end uses such as furniture and quality face veneer.

This is the current fate of the high-quality hardwood logs of Papua New Guinea.

Progressive falls over the past decade in the volumes of logs exported by the Philippines and Indonesia are a result of deliberate policies by those governments to increase domestic processing. Currently only Sarawak and Sabah in the South-East Asian orbit, along with Papua New Guinea, allow log exports. Of the log exports from these three countries Papua New Guinea exports the least with about 8 per cent of the trade. Sabah and Sarawak export about equal amounts of the remainder. As such the Papua New Guinean trade is dictated by, and largely at the mercy of, the other two suppliers.

Supplies in both the above countries are relatively limited compared to Papua New Guinean resources. This means that over the next decade the value of Papua New Guinean logs will increase dramatically. Already there has been a rapid increase in demand for development areas and timber concessions from companies within the Asian orbit.

It is fair to say that the massive increase in plywood processing in Indonesia and the resultant oversupply of plywood products to Papua New Guinea's traditional markets has caused the downswing in exports of these products and it is unlikely that Papua New Guinea can compete effectively in these markets in the immediate future.

A similar scenario can be applied, although to a lesser extent, to our sawn market export trade. The problems of the latter are more fundamental and fortunately more solvable.

Of the processed products the meager 4,000 cubic metres of saw timber exports are shared equally by Australia and New Zealand.

The potentially lucrative high-quality markets of Europe, Japan, and North America are non-participants. It is here that the potentials exist firstly because the markets for high-quality timbers are large; secondly they are areas with a traditional appreciation of the intrinsic value of wood products; and thirdly they have per capita incomes that can afford high-quality wood products.

The essential character of these markets however lies in their extremely discerning buyers. Products must be presented at the quality demanded, with the continuity of supply demanded and with quality marketing backup and promotion. Herein lies the challenge.

The domestic market

The domestic market is naturally a processed product market. The demand and supply patterns for sawn timber, plywood and other timber products are difficult to quantify; but the potential is easy to recognise. A rough estimate in 1985 by relating total harvest to total export gave domestic figures of around 170,000 cubic metres sawn. A similar calculation in 1987 gave a figure of 250,000 cubic metres sawn.

These figures are large and there is an urgent need to anticipate the patterns of supply and demand into the twenty-first century.

The potential demand figures have to be put in context with the following -

- At current growth rates the population of Papua New Guinea will have increased by 40 per cent by the year 2000.
- The per capita income of Papua New Guineans is increasing at an unprecedented rate due to the natural wealth of the country.
- The rapid increase of urbanisation and increasing materialistic sophistication of the population.

It is clear that the domestic supply is already an important part of the forest industry. It is equally clear that taking the above factors into consideration there will be a rapid escalation of domestic needs over the next decade. More importantly the increasing sophistication of the consumer will demand products of the right quality and at the right price and with consistent standards.

Competition in the market and resultant economic forces will require the present inefficient and largely archaic sawmilling industry to raise its standards in order to survive.

There will be many opportunities over the next decade for efficient and dynamic operators to establish themselves in the domestic supply market.

Industry and investment potential

The potentials of Papua New Guinea forest industry can be summed up as follows -

- A large resource of high-quality hardwoods the potential of which has never been fully explored by international marketeers.
- A rapidly decreasing supply of tropical hardwoods in the market competing countries of South-East Asia, the South Pacific and Australasia.
- A stable economy and a proven system of government in a country which reached independence only twelve years ago.
- A desire by government to develop its forest resources on sustained yield principles with supply in perpetuity to potential investors.
- The build-up of a professional body of national foresters and the movement of these people through into middle management roles of industry and government.
- A rapidly developing society requiring an increasing quantity and range of forest products.

Balanced against these potentials are a number of constraints all of which are currently being addressed by government. They are -

- The lack of knowledge by the international community of the timbers of Papua New Guinea.
- The multiplicity of merchantable species throughout most forest types suitable for development.
- The general lack of internal standards imposed by current industry and its resultant inefficiency.
- The lack of any central marketing control to co-ordinate supply and maintain product standards.

The national forest development programme (NFDP)

The government has recently completed a five-year forest development programme which defines the development projects to be completed annually and for which investment is required, e.g. in 1988 the target is to complete 23 projects, 1989 (23), 1990 (20), 1991 (18).

The programme is a dynamic, or rolling one to be reviewed on an annual basis. Volumes to be harvested assuming a full NFDP will be:

Table 2
Production
(in millions cubic metres)

	1989	1990	1991	1992	1993
Export logs	2.12	3.08	4.00	4.32	4.00
Processed exports	0.10	0.20	0.30	0.40	0.50
Domestic consumption	0.34	0.36	0.40	0.44	0.50
This will represent a total export value at current day prices of: (in millions of kina)					
	176	266	355	402	405

Projects will be subject to negotiation hence internal financial returns are difficult to assess at this stage. However, it can be expected that an additional volume of 1.2 million cubic metres over 1988 harvest figures will be added in 1989. Of this about 900,000 cubic metres will be exported in log form. Using current f.o.b. prices of around US$ 75 per cubic metre these exports should generate additional revenue of around -

- K63 million in foreign exchange (gross)
- K6.3 million in export duties
- K3.5 million in timber royalties
- K10.5 million in wages
- employment of at least 2,000 people.

As well there will be various other infrastructure developments in roads, bridges, schools, health centres, wharfs, airstrips and follow-up business opportunities all of which are hard to quantify in money terms.

In cash terms foreign exchange earnings in 1987 were K113 million (gross) This year it is expected to reach K118 million and in 1989 K176 million given the staffing levels the department requires.

Some 3.7 million hectares of forest have been negotiated with land owners since the 1950s and of these 2.2 million hectares have been allocated to companies or land owner groups. The balance of 1.5 million hectares has all been assessed for volume and contains an estimated 22 million cubic metres of growing stock. It should be noted that, due to the broad development concept of TRP areas, substantial areas within each TRP are unmerchantable in terms of timber volume although not so in terms of other development.

The new investment projects are detailed in the National Forest Development Programme (1987-1991) which has been approved by the National Executive Council.

A copy of this is summarised in the Medium Term Development Strategy Plan copies of which are available at the department.

Concept of sustained yield management

Sustained yield management is the basis on which forestry development will proceed in Papua New Guinea. There are many misconceptions about its meaning and I would like to spend some time in defining the department's use of the term.

European literature claims that the principle of sustained yield originated in Central Europe early in the 18th century. At the time there was concern that indiscriminate harvesting had resulted in a serious timber shortage and there was a need to prevent over-exploitation of existing timber resources.

A succinct definition of sustained yield is given in a glossary of terms in Indian Forestry (1928) as -

> "the material that a forest can yield annually (or periodically) in perpetuity".

The principles of sustained yield management in a practical sense can be defined as -

> "what you take you cause to be replaced".

The original principle of sustained yield management in forestry related to timber volumes. In more recent times the concept has been expanded and, particularly in tropical forests, has come to include other values derived from the forests as well.

World-wide concern for the conservation of tropical forests has highlighted the need to sustain forest values which, in the short term at least, might be less tangible than timber production. The former World Wildlife Fund put it as follows:

> "The utilisation of tropical forests can only be considered sustainable if it maintains the levels of production, not only of timber but of all other goods, services and resources provided by the forests for local, distant and future users. This requires the maintenance of the full range of biological diversity and ecological interactions, including those which serve to maintain soil structure and retain nutrients within the ecosystem and maintain hydrological cycles."

The above is illustrating that forest management objectives cannot be caught in some simple equation. Even if we wanted to our scant knowledge of the dynamics of natural tropical forest and its response to human interference would not allow this. Our response in Papua New Guinea to the complexity of the above is fourfold as follows -

- Recognising that forest development can only proceed within the constraints of protection of the environment and the need to supply people's basic needs.

- Maintaining a flow of goods and services from the forests whilst recognising that there is a level of cut above which harvest volumes cannot be maintained in perpetuity.

- Continuing basic research into the dynamics of tropical forest.

Ensuring, through company management plan control, that logging is done with minimal damage to regeneration, advance growth, and non-merchantable vegetation.

There is a need to sustain a wood flow of high-value hardwoods in perpetuity. It makes sense environmentally, socially and economically. Some timber projects may not be large enough to allow zero years between the logging of first and second crops since development needs a certain level of harvest to be viable. However, these areas will still be logged in a way which will allow logging of subsequent crops at some future time, i.e. logging according to sustained yield management principles.

As a minimum, wood flows will need to be fully sustainable on a provincial basis

Some provinces, e.g. New Ireland, are already past the point of zero years between the first and second crops based on current cutting rates. In these areas a reforestation programme may be a viable option for maintaining current industry or it may be necessary to retrench industry to supplying domestic markets only. In the extreme case, sector planning might require a province to become largely an importer of timber supplies. All these options will be explored during the planning process.

System of tendering and resource allocation

There has been some confusion and recent speculation over the way in which the department has been handling development proposals. For your information the following is the current system of tendering and resource allocation from initial advertisement to the negotiation phase. All of the 1988 projects have been and are being handled by this system.

- Seek interest from potential investors by way of local, and in some cases, international advertisement.
- Prepare project guidelines involving consultation with provinces and land owners on the development needs in the project area. The guidelines must satisfy government policy and must also have provincial executive council support and approval.
- Guidelines sent out to potential investors including a copy of the Proposal Content and Format Specifications.
- Formation of an evaluation and negotiating team composed of land owners, provincial representatives, national representatives.
- Evaluation of all submitted proposals based on an established checklist including viability of the company and its financial backing, company's ability to manage the project, forestry experience, follow-up land use proposals, processing component, understanding of markets, environmental aspects, infrastructure proposals, localisation programmes, land owner premiums, validity of cashflows.
- Shortlisting of companies who meet above criteria. The short list is endorsed by the Minister for Forests.

- Interview of short-listed companies to further clarify their proposals and to allow companies a chance to expand on their proposals. By this stage financial analysis of the proposal has been carried out by the department and any finance or cashflow anomalies have shown up.

- The negotiating and evaluation team makes a summary to the secretary and the minister of each company's standing and also recommend a company to negotiate with. This recommendation is backed up with detailed economic evaluation and documentation of the company's background and structure, financial standing, and finance sources.

- The Minister of Forests decides which company (or companies) the negotiating team will negotiate with.

- The negotiating team sets the parameters to which negotiation can go taking into account the profitability of the proposal and the infrastructure needs and negotiates to certain profitability limits.

Following the successful completion of the above, Timber Permits and any other required documents are drawn up incorporating the negotiated conditions.

The system as presented above is direct, logical and fair to potential developers, land owner companies and government alike with communication channels kept open at all times. The ground rules are becoming well known by potential developers.

I hope that this has given you some insight to the functions, problems and systems of my Department.

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Forest Legislation and Land Tenure

A. P. Power
First Assistant Secretary, Office of Economic Services
East Sepik Provincial Government

Summary: This paper presents the view that forest legislation must be based on land tenure. In Papua New Guinea forests are privately owned. This means that ecologically sound sustainable forest industries can only come about by detailed planning for and with the land owners. Moreover resource owners must be mobilised with the resources.

This type of planning can only come about by full involvement of all the stakeholders. Stakeholder interests and a planning and decision-making pathway are presented in table form.

Finally a series of heads of agreement are presented as negotiating points for the land owners in such a process.

In many parts of the world forest legislation has had to adapt to different types of land tenure in order to manage and maintain sustainable forest industries. Where the state owns the forest, it is harvested by contract in which the permit sets everything from royalty rate to cutting rate and environmental control, etc. Where forests are privately owned, the state sets a variety of conditions within which owners and contractors must work in exploiting the resource.

Nowhere in the developed world does the state compulsorily acquire private timber rights as a step in forest development. In Papua New Guinea colonial legislation did require the rights to be transferred to the state. If the legislation says "may" without providing or allowing any other option then it is saying "must".

Clearly in Papua New Guinea today, in a so-called free and democratic society, the state must be very well justified in applying a compulsory acquisition type measure as a condition for resource development. This argument has been developed at length by Peter Donigi. Just as clearly from the point of view of the resource owners, compulsory acquisition of timber rights is against their best interests and should be resisted in every way possible.

In Papua New Guinea the Private Dealings Act was brought in by Sir Julius Chan to facilitate direct participation by landowners in the development of their resource. In this respect the legislation was enlightened.

The Barnett Inquiry has already shown that the forest industry was replete with corruption and this this was the case whether the development was under Ch. 216 with state acquisition or Ch.217 by direct dealing. Though it is impossible to legislate corruption away, it is important to have sufficient checks and balances to minimise the opportunities. In this regard the recently proposed forest drafting instructions are a recipe for corruption. Surely the purpose of the Barnett Inquiry was to discover ways and means to minimise corruption in the industry <u>across the board not just corruption by foreigners</u>.

In my view the approach to be taken must be to minimise the opportunities for corruption since it is not possible to compel people to be honest. This can be done by setting out very clear conditions for involvement of all the stakeholders in forest project development so that all are required to be in clear communication with each other each step of the way. Exercise of ministerial or bureaucratic powers must be clearly guided by controls within the act to allow for swift remedies at law in the event of corrupt deals.

However, the main thrust of forest legislation must be to establish procedures to accomplish good forestry in a way that corruption and remedies at law are the exception not the rule. The only way to do this is to have a very clearly defined project development pathway with the rights, expectations, and obligations of the stakeholders set out at each step of the way. Only in this way can forest projects fully involve the landowners and develop them with the resource.

The following section sets out an approach that will best ensure participation of landowners as the most affected stakeholder.

<u>National-provincial forest project development</u>

The following comments are prefaced by certain assumptions -

- All projects are in provinces so it should be obvious that close cooperation between the central and provincial governments must be the basis for project planning, as required by Organic Law on Provincial Government.

- All projects are on someone's land, usually customary landowners i.e. privately owned, so their interest and involvement is paramount. They must be planned <u>into</u> the project not <u>out</u> of it, i.e. outright sale of land and timber rights is NOT normally a step in project development.

For any project to be planned properly two basic requirements must be in place -

- The expectations of the stakeholders must be clearly stated, understood and accepted by all participants.

- One single clear project planning pathway and decision-making pathway must be stated and accepted by all parties.

In the case of joint national-provincial projects (i.e. all major projects) there must be a Memorandum of Understanding drawn up to assist officers concerned to maintain a consistent and unified stand in dealing with other stakeholders.

In particular the actual committees and action officers must be identified to maintain continuity and to neutralise self-interested attempts to bypass or short-circuit the system.

Stakeholders in a forest project could include some or all of national and provincial governments (including local governments) an investor or developer and the landowners (resource owners).

In the provinces planning begins with the landowners so some major expectations could be listed as follows. Expectations of other stakeholders follow on and must integrate with the primary concerns of the resource owners.

Table 1
Expectations of Stakeholders

1. Landowners

Expectations	How achieved
Ownership	. no loss of control of timber rights . employment of stumpage concept in negotiations . TRP exercised only on condition that permit goes to LANCO
Participation	. corporate strategy will ensure active participation by landowners in any forest enterprise, e.g. LANCO by joint venture, contractors, etc.
Control	. allocation of specific resource by clan by clan contract . unhindered access to forest to exploit related business opportunities and subsistence activities.
Survival/conservation	. controlled rate of resource depletion related to adaptation of lifestyle and development of, replacement of, or alternate to, resource i.e. sustainable forestry industry. . clear identification of adequate reserves to safeguard water supplies and micro-climate.
Cash income	. direct clan payments "royalties"? for trees, gravel, etc. . dividends to individual and clan shareholders . wages . side business opportunities.
Reinvestment	. use of tax incentives by LANCO to reforest and develop tree crop plantations. . access to best advice from business accounting and advisory firms.

2. Developer

Expectations	How achieved
Guaranteed access to resource for long-term planning for extraction and replacement	. resource inventory data supplied or gathered. . resource mobilised by government with full and peaceful participation by clan owners. clear acceptance of joint responsibility (with landowners) for follow up development e.g. ongoing environmental impact concerns, landuse planning, etc. . constant and full-time liaison with clan representatives . employment of owners where practicable.
Unhindered management	. project implementation must employ best available technical and managerial skills free of day to day interference by landowners or politicians whose input is maintained at board level.
Adequate return	. return must be in proportion to effort, risk, and productivity. . no non-forest burdens must be placed on JV partner or JV itself without adequate compensation, note: maximum returns are to go to Papua New Guinea partners and public infrastructure is government responsibility.

3. Provincial government

Expectations	How achieved
Full involvement in project development	Employment of provincial development policies and planning and decision-making processes. . full recognition by all stakeholders of provincial policy on resources . acceptance of ultimate responsibility for representation of interest of landowners in final negotiations . full responsibility for resource mobilization in cooperation with resource owners.
Monitoring of project	. forestry and land mobilization officers will play active and continuous role in project area . as board member (where relevant) provincial government will have complete access to all project financial documentation . independent initiatives to rule out any possibility of transfer pricing.
Recurrent cost increase	. increase in services especially social e.g. aid posts, schools.
Revenue	Inability to tax venture leads to negotiated share of profits and/or royalties. . all levies paid in province and monitored in province and remitted to Port Moresby where relevant . increase in sales tax.

4. National government

Expectations	How achieved
Full involvement in project development	. employment of national development and planning policies . full consultation with initiating province to develop an agreed project development scenario (MOU). . vetting all potential investors by Department of Forests and NIDA prior to detailed negotiations in the province. All information to be shared with the province. . approval of final project agreements e.g. logging plans and environmental impact and redevelopment plans by Department of Forests, DEC, etc.
Monitoring of project implementation	. statutory responsibility e.g. Department of Forests, Customs, Forest Industries Council, Taxation Office.
Revenue	. company and income tax, log export levy, Forest Industries Council levy, etc.

Table 2
Project planning pathway
(decision-making pathway)

Activity	Details	Agents
1. Identification of resource	Various resources can be identified from existing data base e.g. maps, prior studies, first hand knowledge etc. Process is cumulative, data is multi-disciplinary.	Government or private enterprise including landowners.

2. Expression of interest	Contact between any or all interested parties. Interest can refer to exploration or survey or intention to conduct prefeasibility study.	Initiatives can come from national government departments, politicians, entrepreneurs, or landowners.
3. Corporate registration	Registration of detailed corporate profile with national and provincial government, e.g. forestry pre-registration information must be automatically sent to relevant province.	Entrepreneurs, Department of Forests, NIDA.
4. Provincial government contact	Interested parties hold briefing with provincial government to ascertain how and if possible project fits in with development strategies.	Entrepreneurs and national government representatives
5. Resource owner contact	Resource owners are contacted to brief them and arrange to enter their land. Land mobilization process begins.	Provincial land mobilization officers, forestry or DPI officers
6. Resource	Detailed survey of project area to ascertain feasibility of projects e.g.petroleum or mineral, exploration, soil survey and land use studies, forest inventory survey.	Government agencies or approved entrepreneurs.
7. Prefeasibility study	Approved interested parties put together an indicative proposal and submit to provincial government and relevant national department.	Government agencies, or approved entrepreneurs.
8. Project appraisal	Prefeasibility studies are assessed to ascertain basis for further negotiations.	National and provincial governments, landowners.

9.	Preliminary appraisal	Detailed negotiations to further consider accommodation of provincial/national development requirements.	Entrepreneur and national provincial government agencies.
10.	Cost and design study	Detailed project cost and design studies called for in response to provincial government and national government development strategies.	Project promoter or preferably technical assistance contract on behalf of LANCO.
11.	Resource owner mobilisation	Resource owners are mobilised for access to the resource and participation in the venture.	Provincial government officers and resource owners plus private enterprise develop LANCO corporate strategy.
12.	Final negotiations	Negotiations leading to signing of agreement contracts etc.	Provincial and national government, entrepreneurs'/funding agencies and resource owners.
13.	Statutory requirements	Finalise statutory requirements ready for project commencement.	Promoters and government agencies and all venture partners.
14.	Implementation	Project implementation.	Entrepreneurs and venture partners.
15.	Monitoring	Project monitoring.	Government agencies.

Heads of agreement

Corporate strategies for land owners

Any corporate entity involved in forest development MUST include a land owner corporation (LANCO). NO permit must be given out to any corporate entity unless LANCO is a partner or permits will only go to LANCO and then the joint venture partner or contractor must ensure that permit is implemented under contractual arrangements with LANCO.

Projects must be able to provide plans for sustainable follow-up development NOT just pious wishes. Technical assistance is readily available for such work so that the objection that land owners don't have the cash is not applicable. ONLY such studies will be honestly done in the best interests of the land owners. Developers even with good will are not the best people to do this because -

- Conflict of interests.

- Heavy expenditure is not forthcoming unless permits are already granted. Department of Forests and province must take leading role in project formulation but this does not exclude involvement of potential developers who are prepared to risk capital.

Mobilisation of resource owners

Land owners must be mobilised. Current practice is too superficial and capable of eliciting support for projects that can destroy the land owners, too ill-formed to take preventative action.

In absence of land registration (i.e. all provinces except the East Sepik) the following steps should be taken -

- Land investigation by provincial officers from Lands, Provincial Affairs, Forests and the Department of Primary Industry to prepare -

    - clan genealogies and census; and
    - clan boundaries.

- Each land group so identified should develop their own constitution, identify their own committee and register as an Incorporated Land Group. This will prepare the clan (land group) for important decisions regarding -

    - allocation of communally-owned resources;
    - sharing of income from such resources.

At the same time this incorporation will give legal power to the group to effectively and expeditiously make decisions and participate in any proposed corporate strategies (LANCO).

These conditions are the minimum required to assist resource owners to participate meaningfully in resource development. Anything else will shunt them aside, fail to develop their human resources, and lead to eventual frustration and sanctions.

Moreover and most importantly, this is the only approach that can get through to the land owners to ensure their full support for, and involvement in, sustainable follow-up development including permanent forests and forest plantations.

Reforestation by land owners

The landowners have most to gain by reforestation and most to lose by land degradation. Proper project planning should identify areas for redevelopment including forest plantation. These lands could be leased from the respective clans by LANCO or a joint venture with LANCO. The joint venture and LANCO can then benefit from levies and tax concessions to redevelop these lands as permanent assets of the enterprise.

There is NO need for the state to assume control of the forest if the economics are right, and the state's taxing powers can make it right.

Stumpage not royalties

Stumpage not royalties must be the basis for determination of land owner participation in any forest harveting scenario. Estimates for cost of roading, cutting, loading, selling, and administration, can be made according to a range of scales of operation in the particular location. Levies and clan payments and profit or investment can be deducted and related to f.o.b. price in a sensitivity analysis.

The land owners are going to suffer a severe environmental and social impact if a project goes ahead. The return they get on stumpage will give them a basis on which to decide whether the resource depletion is worthwhile or not. N.B.: Some potential projects should NOT go ahead!

It may be noted in passing that the new drafting instructions perpetuate the nonsense of royalties being discounted in the same way as stumpage value i.e. for distance, terrain, etc. It is typical that this part of the stumpage concept was employed to discount royalties to the disadvantage of land owners whilst the true concept which would have been to their advantage was not used.

Term of venture

Since the basic aim of any forest enterprise must be to create permanent rural employment in forest extraction, management, replacement, and follow-up development it follows that the term of ventures must be indefinite or permanent if possible.

The term of the venture thus relates to the rate of resource depletion and/or replacement and/or follow-up development. One of the parties to the venture, the land owners, has a permanent stake in the area so he must seek to use the venture to promote sustained development of some kind. If that cannot be anticipated and planned for from the outset then the venture should not go ahead.

For a variety of reasons ventures should be planned for the longer term rather than short-term mining-type exercises.

Reasons include the following -

- Employment of land owners is an immediate tangible benefit, i.e. it should continue;
- Follow-up development will take from five to ten years to show significant alternative returns to land owners;
- Forest replacement will take much longer but employment in this activity can be significant from year one;
- Effective participation by land owners in the venture at higher levels of management may take a decade.

- Venture partner has a longer term to recoup investment and pay off loans and this should reduce pressure to maximise returns at any cost over the short term.

- Land owners have a longer period to adapt to non-subsistence lifestyle.

Form of venture agreements

The land owners and outside developer can work together using joint venture, contract or management, relationships. There are advantages and disadvantages in each of these. A lot depends on the advice available to land owners.

A joint venture has many advantages since it can accommodate within it a management agreement for a specified time. Separate taxation responsibilities for the partners is very much to the advantage of the LANCO who have every incentive to develop their land with assistance of tax concessions.

Buy-out options can be agreed upon at the outset even if they are not exercised for ten years or more.

The share of the cost of reforestation borne by the foreign venture partner is also taken into account in the event of buy-out option being exercised.

Scope of venture agreement

Scope of the venture should be confined to the forest business in the first instance. The aim is to maximise returns to the venture partners i.e. the venture should bear costs of all activities directly leading to earning of income to the partners. This includes roads and reforestation and environmental amelioration.

The cost of non-forestry infrastructure should be examined very carefully so that costs and benefits are distributed fairly.

N.B.: This is based on the premise that the land owners are partners. The role of the state must be also monitored carefully. Social and physical infrastructure assets constructed by the venture will belong to the state and the state will also derive benefit in the way of taxes and expenditure savings. These benefits must be allowed for in calculation of future tax obligations of the venture partners.

Additional agreement between LANCO and the foreign venture partner or between individual clans and LANCO or the joint venture can be negotiated for whatever purpose at any time as long as they are consistent with and not detrimental to the original agreement, e.g. any land allocated to permanent forest development and reforested by the venture partners should be leased to the venture. Likewise individual clans can enter agreements for agricultural developments. Clans owning road-making materials could develop roading business interests.

Scale of operation

There is a cluster of aspects of forestry that relate in such a way that once certain choices are made all the rest or none of the rest can follow. These relate to extraction technology, rate of cut, or scale of operation, processing and marketing strategies. These in turn relate to environmental impact and ability to manage logged-over land.

Conventional logging operations require more than K1 million investment once 3,000 m3 per month are targeted for export. Most of that K1 million is spent offshore for machines and more is spent offshore each month for fuel, interest and repatriation of profits. This means that once a decision is made to scale up an operation to interest foreign investors at least one hectare in three is cut just to service the investment.

Alternative technologies exist centred on the twin-edge saw concept allowing low impact, decentralised, in-forest milling with centralised processing and marketing. The critical point for an investment in an economically viable extraction scenario based on this technology is about one-tenth of that required for the smallest economic log export operation.

Environmental consideration

The social and physical impact of a forest project is very much related to scale of operation. The practice of aggregating the landholdings of a large number of land groups into a "project area" - a timber rights purchase or a local forest area or the now proposed forest management agreement encourages the industry to disregard the impact a project may have on any one land group. Individual land groups must plan for their own land and their own future just as individual land owners would do in Australia or America.

This means that each clan (land group) needs to be able to assess the impact a timber extraction will have on its landholdings. What effect it will have on their hunting and gathering areas, etc.

When taken together all the groups need to know what the impact will be on weather (rainfall), soil/water, erosion, stream flow, etc. i.e. issues much larger than individual land owners.

Will the forest extraction model allow for reforestation or managed rehabilitation or other follow-up developments? What areas of the forest will survive?

Will there be any permanency in forest-based rural employment to allow for a future for land owners in the industry?

Thus it is clear that much more planning is required on a group by group basis for land owners to ensure their active, peaceful, and fruitful cooperation. It is also clear that this level of planning is lacking in most projects approved by the Department of Forests.

Similar considerations apply to designing and siting of logging camps, roads, etc. These will have, or can have, a permanent positive effect on the environment if they are planned well. Poorly planned installations will soon be abandoned as they will not articulate with ongoing logging or permanent development.

Conclusion

Planning a timber or any resource-based project from the point of view of land owners places very severe requirements on the other stakeholders that have not been met up till now in most existing projects.

If the future of land owners is paramount in forestry then this planning must be done. Likewise if there is a genuine commitment to sustainable forestry this level of planning is required.

Commentary on Forestry Legislation

Peter D. Donigi
Lawyer

Introduction

I have prepared this commentary on the drafting instructions for the national forestry legislation on whether or not the drafting instructions as set out would meet the discrepancies outlined in my paper on property rights. Accordingly I am not going to comment on other aspects of the drafting instructions.

Land owner company

The proposed legislation envisages that the Minister may enter into a forest management agreement with a land owner company who owns the forest area identified for forest development. This envisages that the shareholders of the land owner company are entitled to exclusive possession/ownership of the land upon which the forest is located. In my view there is no legal entity known as "land owner company" in our legal system. There can be a company limited by shares, a company limited by guarantee, a proprietary company and a no liability company. Other known legal entities are business groups and land groups which were created by specific legislations. It is assumed that a "land owner company" will be defined in a manner so as to take into account ownership of land rather than in a manner which will introduce a new legal entity into the legal system of Papua New Guinea. I will explain this in greater detail at the meeting.

Parties to forest management agreement

The drafting instructions also envisage that there can only be one method of harvesting the forest. That is by way of entering into a forest management agreement with the state. There is no room for the land owner company or groups to enter into a forest management agreement or forest development agreement with any investor directly. This is contrary to my paper. In my view, in order to comply with the constitution, the forestry legislation must create a mechanism for a forest management development agreement to be entered into by the state, the land groups and the investor or must provide for the agreements to be entered into between the land owner and the investor subject to the approval of the Minister for Forests. It is only in this way that it could be interpreted to be facilitory rather than restrictive. Any legislation which is restrictive in nature will be unconstitutional.

Share in land owner companies

The drafting instructions did not touch upon the issue of control of shareholding in land owner companies. In my view land owner companies must be required to notify the Minister if the ownership is changed in such a way that non-land owners become beneficiaries of the shares in the company. Transfers of shares should not be allowed without approval. The penalty should be the cancellation of the timber permit. The legislation should also require the disclosure of any trustee shareholders by the production of trust deeds for approval.

Residency

The drafting instructions also stated that proof must be provided to the Minister that at least 75 per cent if not all land owners who are "resident" on the land at the time of the signing supports the land owner company to enter into the forest management agreement. It is clear in Papua New Guinea culture that being a resident on the land may not necessarily mean that, that person is the land owner. A person with a usury right to the land is not the land owner. A land owner is a person who has the exclusive right to use and to possess the land as against any other person.

Agro-forestry payment to landowners

The drafting instructions also provided that the state will be given the right to plant, manage and harvest timber on certain dedicated land with a negotiated payment to landowners on original and successive crops. It is not clear as to whether "negotiated payment" include payment other than royalty payments.

Royalties

The drafting instructions provide that the royalty is payable by the holder of a timber permit. Royalties by definition implies ownership. It is assumed that the royalties will be paid directly to the landowners. I am unable to find any direct reference in the drafting instructions to that effect.

Exports (Valuation & Control) Act

It should be noted that the Minister for Trade and Industry is responsible for the implementation of the above act. That act is a fiscal legislation. It is not a resource legislation as such. The drafting instructions, however, provide that the Minister for Forest shall not issue a permit to export logs unless he is satisfied that the export price of logs is fair and reflects the market situation. In the interest of simplicity and deregulation the government should consider seriously this question of duplication of authorisation for exports and determine once and for all which ministry would have the ultimate say in the grant of export permits for logs.

Presumption as to ownership

The drafting instructions as to this issue states "presumptions as to ownership in the state or customary landowners". This is not very clear. It is either incomplete or the instructors are leaving it up to the legislative draftsmen to insert whatever their whims direct.

Recovery of money

Paragraph 91 of the drafting instructions states that royalties and other money that are payable to the state is a debt due to the state. Paragraph 94 provided that proceeds from any sale of seized logs shall be paid into consolidated revenue from timber cut from government land and forest management agreement land. It is not clear as to who would be entitled to receive the royalty payment. There will be a jurisdictional issue as to whether or not the state would have the power to seize timber harvested from customary land which is not subject to a forest management agreement.

Unlawful harvesting

Paragraph 97 prohibits the cutting, removing, damaging or destroying timber on customary land except in certain situations. My paper on Property Rights made it clear that a prohibition of any sort is unconstitutional.

Definitions

In my paper on property rights, I also raised the question of definitions of timber, forest produce and trees. These terms are used inter-changeably or without a sense of purpose and direction in the drafting instructions. An example is found in paragraphs 2 and 3. Whilst paragraph 2 authorises the state and persons claiming under it to fell, cut, remove and dispose of all forest produce in a forest area, paragraph 3 only grants the right to enter on the land for the purpose of felling, cutting, removing and disposing of timber.

Reviewing the Forestry Laws in the Context of National-Provincial Relations

A. J. Regan
Senior Research Fellow
Papua New Guinea Institute of Applied Social and Economic Research

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In the light of the turmoil in the forests industry in recent years, the question of the relationship between the national government and provincial governments may not seem to be the most important of the issues raised by the October 1988 drafting instructions for the proposed new national government legislation on forestry. But for a number of reasons, the relationship is of considerable relevance to the management of forest resources. The present dispute between the national government and the Manus Provincial Government over the declaration of Local Forest Areas in Manus - a dispute which has resulted in the provincial government obtaining an injunction restraining the national Minister for Forests from declaring Local Forest Areas in Manus - illustrates the need for the relationship to be clear.

The main purpose of this paper is to outline aspects of the relationship which have impact upon the management of Papua New Guinea's forests and in that light to consider what appear to be some fundamental flaws in the present proposals.

The basic argument advanced is that the drafting instructions are flawed in that they seek largely to exclude provincial governments from any significant role in the forestry sector. That approach is wrong because of the importance of forestry to provincial planning and because the exclusion of provincial governments is contrary to government policy generally. In recent years the national government has developed a "differential" approach to the provincial government system. This approach recognises that several provincial governments are performing well, and that the efforts of these provinces should be recognised through increased powers and autonomy. In the cases of the less well managed provincial governments, national government is increasing controls and monitoring and is providing technical support in order to improve their performance. The same general approach should be evident in the forestry sector.

The future of national-provincial relations

Before focusing on forestry issues, it is helpful to consider briefly the national-provincial relationship in a more general sense. Private enterprise circles - which are heavily represented at a seminar such as this - are not alone in generally expressing views about the provincial government system which are, at best, mildly negative. One hears fairly constant complains about the inefficiency, expense, corruption, divisiveness and sheer "bloody mindedness" of provincial governments. There is still talk about the system being inappropriate for Papua New Guinea and the need for its abolition if the country is to get ahead.

It may be useful, then, to consider some of the positive points of the system - points which are not always taken into account but which should be given considerable weight when assessing the system as a whole.

As a preliminary point, I must again emphasise that whilst it is true that many provincial governments are not operating well, that is not the full picture. Some provincial governments are performing very well and should be given every credit for so doing. But more general advantages of the existence of the system as a whole must also be noted.

First, it is a system that opens up new arenas for political competition, thereby relieving what could be intolerable pressure on one centralised arena for political competition, given the regional and other pressure groups present in Papua New Guinea politics. In the same context, it makes government resources available for distribution at a lower level thereby reducing the importance of capturing national institutions - and the need for tribal or regional groupings to capture central institutions and resources has been a major factor in the destruction of many a post-independence state in other parts of the world.

The decentralised system in Papua New Guinea creates new centres of political power which can act as checks and balances on the national government. As the national parliament does not always critically evaluate the actions of government in the way the parliament is expected to do in the Westminster system, provincial governments can play an important role. The Islands Region premiers' outspoken criticisms of the proposed media bill in early 1988 is a good example of the constructive role that can be played by the provinces on the national stage. With growing competition for power and instability in politics at the national level we may all come to appreciate the counterbalance provided by the provincial system.

The provincial government system has probably assisted the growth of a national identity. It is often forgotten that prior to independence, nationalism was a very small voice in Papua New Guinea. In only one or two provinces was there a reasonable level of political sophistication. There was some concern as to whether it would be possible to weld the multitude of racial, language and tribal groupings into one nation. It was thought that for many, the jump from identifying with traditional groupings to identifying with a grouping of three million would be difficult. The Constitutional Planning Committee (CPC) envisaged provincial governments helping to shape a national identity by acting as a bridge between traditional groupings and the nation. Whatever the problems of today's Papua New Guinea, it is evident that most people feel a strong sense of identity with both provincial and national groupings. It seems that the CPC was probably correct in some of its expectations.

In relation to corruption, it is arguable that the existence of the provincial government system may actually reduce the scale of corruption which would otherwise occur in a fully-centralised system. With a centralised system, all resources are concentrated and accessible at the national level. If the central government becomes generally corrupt everything is "up for grabs". With a decentralised system, resources are allocated through many different centres. Both levels of government then have an interest in keeping the other honest. In any event when corruption does occur at the lower level it tends to be on a smaller scale and more obvious, for smaller scale governments are generally more transparent.

Given these and other benefits of the system, it can be argued that the extra cost of the system is not excessive. In fact much mis-information exists on the question of the cost of the system. Research conducted for IASER by Professor Andrew Axline in 1984 and in 1988 suggests that the cost is more reasonable than many people realise. In this context it must be remembered that provincial governments are carrying out significant government activities such as health and education. If the whole system were to be abolished, most of the funds now allocated to the provinces would still have to be spent in providing the same services.

What Axline has shown is that the total extra cost of the provincial government system over and above the cost of the government activities they took over from the national government was about K10 million in 1984 and about K14 million in 1988. That total extra cost included the costs of salaries, allowances, travel expenses and so on of not only provincial assembly members but also their personal staff. It also included the costs of provincial government policy, planning and coordination units - costs that were included on the basis that no such units existed before the provincial system was established. Nevertheless they now play important roles in most provinces and would probably continue in some form even if the system were to be abolished. Hence we can say that the real extra cost is considerably less - perhaps something closer to K10 million in 1988. Thus even though some savings could undoubtedly be made, it can be argued strongly that the benefits of the system far outweigh the costs.

In any event it seems fairly clear that the system is in fact here to stay. Even putting to one side the positive aspects of the system the fact is that it would almost certainly be too difficult to do away with the system. It would be difficult both in political terms and in practical terms. The political difficulties are probably the major protection for the system; for provincial governments can rally considerable political muscle when threatened. There are ever-growing inter-linkings between national and provincial levels, even to the extent of some provincial governments endorsing lists of candidates for national elections, some with considerable success. Anyone who doubts the effectivenss of such links should remember that when he returned to Parliament in 1983 the late Sir Iambakey Okuk had been transformed from the fiercest opponent of the provincial government system to a muted supporter. The reason was that a major factor in his return to Parliament was the strong public support of the then Eastern Highlands Premier, James Yanepa.

Despite the continued occasional call for the abolition of the system, there is a clear and growing trend towards acceptance of its likely long-term existence. This acceptance is evident amongst slowly growing, and to some extent reluctant, numbers of members of national parliament. But the trend is most strikingly evident amongst middle and senior level bureaucrats. Whereas four or five years ago it was very difficult to find a bureaucrat at that level with a good word to say about the provincial government system, today the emphasis is upon development of measures intended to improve the operations of provincial governments and in particular on encouragement of national departments to cooperate more effectively with provincial governments. The feeling is that even if it is not the system the bureaucrats would have chosen ideally, it seems to be here to stay and so it is better to work with it and improve it than to curse it or ignore it.

Both the Department of Finance and Planning and the Programme Management Unit, which is currently part of the Department of Prime Minister, have had major roles in achieving this change in attitudes. The Department of Finance and Planning has for some time been developing financial management and control systems for the provinces and providing training and back-up to provincial staff. The Programme Management Unit has been working with four provincial governments and with some of the national departments whose functions were transferred to the provinces, a major aim being to improve cooperation and coordination between the levels of government. National departments are being encouraged to see one of their main roles as providers of technical backup, training and quality control to their provincial counterparts.

In general, under the Resource Management System - a new approach to planning and implementation of new projects recently approved by the National Executive Council (NEC) - provincial governments are to have their capacities built up to the point where almost all new projects funded under the Public Investment Programme will be jointly planned between national and provincial governments but implementation will be handled by the provices with technical backup etc. provided by relevant national departments. The Resource Management System clearly involves a radical departure from previous national government attitudes to the involvement of provincial governments in national planning.

A final general point must be made concerning the extremely variable capacities of provincial governments. Indeed, it is a major mistake to treat provincial governments as equal members of one group. There are perhaps three main groupings - three or four provincial governments that are managing and planning quite well, another eight or nine that may be struggling but are trying hard with limited resources and the final group that are having major problems either through gross inefficiency, mismanagement or corruption, or a mixture of those factors. Whilst the provincial government system was established on a uniform basis, it was soon realised that a mistake had been made in that regard, and various informal means of differentiating between the provinces were introduced, including the arrangements for full financial responsibility. In the past two or three years, the differential approach has become more firmly established as official policy, and it seems clearly accepted that the vesting of powers or functions in one or two provinces does not require that it happen with all provincial governments. The best example of this development has been the delegation of land functions to the East Sepik and East New Britain provincial governments. Amongst the many advantages of the differential approach is that it encourages efficiency in that it leaves well managed organisations free to get on with their work leaving national departments free to concentrate their technical assistance capacity where it is most needed. In addition it provides incentives to the less well managed to improve their performance.

Whilst the above may sound nothing more than an apologia for the provincial government system with little relevance to the proposed new forestry legislation, I would suggest that it is in fact of considerable relevance. For if the provincial government system is really here to stay, and if the overall trend in national-provincial relations is towards a greater role for provincial governments and for national departments to act more as technical advisory services to their provincial counterparts, then there is much about the approach of the proposals for the forestry legislation and forestry management which must be critically questioned.

Provincial government roles in forestry matters

Before commenting on the proposed legislation, it is important to bear in mind the various ways that provincial governments are involved with or interested in forestry matters.

Most obviously, provincial governments are the bodies primarily responsible for overall planning of the development of each province. Whilst different governments discharge this responsibility with varying degrees of capability, the fact is that they have that role and that the pace at which and the way in which the forestry resource of a province is developed has a major impact on provincial planning. In the extreme case of Manus, the entire development plan for the province, carefully developed over five years to 1983 and in the process of implementation since 1984, depends upon the pace and manner of development of the forest resource. Whilst not as fundamentally important as in Manus, the impact of forest projects in other provinces is nevertheless most important. Large forestry projects not only bring infrastructure development in terms of roads and other services, but they also create demands for other kinds of infrastructure and services, and can change the pattern of demand for government services such as schools and health services. Roads, bridges, aid posts and other infrastructure put in by forestry companies must be maintained once they are built, and maintenance bills for provincial governments are already very high. The importance of the proper management of the forest resource is well recognised by many provinces, several of which have developed or are in the process of developing provincial forest plans.

Provincial governments clearly need to be very closely involved in the planning and implementation of forestry projects if they are to have any hope of planning rationally for overall provincial development.

But at present their involvement is limited largely to the role that provincial forestry officers have in monitoring projects. The better organised provincial governments try hard to have a major role in the planning, tendering and granting of licences in relation to new projects. But they have no formal role under the present outdated forestry laws, and can easily be ignored by an uncooperative Minister for Forests. The pattern over recent years has been for the provinces to be relegated to a minor role in relation to project development. It is not surprising then to find much concern about forestry amongst the provincial governments and to see major controversies develop, such as the present crisis over LFAs in Manus.

In general, there is a lack of clear roles for the provincial governments under the present act, particularly in the negotiation of new forestry projects. All legal responsiblities are vested in the national government, and although the Organic Law on Provincial Government requires that there must be consultation by the national government with any provincial government likely to be affected by a major resource development, no clear rules on what is required for valid consultation are laid down in the act or in administrative procedures. Proper consultation does not always occur.

A further problem in national-provincial relations on forestry matters concerns the responsibilities and control of provincial forestry staff. At present provincial government staff are directly involved in monitoring operations of forestry companies. When the provincial government system was first established, the former extension officers of the then Office of Forests were transferred to provincial governments along with public servants carrying out many other government functions. Like many other national government organisations, the Office - now

Department - of Forests never came to terms with the realities of the decentralisation process. The loss of direct control of provincially-based staff was deeply resented. This was not an uncommon experience - the Department of Health so resented the 1977 NEC decisions directing the transfer to the provinces of provincial hospitals and other functions that it deliberately ignored the directive until 1982 when at last the gross inefficiency of the centralised national department forced provincial health officers to pressure the national government to order the transfers of functions be made. The provincial officers acted not because they believed in the lofty philosophical underpinnings of decentralisation but rather because of the practical problems of operating a centralised department in today's Papua New Guinea.

The resentment about the loss of control of provincial forestry officers continues today, and as part of his planned reorganisation of the industry to be made in the process of passing the new act, the present Minister for Forests apparently wishes to regain control of the provincial officers. He argues that they are inefficient and undisciplined and that unless they are part of his department they cannot be properly directed and controlled. I shall return to that issue when criticising the proposals for the new act, for the Minister's proposals appear to be contrary to the overall trend in government policy towards the provinces in other sectors.

The final general aspect of provincial involvement in forestry that I shall mention before looking at the proposed act is the fact that "forestry" is a concurrent legislative subject under the Organic Law on Provincial Government. The nature of the concurrent subjects is not well understood, even in government circles. It seems it is often thought that it means a shared function. Thus, in the drafting instructions for the proposed new act there is talk of some functions under the act being concurrently handled by national and provincial governments. But a concurrent legislative subject is not one for which administration is shared. Rather it is one for which there is supposed to be both national and provincial government legislation covering various aspects of it. In fact the Organic Law on Provincial Government restricts national government laws on concurrent subjects - they are only allowed to cover matters of "national interest" and to the extent that those matters are of "national interest". Individual provincial governments can require the NEC to take all action in its power to repeal national laws on particular concurrent subjects to the extent that they do not cover matters of national interest. Failure by the NEC to take such action could be the subject of court action by a provincial government.

The nature of concurrent legislative subjects is clearly something which should be borne in mind when planning new national government legislation on a concurrent subject such as forestry.

The proposed new Forestry Act - some provincial perspectives

The most obvious preliminary criticism of the drafting instructions is that they were prepared without consultation with the provinces - or, for that matter, the industry. The Organic Law on Provincial Government envisages both notice to all provincial governments of any proposed law on a concurrent subject and consultation on such laws with any provincial government that requests it. The intention is to ensure that the legitimate interests of provincial governments are taken into account in the national laws, a process which should ensure that national laws do not cover matters of provincial interest, leaving such matters free for provincial laws.

In the present case - as will become evident from the following discussion - the failure by the Minister to consult with the provinces has resulted in the drafting instructions failing completely to take into account legitimate matters of provincial interest. In

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fact, the Minister was - apparently - initially prepared to push the new act through the November 1988 sitting of parliament without consultation. It seems the Minister may not have been aware that the Organic Law on Provincial Government contains safeguards against such actions which threaten harmonious national-provincial relations. The proposed Act could have been struck down as unconstitutional if at least one month's notice had not been given to each provincial government of the proposed law. It is doubtful whether notice of drafting instructions alone would satisfy the requirements of the Organic Law - a point that should be borne in mind by the national government when planning its legislative programme once the proposed act is finally drafted. But constitutional battles between the levels of government over notice provisions are of little positive value except as final attempts to protect provincial interests when all else has failed. Hence it is a step forward to find that the Minister is now showing a willingness to consult.

On a more substantive note, the most immediate criticism is that the drafting instructions fail to recognise that "forestry" is a concurrent legislative subject. No provision at all is made for provincial laws on those aspects of forestry matters which do not involve matters of national interest. It is arguable that a new national government law on forestry which attempts to cover the whole field without leaving room for provincial laws offends the Organic Law on Provincial Government and is thereby unconstitutional. This point has been made to the national government by the Premiers Council on many occasions, and often in relation to forestry laws. It seems that the point has not been understood.

The point must be made clear that we are not talking about each province having its own distinct and over-arching forestry law thereby making rational management of the industry on a country-wide basis impossible for both the national government and the industry itself. Rather, we are talking about the constitutional requirement that the national government, in consultation with provincial governments, should turn its mind to the appropriate division of legislative powers and responsibilities between the levels of government in relation to forestry. It may well be that in relation to forestry, as opposed to many other concurrent subjects, that most of the subject area is legitimately a matter for national legislation. It may be, for example, that provincial governments should only have power to make regulations on some aspects of the subject. Alternatively, it may be that the national laws can differentiate between the few provinces that have the capacity to pass and adequately enforce forestry laws and the majority that clearly cannot. The former provinces may be left room to pass their own laws dealing with establishment and management of smaller forest projects - i.e. those without major national significance. Less capable provinces may be vested with much reduced powers.

Clearly there is a wide range of options for the division of powers and responsibilities. What is required is proper consideration of those options, something which has not been done when preparing the present drafting instructions.

A further basic criticism of the proposals is that they give very little credence to the legitimate interests of provincial governments in the planning of the development of forest resources. Despite the huge potential impact of forest projects for provincial governments, they are given no guaranteed role in the tendering process and in the process of establishing the conditions to be met by any particular project.

A further problem with the proposals is that like the present act, far too much is left to the discretion of the national minister. He or she can even dispense with the requirement that the issue of timber permits and licences be put out to tender. This provision is an open invitation to the suspicion of corruption and for national-provincial conflict.

Turning to timber royalties, the proposal is that instead of being calculated at varying rates for particular species they should in future be calculated on the basis of 10 per cent of f.o.b. value of timber exports and that 100 per cent of the royalties collected should be paid to the resource owners. In place of their present share of royalties, provincial governments are to receive the proceeds of a levy on logs felled. Not only would such a proposal have a substantial negative long-term impact on provincial revenue, but it also flies in the face of proposals on royalties which have been put forward by various provincial governments over a number of years.

Perhaps the most constructive proposals have come from the five islands region provincial governments which have suggested that rather than all royalties being paid direct to landowners, with the accompanying risk that the money will give rise to no long-term benefits, they should be split into several specific-purpose funds. Part should go to land owners, part to a trust fund for "development" projects in the development area, part to a reforestation fund for the whole of the province and part to be available for general provincial purposes. The main aim of the proposal is to ensure a spread of benefits, at least some of them likely to be long-term. The justification for provincial governments receiving a share of the royalties is that they are usually called upon to provide increased services in timber development areas, often whilst the project is operating but certainly after the project ceases, when costs of maintaining infrastructure and providing basic services initially provided by the developer must be picked up by the provincial government. Variations of these proposals could be put forward, but the point is that proposals to ensure that there are long-term benefits from royalties should be carefully examined. But as is the case with most matters of legitimate provincial interest, the question appears to have been totally ignored in the preparation of the drafting instructions.

In relation to provincial forestry staff, the proposal that provincial forestry staff should be removed from provincial control gives cause for considerable concern. While there is certainly cause for concern about the performance of some provincial forests staff, it must be remembered that there are many reasons for this problem. The Minister's proposals assume that the only way those problems can be dealt with is by centralising control. But amongst the causes of the staff problems is the fact that those staff at present receive virtually no back-up support and training on a regular basis from the only technical parent department available to them. It is also true that the checking, monitoring and enforcement procedures supposed to be enforced by provincial forest officers are inadequate and uncertain, and that the provincial officers are so few, have inadequate resources and are often so poorly trained as to be unable to operate effectively. There is virtually no monitoring of their activities by their "expert" parent department. In relation in particular to enforcement of licence conditions and general compliance with the act, offices lack proper powers, personnel to carry out professional investigations and the legal resources to carry out successful prosecutions.

If the Forests Department were to resume direct control of those staff, it would have no capacity to manage them. It would have to build new capacity to control and monitor them. It is by no means certain that centralised administration by a department in the state of crisis being experienced by the present department would be any improvement on the present position - it may well be far worse. As what the Minister proposes runs very much counter to the positive trends in relations between national departments and provincial governments which the Programme Management

Unit and other national government agencies have been working so hard to foster, the whole question should be re-examined.

Some alternative approaches – an outline

From the above discussion it should be clear that in the context of national-provincial relations there are substantial defects in the present drafting instructions. The following points summarise the alternative approaches that should be considered:

- The possible role of provincial government forestry legislation must be considered, particularly the possibility of a differential approach whereby better managed provincial governments are permitted to deal with matters of provincial interest in their own laws.

- There should be a much greater role for provincial governments in the process of negotiating and permitting forestry projects.

- Clear procedures for the project preparation path for all categories of forest projects should be carefully adhered to. Such an approach provides certainty and protection for land owners, all levels of government and for the industry. Models for such project paths might be found in the mineral sector.

- To avoid repetition of present confusions, there should be clear provision as to the respective responsibilities of national and provincial governments in all phases of forestry management.

- Clear manuals of procedures should be drawn up for forestry staff covering all aspects of their roles.

- Rather than resuming control of provincial forests staff, the national Department of Forests should follow the pattern promoted by the Programme Management Unit and enshrined in the Resource Management System whereby the department provides back-up and technical support to forestry field staff under provincial control.

- Any new forests legislation must in part based upon the existing national government policy that the degree of independence and the extent of the powers of individual provincial governments in relation to any sector of government activity should be differentiated depending on the capacities of those governments.

In general, there must be a much greater degree of cooperation between the national government and provincial governments in relation to forestry matters overall and concerning the proposed new legislation in particular. The lack of consultation concerning the proposed act and concerning proposals to resume control of provincial forestry staff suggests a worrying trend. Again, developments in the mineral sector may provide a useful model. Recent national government initiatives to establish a development forum to enable the two levels of government and the industry to consult on mining projects, in place or planned, have been well received by both industry and provincial governments. It is an approach far more in line with the general improving trend in national-provincial relations than the approach which appears to underlie the drafting instructions considered in this paper.

Financier's Perspective

David Hutchinson
Managing Director and General Manager,
Niugini-Lloyds International Bank Ltd.

The Bank of Papua New Guinea Lending Directives of December 1987 state "commercial banks must give high priority to advances and loans to the agricultural, forestry and fishing sectors : by 31.12.90, 20 per cent of advances outstanding must be to those sectors".

The numbers are, say, 20 per cent of K850 million = K170 million. An average forestry operation will produce say 6,000 cubic metres a month of export logs and needs to spend on infrastructure and equipment, some K1.5 million to K2.0 million. If total loans in Papua New Guinea can only increase 8 per cent in 1989 i.e. K68 million, can the kina market cover all new forestry and agricultural projects? What will be the need for offshore borrowing and to what extent is it available to Papua New Guinea? The above figures are oversimplified but illustrative. Is forestry going to be squeezed out perhaps?

Obviously, the banks are primarily interested in the service of their debt. They expect to be paid each month interest and principal. They are at risk for the short mechanical life of the equipment used and high maintenance costs. They are at risk for prices of logs, since it is impossible to sell forward and the market is essentially "arm's length".

The financing is basically split between -

> <u>Equity</u>: provided in cash and equipment by the foreign contractor. No money is put up by the land owners nor the Papua New Guinea Government.
>
> <u>Leasing and hire purchase</u>: finance companies are able to advance a portion of the value of equipment.
>
> <u>Banks</u>: are able to provide some working capital finance against export orders or secured on some of the other assets of the contracting company or foreign guarantees. It is seldom that overseas buyers will put up money before shipment (i.e. red clause Letter of Credit advances).
>
> Banks are aware that the profits of loggers disappeared in 1985 and although 1986-1988 has been a good period, it may not last. Rattan cane is another matter and has not got off the ground even yet and certainly does not need a 10 per cent export levy.

The points of agreement between banks and the government would have to be that the export of timber is an importnt source of foreign exchange for Papua New Guinea, that the land owners must be happy and remunerated, that an overall environmental policy for the long-term survival of tropical rainforests must be operating and that some scarce domestic currency lending should be used to finance logging (for example, it is not used in mining).

The banks would have no cause for complaint if everything went smoothly and the only losses suffered were through the commercial failure of the loggers themselves. Banks must take precautions to have enough security that can be realised to cover the debt, or only deal with loggers of proven international reputation.

Very basic points which the banks look for are -

- Good relationship with the local land owners. (It has to be accepted that there will always be one or two troublemakers who feel excluded).
- Indubitable, clear, irrevocable approvals from the Papua New Guinea Government, i.e. from the Minister for Forests.
- Good choice of equipment and a good maintenance mechanic, or service agreement with supplier.
- A forest resources survey indicating species, volume and topographical and climatic factors (roads, rainfall, terrain, loading point to ship).
- A cash-flow projection and marketing plan. Will they sell to India or Japan or Korea?
- Competence and track record and numbers of staff. We are dealing with Australians, New Zealanders, Canadians, Malaysians and Filipinos. All with considerable skills and physical endurance but with differing styles.

The experience of the banks and finance companies has not been smooth. It is fair to say that the lenders have become very cautious and it is harder than ever to find kina finance. Why? And does this matter to Papua New Guinea and its export receipts?

Some problems have been -

- Cancellation of export licences and, in extreme cases, seizure of cut logs.

  It is fair to say that the reasons for such action by the government have been difficult for the lenders to understand and prompted by complaints by third parties, often without due investigation. Often, the problem lies in disputes about the paperwork involved in getting government permits or making royalty payments. It is not acceptable for the Department of Forests to say, when a logger who has been receiving export licences for some months is suddenly denied one, that the banks are at fault for lack of care in verifying the basic permit documentation and legality.

- Permits awarded to contractors who have diverted funds offshore and used political influence (these two behaviours often go together).
- Injudicious investment in sawmilling, woodchipping, veneer manufacture or furniture factories. The government is attracted to adding value to log exports but too often, this is production-driven not market-driven. Any dumping of such products by companies whose main profit-flow is from log exports threatens the viability of the whole sector. Any unreliability of supply damages the reputation of Papua New Guinea as a supplier market.

- Land owner disputes, in some cases leading to damage to assets secured by the banks and physical violence to management.

- Lack of communications between Department of Forests and the banking sector. Letters from the department are usually orders, describing a "fait accompli". Requests from banks are not dealt with promptly or by meetings and the banks are written off as "having an interest in the matter".

What can a banker discover in the September 1988 Drafting Instructions (which had not been discussed with the bankers)? Obviously, a banker would be disposed to believe that the Minister was doing the right thing by improving the law.

- "Reforestation" is stressed, but the methods to promote it are superficially treated. The involvement of youth groups looks like a political gimmick and irrelevant to the importance of the concept. The raising of money from the logging industry based on cubic metres cut rather than final cash availability must worry a banker. Proper long-term funding is not properly discussed.

- "Transfer pricing" is not as important a concern to a banker as it is to government provided cash flows are sufficient but one must be worried about increasing levies on the grounds that "they all cheat and they can afford it" or using the penalties of closure and/or imprisonment and fines to combat it. In fact, these two approaches are mutually inconsistent. The banker must feel that consistent cash flow is the important thing (so indeed will the land owners). A lighter touch is preferable to "a piece of four-by-two" to use the immortal phrase. The commonsense approach is overseas price monitoring, control of species being exported and "auctioning" - call it by any name you want - of the logging and marketing rights. Not by draconian, unilateral and post-facto penalties. And once a project has started, it should not be stopped dead but kept going on a supervised basis.

- "Penalties" in general are probably seen by the government as deterrents but by our side as dangerously large sums of money which can be unilaterally demanded. I also remark that the introduction of bank guarantees to cover certain obligations to be a wrong step. Indeed, I do not believe that banks will be willing to offer them nor indeed that an acceptable legal document reflecting such a performance guarantee can be drawn up adequately to protect the investor and banks.

- "Processing". I have come to believe that logging and processing are separate matters. Processing must be strongly customer-driven to be successful. If Australia or California or Italy want our laminates or veneer or top grade white rattan, then a bank will want evidence that buyers exist for the volume and period involved, that the product is competitive in price, quality, design and reliability of supply with competitor countries such as Indonesia, and many more factors. Processing in fact involves considerations closer to project financing as a bank discipline. There is nothing more worthless to a bank than an unfeasible specialist plant in an out of the way location and thus timber processing is high risk to a bank. There are one or two investors in Papua New Guinea who are very aware of the problems and working constructively at them. I am suspicious of any attempt to pressure loggers to start "processing" in their first year. There is bound to be deceit, poor marketing research and dumping. It would appear that the Ministry of Trade and Industry should be the dominant party in value-added timber project promotion.

- The drafting instructions are not clear to me on the subject of "optional requirements" and, in particular, on the question of submission of environmental plans. The existence of a full Ministry of the Environment and the delays caused by submitting each timber rights purchase to him must be discussed. One could conclude that the whole matter together with the subject of reforestation should be covered by an overall national forestry plan, probably drawn up in consultation with the World Bank and United Nations; however, I see from the agenda at this seminar that such work is already underway and so I am optimistic for the future.

- I am unclear as to the proposal for export licences, which were previously issued by the Ministry of Trade and Industry. Is it right to concentrate all controls in the one Ministry of Forests? Are we not already experiencing delays and demurrage due to paperwork problems?

  I take this opportunity to suggest that the Department of Forests should not be overloaded and should not be put in a position where it is a cause of delay and cost to investors. For example, payments by loggers to land owners; should they not be made direct with only information being sent to the government? Another example, seizure of logs usually means that the department is unready to sell them quickly and at the right price. The bank would do it better under a trustee arrangement with the department.

At this stage, I should prefer to stop rather than go into details which are beyond the competence of a mere financier. My point is rather that the banks and finance companies have learned a lot by bitter experience. This is a high-risk sector with problems of price, rainfall, equipment and terrain and, for the banks, of the difficulty of recovery if operations cease. We are already being told by our customers that the proposed higher levies and retentions threaten their margins, especially those who do not do everything themselves but have to subcontract to loggers, barge and tug operators, etc.

Conclusion

It must be obvious that, at this stage, the banks are far from having their problems solved. We shall be extremely interested to see further work done on customer-driven value-added investments and on a national reforestation plan. But on export logging, we should like the risks of the lenders to be mitigated by better communication with the Department of Forests, perhaps involving the Department of Finance, rather than ever greater demands.

It is clear from my first paragraph that the previous government wanted private sector finance directed to forestry/fishing/agriculture. If this is to happen, the experience of the banks is going to be the determining factor and cannot be shrugged off.

The "Proposed Forest Legislation" and Government-Industry Relations

C. R. Higham
Consultant, Forest Industries Association

The Forest Industries Association (FIA) has asked me to assist in an examination of "The Drafting Instructions for the Review of Forest Legislation and Regulations" prepared by the Ministry of Forests. My input will be part of a more detailed response to an invitation by the Prime Minister, to the FIA, to comment in writing on the "proposed legislation" by the end of January. The following was prepared to meet a deadline for this I.N.A. seminar. It is initial comment only. It is incomplete. Parts may be altered. It does not have official FIA endorsement. (Although much of it is obviously based on discussions with FIA members.)

On the basis of this initial examination of the proposed legislation I see parts that are constructive and practical. I see parts that are impractical or ambiguous. But this is not the forum for a point by point examination of the proposed legislation. The FIA does not want to have its main points lost in a mass of detail. I will refer to parts of the draft proposals only as (incomplete) examples of FIA concern. These are the main points I wish to make at present.

- The FIA wants reasonable, clear and unambiguous legislation **which the government has the capacity to enforce**, rather than complex, impractical and confusing legislation **which is not enforced or is inconsistently applied.**

- Legislation provides the link between policies and practice. If it does not stem from clearly defined forest policy **it will be inconsistently applied.**

  If it does not recognise commercial reality and efficient practice, experience suggests that it will be circumvented by both private industry **and government.**

- Any revised forest policy and associated legislation should learn from experience in the forest sector since independence. Both the failures **and** the successes. The losses **and** the gains. This requires effective consultation with

  - **provincial governments** - who will implement many of the provisions;
  - **the forest industry** - which is (obviously) most directly affected.

  "Top down" legislation drafted from a desk in Port Moresby will fail.

In summary the FIA had hoped for a clear set of enforceable ground rules which encouraged long-term stable investment, and discouraged tendering on the basis of promises not performance. It does not believe that the proposed legislation gives support to that section of the industry which goes about its task in a constructive manner away from media headlines. Or to put it another way, the FIA has a three-point proposal -

- first be reasonable, then be firm;
- define policies first;
- consult.

These proposals will be discussed one at a time.

First be reasonable, then be firm

The largest part of the timber industry is concerned at the proposed legislation. It is concerned that the government has not got the capacity to enforce some of the more complex provisions. It is concerned that other provisions are ambiguous (or conflicting) and will be inconsistently applied. It is concerned that some provisions are unreasonable.

A smaller section, and some potential entrants, will be less concerned. They agree that parts of the legislation will be difficult to enforce and this will be to their gain. If legislation is not enforced, and if permits issued under that legislation are not enforced then **promises** become the key to entering the industry, not intended **performance.**

Where legislation is cumbersome, imprecise or impractical the following sequence is possible -

<u>Cumbersome, imprecise, or impractical procedures and provisions</u>

mean that -

- Ambiguous provisions are inconsistently applied.
- Intentions of legislation are distorted.
- Cumbersome provisions are circumvented.
- Impractical provisions are ignored.

It follows that -

- Ministerial discretion may be increasingly necessary, and increasingly used.
- The minister becomes involved less in policy directives and more in functional, departmental matters.

and so -

- Departmental officers are seen as obstructionist or bureaucratic.
- Departmental officers are ignored. ("Go straight to the top").
- Departmental officers are demoralised (by accusations of obstruction from industry and lack of support from the top).
- Low-level corruption is possible (to "speed things up").
- High-level corruption is possible (to "speed things up" even more).
- Minor permit conditions are not enforced.
- Important conditions are not enforced.
- Genuine, stable investors are disadvantaged in their operations as their costs are higher than those who bend or break the rules.
- Genuine, stable investors are disadvantaged in the tender process.
- Promises become more important than likely performance.
- The "investment climate" is unstable.
- Investment risk increases. Time horizons shorten. Required rates of return increase.
- Lack of performance is "exposed".
- Corruption is "exposed".

- All timber operators are perceived to be "part of the game".
- Dialogue with such an industry is not encouraged.
- The government "gets even tougher" (at least on paper).
- Investment stalls.
- Pressure builds up from land owners, from provinces, from within government, and from the opposition for "some action".
- Changes to policies and legislation are difficult and time-consuming. So they are ignored ("defacto policies").

And so on. Nothing changes. It just gets worse.

The point that the FIA wishes to make is **not** that all of the above steps **will** occur, nor that legislation should be weakened, but that the "toughest" legislation is not necessarily the most effective legislation : it must be practical and enforcible.

Here are some examples of our concern.

(a) The overall procedural steps that are required between the identification of a potential resource and the commencement of operations seem somewhat complex.

The "critical path" diagram attached (Diagram 1) attempts to interpret the steps that are necessary, under the proposed legislation, (the requirements of other government departments are not included), before any substantial timber operation can get under way. Some of these **individual** steps are fraught with difficulties, e.g.

- what are the effects on subsequent timber operations if up to 25 per cent of resident land owners do <u>not</u> support the forest management agreement.

- The value of reforestation projects are very sensitive to haulage distance, terrain, plot size, soil productivity, etc. The 20 per cent of land dedicated to the state in every area need not recognise this problem. Scarce resources may be tied up in many little reforestation projects, scattered throughout the provinces and the nation. These may prove of little economic value to "future generations" because of poor access, etc. The fourth goal of the constitution is <u>not</u> satisfied. Forest resources must not only be replenished, they must be "replenished to the <u>benefit</u> of future generations".

- the way of setting log export/processing levels based on calculations (Schedule 3) of the amount of log exports (devoid of more favourable species?) "necessary to support infrastructure" and using "current economic techniques" to determine processing levels, divorced of any company structure, finance, or marketing arrangements, etc. will reduce the number of <u>genuine</u> tenderers.

(b) Some of the suggested steps seem to be appropriate in present circumstances. But some are procedural matters which may be made more efficient with experience (and dialogue with provincial governments and industry). The questions are -

-hould <u>all</u> these steps be committed to legislation, which has proven to be very difficult to alter?

If they are appropriate matters for legislation is the process the most efficient one? (From the viewpoints of the national government, the provincial government and the industry).

(c) Some provisions seem ridiculously tough, e.g.

- a fine of K100,000 for failure to produce a copy of the operating authority on demand by a forest officer.

- a fine of K100,000 for "practising logging activities which is not normally acceptable to the department"?

(d) Some provisions are ambiguous, contradictory or have discretionary powers with little guidelines to ministerial decision. They will be inconsistently interpreted and inconsistently applied -

- In what circumstances would concession areas **not** be submitted for tender (S.24).

- What happens if the permit is issued to a party other than the land owner company (LOC) (S.17) and this party does not have the support of the LOC (or the provincial government)?

(e) Some provisions will have a marked impact on the profitability of timber operations, (now and in the future), and these have been formulated without reference to the industry they so much affect.

Diagram 2 shows the increases in charges proposed. The companies most adversely affected will be those that have agreed to onerous permit conditions and are abiding by those conditions. Less affected will be companies who have taken a short cut to a concession area (e.g. a "private dealings" arrangement), and/or who are not complying with agreed conditions. (What is the expected reaction from a company who is **not** transfer-pricing to be told that export taxes are being increased from 10 per cent f.o.b. price to 15 per cent on the basis that some **other** company **is** transfer pricing but has not been caught. This is unjust. The problem is one of monitoring or spot auditing and should be addressed as such).

(f) Several provisions affect the division of rights and responsibilities between customary owners, provincial governments, and the national government and the funds made available to each of these groups. For example the proportion of charges going to consolidated revenue compared to that going to the provinces (the "Follow up Land Use Levy") has apparently increased. But this is a paper by itself.

There are many other concerns. These matters are obviously the province of government. It will not affect most existing timber operators if the rate of startup of new projects slows down. This is probably sensible in current circumstances.

What does affect industry is where the government becomes frustrated by its own policies and legislation and -

- does not enforce, circumvents, or inconsistently applies this legislation (see earlier);

- selects successful tenderers on promises not proven performance record (see earlier);

- becomes concerned at the effects of its own legislation e.g. if "the Reforestation Levy" proves to be inadequate to administer and effectively undertake many scattered reforestation plots the response may not be to correct inefficiencies, but to ask for more. Let us take an example of a potential future problem. Reforestation is stated to be a major objective of government. The reforestation levy is K1 per c.m. on log exports. This must pay for administration of reforestation and implementation. But the levy is to come from log exports which are intended to be phased down. Areas planted in year 1 will require tending in year 2 and so on. The call on funds will increase. The proportional contributions will decline. Who will pick up the balance if genuine economic reforestation plantations are to be established and maintained?

- adopts a "stop - go" approach to resource development and creates an unstable industry investment environment;

- takes action which markedly affects profitability without consulting industry and determining the likely effect on each of the very diverse elements of the industry.

Define policies first

Legislation defines the link between policies and practice. This relationship affects the logical sequence of events through time.

Legislation should support carefully formulated and clearly stated forest policy. The government has budgeted for a review of forest policy in 1989, immediately after the proposed enactment of revised forest legislation.

There is little doubt that the findings of the "Commission of Inquiry into Aspects of the Forestry Industry" will affect the proposed forest policy review. But these findings have not been available for the drafting instructions for legislation.

This timing is not logical. Yet the FIA can sympathise with the Minister for Forests' sense of urgency. Revisions to the "colonial" forest legislation have been a matter of urgency since the early 1970s. There is no doubt that the current legislation needs revision. But the FIA suggests -

- that new legislation will not, by itself, solve the problems of the forest industry;

- that inappropriate legislation will aggravate these problems.

Where problems exist in the industry, (and the "Commission of Inquiry" points to many) they almost invariably derive from inconsistent application of policy over several years, non-enforcement of existing legislation, or inconsistent interpretation of existing legislation. They do not normally derive from inadequate powers under existing legislation (forestry and other government legislation). The "transfer-pricing" issue is one illustration of failure to use powers, not the need for greater powers. Government powers were available to uncover transfer pricing and recover monies. They had not been used.

An illustration of inconsistent application of policies and failure to use existing powers relates to the current dispute in Manus. Forest policy, in so far as it can be gleaned from the various statements and the proposed legislation, implies that it is in the "national interest" to require or support -

- consultation with provincial governments;
- a rate of logging low enough to allow resource replacement (this policy is directed by the constitution);
- resource support for processing operations;
- competitive tendering for forest resources;
- that a company's past performance be taken into account when allocating new concessions;
- the orderly release of new forest concessions in accord with an overall national plan.

The Forestry (Private Dealings) Act provides powers to refuse a Local Forest Area declaration under the Act where it is against the national interest. A proposed operation which would log an area at such a high rate as to make resource replacement impossible, which is opposed by a provincial government, which does not fit in to any national plan, which is not allocated by competitive tender, which competes for a resource with a proposed processing facility would not seem to conform to the national interest. Yet such a proposal, may from press reports, have ministerial support, against the wishes of a provincial government of an island province whose single most valuable natural resource is its forests. If these forests are logged out and not replaced then this province will in future become dependent on handouts from Port Moresby. This would seem to be resource exploitation of the worst kind.

This seems to be a case where legislative powers are available but not consistently applied in accordance with any clear policy. It is not legislation that seems to be lacking but government will.

In summary the FIA agrees that a review of forest legislation is urgent. Even more urgent is a formulation of a national forest policy. And even more urgent still is a demonstration by government that forest policy will be consistently applied so as to encourage profitable, long term, stable investment; performance not promises; good legislation not rushed legislation.

Consult

As was stated at the outset, revisions to forest policy and associated legislation should learn from experience in the total forest sector over the years since independence. The national government has no monopoly on this experience. The provincial governments have learnt a few things. The industry which actually cuts the trees has learnt a few things. Much could be gleaned from this experience : by constructive consultation with provincial governments and with that large section of the timber industry which has a stake in long-term stability.

The FIA is not proposing yet another fact-finding mission acting under vague terms of reference to be carried out by someone who thought Papua New Guinea was part of Africa two weeks before arriving. It is proposing that policy formulation, as a basis for legislation, go somewhat along the following lines -

- Impose a moratorium (or at least a substantial slow-down) on the release of entirely new development areas (e.g. those not required to support established processing operations).

- Form a working group (given a feasible but reasonably short time to report) made up of seven members : two representatives each from national government, provincial government, and the FIA; and (say) an independent chairman from such a body as IASER). It would be recognised by committee members that the objective of the working group would be to formulate forest policy in the broad national interest.

- This working group would identify in what respects past forest policies have failed, and in what respects they have succeeded in contributing to broad national goals (revenue generation, national ownership, resource replacement, etc.). (Using the interim report and the final report of the "Commission of Inquiry" and all relevant data available within government and industry.)

- The working group would also identify in what respects existing forest legislation has failed. What does existing legislation not allow to be done that should be done, and what does existing legislation allow to be done that should not be done?

- The working group would invite submissions, information, and proposals from all sections connected with or affected by the forestry industry (including ideas presented to this I.N.A. seminar).

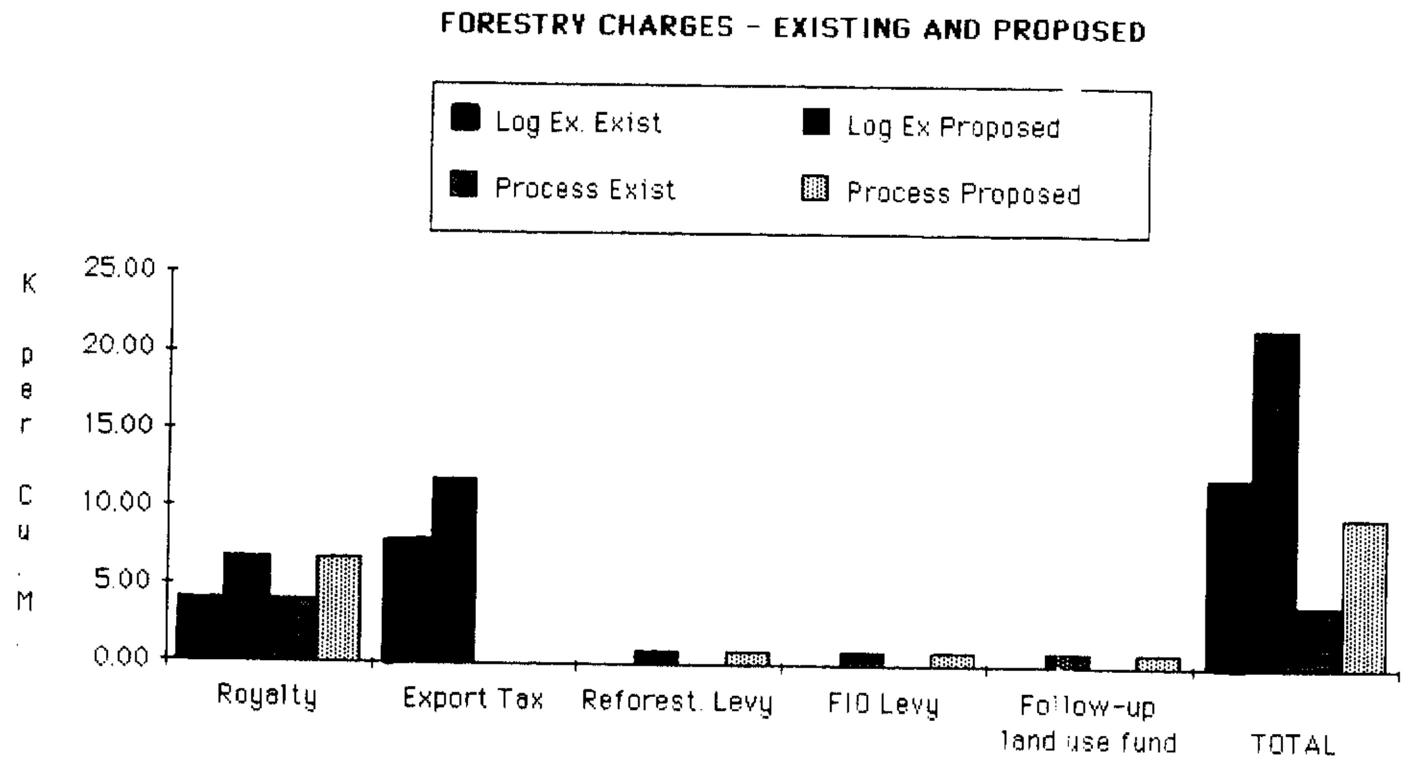
- The working group would prepare draft forest policy proposals for presentation to the Minister for Forests.

- Normal government procedures would then be used to have these draft policies **and** associated legislation approved and enacted at the same time.

This process might seem a little too involved. But it is an appropriate time for a substantial review of forest policies and legislation. If this is not done in consultation with industry and provincial governments then little will have been learnt about the failures and successes of forest policies in the years since independence.

And any legislation so derived, which should provide a framework for forest utilisation for many years to come, will have its origins in conflict, centralism and instability which is out of keeping with the spirit of cooperation that is necessary if legislation is to be effectively implemented. Ineffective implementation of legislation is **the** main problem at present. The best parts of the "proposed legislation" will be opposed along with the worst.

DIAGRAM 2


FORESTRY CHARGES - EXISTING AND PROPOSED
Log Ex. Exist
Log Ex Proposed
Process Exist
Process Proposed
K per Cu. M
25.00
20.00
15.00
10.00
5.00
0.00
Royalty
Export Tax
Reforest. Levy
FIO Levy
Follow-up land use fund
TOTAL

Foreign Investment in Papua New Guinea

Chris Krans
Director, Vanimo Forest Products Pty. Ltd.

Foreign investment essentially seeks four things -

- a stable environment in which to invest;
- an environment of least risk;
- an environment of minimal uncertainty;
- a suitable return on investment.

I will consider these in the light of the draft legislation proposals.

The existing legislation insofar as it has affected us and we have observed its operation, has been ineffective in many areas. This is of course acknowledged by the state and so manifested by their drafting instructions for new legislation. But we cannot logically conclude therefore that the present legislation is not good.

Consider the state option to purchase, which all companies are obliged to grant. This was brought in with the intent of controlling transfer pricing. I believe it has never succeeded because the provisions were never applied properly.

If, for example, the export returns of a company consistently show lower-than-expected prices for no apparent cogent reason, then the state could apply the provisions. If, in so doing, the state demonstrates that under the same market conditions and for the same logs a higher price can be obtained, then that in itself is substantial evidence that transfer pricing may be being practised. Appropriate further action may then be taken.

I am led to believe that there have been instances of established transfer pricing to which the state, through its shareholdings and directorships of the companies involved, has been a party. I find this most interesting. Perhaps that is by the by, but it reinforces the idea that it is not the legislation but the application of it which is ineffective. Notwithstanding that, the very existence of the state option to purchase seems to have led, in recent years, to a belief in government circles that the state option must be exercised because it is there. This in turn has led to a further belief that the state is able to market products successfully and in turn to a belief in the need for government marketing units.

Now, I have with me a long list of government marketing units in a large number of countries. Most of these units have been abject failures. All have succeeded in negatively affecting the markets in which they operated, often to the benefit of buyers - the very opposite effect which they set out to achieve.

But back to the state purchase option.

There is a further effect of the state exercising the option in circumstances other than for which it is designed. This is that when a lot is put on the market under normal conditions, the state and its employees may be so determined to sell that the price will in effect be bid downwards. Buyers absolutely love this situation - it gives them cheaper supplies. This is the principal reason why so many state marketing units in other countries have had the effect of depressing prices, an effect which has inevitably led to the failure of the marketing unit with the usual detrimental economic effects to both the company and country concerned. Papua New Guinea would do well to discuss this with its banking and financial consultants and consider the matter further. In the meantime it is simply not logical to make legislative provisions for state marketing.

On return on investment

I was interested, with everyone else this morning, to note a rather cavalier attitude on the part of the Minister to the subject of profitability. This is sad. It is the prospect of profit which leads investors into investing in Papua New Guinea in the first instance.

Our company Vanimo Forest Products has made a profit every year since it was started. We have not repatriated any profits to Australia. The profits have been reinvested here in Papua New Guinea. I have been working for some time on a share scheme whereby the land owners in the Vanimo timber area, the people who own the trees notwithstanding that the state has the timber rights, can get a slice of the action. However, the proposals put before us now by way of drafting instructions, when applied to our capital and cash flows to date show the company well and truly in the red. That leaves me with no shares worth selling. It would be unfair and dishonest of me to sell a non-event to the owners of our resource.

The land owner is therefore the loser, the company is the loser, the economy is a loser and the country is a loser. I therefore urge the Minister to think more seriously about the effect of profitability.

The indicated load of government charges, taxes and levies should be rethought. To get that return on investment we must have profitability. Without it, sources of capital for further development will dry up. Banks, finance houses and potential shareholders will turn their backs on Papua New Guinea. The very thing which we all together are setting out to achieve - more development - will not come to pass.

On the matter of uncertainty

The drafting instructions provide for the establishment of an incredibly large bureaucracy. Even under the existing legislation our Secretary for Forests is overburdened and has too few qualified staff. Our company and many others here operate in a response vacuum because of it. We try to get things done but more often than not things just sit still because we get no response. Our company operates under an agreement with the state. Few people in government have read it, or understand it. Action is usually on the basis of part clauses often taken out of context. This puts a great degree of uncertainty into our future. Such uncertainty will increase with the proposals before us and make investment in Papua New Guinea less attractive.

On the stable environment in which to invest

Three things come to mind immediately -

1. The proposals before us have added to them as an apparent afterthought, something about the benefits to the industry. The rest of the document is largely about policing and control. Nowhere does the document embody the

approach of conjoint development for mutual benefit. I suggest that such an approach can be achieved if the state and the industry sit down together, start with a definition of the problems which are to be addressed in the legislation and jointly work out practical ways in which this can be achieved. The rush to get legislation through parliament as soon as is intended does not make this approach readily achievable and is to my mind a manifestation of our unstable investment environment.

2. One speaker mentioned earlier today that he thought the proposals a recipe for corruption. I would like to reinforce that. It should be noted that the penalties for default, both the minor and major, are draconian. This, I believe, simply sets the scene for the unscrupulous to bribe controlling officers into looking the other way. History has many examples and I suggest that this aspect be rethought, and remoulded into a positive approach.

3. Whereas all of us in industry have been branded as something not very nice, I suggest that there is a particularly unappealing streak of greed in government. This manifests itself in the way the state tries to change the ground rules as soon as it sees someone else is onto a good thing. Vanimo Forest Products developed a market for Kwila logs in India. The state in the light of its policy of encouraging more processing immediately attempts to ban Kwila log sales. Now, it is a fact that while we can obtain excellent prices for Kwila logs, the market for Kwila sawn timber is very ordinary indeed. The state makes no consideration of the economic efficiency of its proposals, enforces the apparently ideal and again the landowner, the economy, the company and the state are the losers.

In conclusion, a little whimsy. In the U.S.A., they complain about foreign investment, in Australia and Japan they do the same. Perhaps it is Papua New Guinea's turn to not complain but instead to invest in those countries in turn. It is possible.

A Statement in Defence of the Forest (Logging) Industry

P. C. Crequer
Chairman, Groome (Milne Bay) Ltd.

Introduction

I am prompted in this respect to promote this defence by the constant vilification of our industry by almost any person who has access to a public platform or media outlet. I state my credentials below not as some type of ego trip but to illustrate that some companies do behave in a manner that the Government of Papua New Guinea states is its wish, i.e. we work for land owners, we export log, run sawmills and retail yards and are engaged in significant reforestation.

I am chairman of directors for Groome (Milne Bay) Ltd. who are the managing and marketing agents for -

Ulabo Timber Company Ltd.

Log exporters	Gamadoudou, Milne Bay Province
Log exporters	Fergusson Island, Milne Bay Province
Sawmillers	Gamadoudou, Milne Bay Province
Reafforesters	Gamadoudou, Milne Bay Province

Bougainville Forest Enterprises

Log exporters	Banui Bay, North Solomons Province
Log exporters	Cape Mabiri, North Solomons Province
Sawmillers	Ramazon, North Solomons Province
Sawmillers	Aropa, North Solomons Province

I am also governing director for Groome (PNG) Limited.

Log exporters	Lossuk, New Ireland Province
Sawmillers	Panamana, New Ireland Province
Retail yard operators	Kavieng, New Ireland Province
Reafforesters	Laponga, New Ireland Province

Neither of these companies was mentioned in Mr. Justice Barnett's commission of enquiry; nor were our associated landowning companies. Our reputation for behaving in a legal and ethical manner is unquestioned. So it was with considerable dismay that I read in "The Times" of 24 November 1988 the following -

> "....the whole timber industry is still in turmoil and the raping of the forest resources is still in full swing by foreign "fly by night" operators with very little or no notice taken by the foreign timber and logging thieves of any guidelines given by the National Forest Office on behalf of the government; nor are they taking any notice of the rights of the people to their forest resources."

The author of this piece was sadly Sir John Guise who has generally acquired a reputation for greater accuracy than he displayed here. He was in fact referring to a ministerial decision on Manus Island resources which had no relevance to actions taken by the forest industry.

It is topical to think of those persons, companies, etc. involved in the timber industry (read log exporters) within Papua New Guinea as -

- vandals - they desecrate the forest
- tax evaders
- transfer-pricing specialists
- resistant to processing
- oblivious to the needs of the land owners.

I shall attempt to refute these allegations but only in a general way, but again based on my not inconsiderable experience.

Vandalism : Destruction of the resource

When reference is made in public to the Papua New Guinea forest resource by politicians and other interested persons, it is usually referred to in glowing terms with the adjectives "priceless", "great", "wonderful" coming readily to mind. This assessment is incorrect and a more accurate description would be "difficult" in that :

- It comprises a multiplicity of species.
- Merchantable volume per hectare is low.
- Areas made available for development are usually in locations of difficult topography coupled with adverse climatic conditions.
- Operational sites are normally totally devoid of infrastructure.

In essence it is a resource that can be successfully developed in an economic sense, but it is certainly no bonanza. Whilst it is natural for the standing forest to be regarded as development capital by the land owners (when felled and sold) it is more normally viewed as an impediment to agricultural development. Papua New Guinea is not unique in that forests have been traditionally felled and burnt to allow planting of crops or the sowing of grass. It has been, and is, an international practice. Usually it is excused on the basis of lack of fertiliser (shifting agriculture) or lack of markets. However, even today, here in Papua New Guinea and elsewhere, the agricultural developer resists pre-emptive logging like the plague on the grounds of soil disturbance and compaction.

It is the agriculturist who permanently alters the environment from a forest one to agriculture. The logger removes but a minor portion, 5-10 per cent, of the existing biomass and unless one is intimate with forest practice the visual impact of the logger disappears in two years and water and soil retention properties are enhanced, certainly not destroyed.

Tax avoidance/evasion

It is an oft-repeated theme that export loggers pay no tax and are consequently following a course of tax evasion. This is incorrect. Taxes are, in fact, paid up front in the form of royalties, levies, etc. If we assume an export receipt of US$80.00 cubic metres, f.o.b., the prepayments demanded are -

Export tax 10 per cent	US$ 8.00
Royalties	US$ 6.00
Penal roading	US$ 5.00
FIC levy	US$ 0.20
Permit stipulations	US$ 3.00
Total	**US$22.20**

or 27.5 per cent of gross receipts. What other industry is taxed this way?

An even more extreme example can be given, taking into account the proposed Review of Forest Legislation and Regulations. Currently our firm is preparing a submission "Development Proposals for Arawe TRP" on behalf of a client. In doing this we have prepared the following case study, assuming an f.o.b. price of US$ 80.00 m3.

It appears from the "Guideline to Development Proposals" that we pay into a development fund at the rate of (approx) - US$ 11.70 m3

From the cabinet submission "Drafting Instruction for the Review of the Forest Legislation and Regulations" Part (VIII) Clause T6, we will further be required to pay -

Royalties to land owners 10 per cent	US$ 8.00
Forest Development Fund (K1.00)	US$ 1.17
Forest Industry Office Fund (K1.00)	US$ 1.17
Follow-up Land Use Fund (K1.00)	US$ 1.17
Export tax (15 per cent)	US$12.00
Total (incl. US$11.70 m3 above)	**US$35.21**

or 44 per cent of gross receipts. This is plainly untenable.

This leaves $44.79 to carry out all production functions, which will ensure that land owners will receive no monies other than total royalties which is a much lower level of income than they now enjoy.

Log marketing

Traditionally we have sold logs to key importers in Japan and Korea. Japan is our preferred market because their purchases are designed for internal use and they proscribe no spp - they purchase "run of bush". Korea and Taiwan purchase similarly but for processing and resale to external markets. When the U.S. (Korea) and, to a degree, the EC (Taiwan) economies slump, Korea and Taiwan cease to stand in the market and without that vital competitive element Japanese prices come down markedly and rapidly. Other log markets (India and Singapore come to mind) are species-selective to the top end of the species range, and do not offer commensurately better prices.

But Japan takes it all and prices appear fair. Current prices of US$90.00 per cubic metre may not be a very good price for Taun and Pencil Cedar, but is excellent for the Ficus, Malas, Alstonia segment of the cargo. Papua New Guinea realisations equate well with those for the MLH grade from Sarawak, etc.

Still there is no room for complacency. Published figures show that since 1980, average log prices in Papua New Guinea (in US$) have risen 250 per cent while in Japan (expressed in yen) they have dropped over the same period by 33 per cent. There is room for improvement in our marketing but returns do adequately cover costs.

Transfer pricing

There appears to be a fixation within official and academic circles that transfer pricing is rife. Officialdom is so concerned on this matter that the reason given for the proposed increase in the export tax from 10 to 15 per cent, is to compensate for the revenue they "know" is slipping away from them. If there is any fair basis for this line of thinking, it must surely be found in fact and should be acted upon and these facts should be publicised. However, the group of companies within which I have equity and management involvement have never been involved in transfer pricing and no "deals" have ever been offered.

Generally we offer to Japanese or Korean buyers and even in times of fierce competition (usually in four yearly cycles) no sweeteners have ever been offered. We offer all logs for sale regularly to Mr Amin (State Marketing Authority) and differences and variances in prices gained have never been of significance in our case. Also sporadic offers emanating from India and other nations - normally seeking a supply of a restricted range of species, are usually lower or similar to those offered by our bulk purchaser.

Surely if transfer pricing was taking place it would need to equal K8-10 a cubic metre to make it worthwhile and some rival buyer would appear on the scene prepared to "split the difference" but they do not do so. It may be naivete on our company's part but we consider that the allegations of transfer pricing cannot be sustained and that a further 5 per cent levy on honest operators is unfair.

Processing

The Review of the Forest Legislation and Regulations states that a higher level of processing will be enforced with 50 per cent of throughput being mentioned as a ball-park figure.

National government authorities should re-think this processing pressure as it will be to the cost of the two most important parties involved, i.e. the national government and the land owners, who will lose a considerable amount of income to which they have become accustomed. In our operational sphere it has become fashion for land-owner companies to be formed to hold the timber permit. The land owners then hire a management contractor to execute the terms of the permit. This system of operating is most attractive to the land owners and is profitable to the managers.

The standard contract (Logging and Marketing Agreement) which is written by the Department of Forests and approved by the Departments of Justice and Finance and Planning, usually gives the land owners a graduated series of payments, K8.00 at an f.o.b. price of K55.00 being realised. All receipts above that benchmark level are split 50 : 50 between land owner and contractor. An example of a sale of export logs at K75.00 per cubic metre f.o.b. gives shared returns as follows -

Central government (export tax 10 per cent)	K 7.50
Royalties	K 5.00
Land owners	K18.00
Forest Industries Council levy	K 0.20
Penal roading	K 4.00
Contractor	K40.30
	K75.00

This is attractive to the land owner, who, with 75 per cent share of royalty stands to gain K21.25 for each cubic metre exported or 28 per cent of total receipts (see diagram appended).

If this system is altered to make reforestation, agricultural development and general infrastructure a charge on the f.o.b., these costs can only be paid for by the land owner and/or the national government because they are the only parties with uncommitted funds. They do not become a charge on the foreign devil.

Should the proposals suggested in "The Review of the Forest Legislation and Regulations" become law, the following will occur -

Assume again export receipts of K75.00 m3 f.o.b., the following breakdown will apply -

Export tax	K11.25
Royalty	K 7.50
Other levies	K 3.00
Penal roading	K 4.00
Contractor costs	K40.00
Sub-total	K66.75
Land owners receipts	K 8.25
Total	**K75.00**

Land owners receipts	K 8.25
Full royalty	K 7.50
Total	**K15.75**

A drop of K5.50 or 25.8 per cent in land owners' returns.

It will be difficult to convince the land owners that this lessening of their discretionary spending power is a good thing.

Sawmilling

In a move to processing, sawmilling is usually given prominence. It is our experience that sawmills are profitable in direct relationship to the cost of log input or how the log input is valued. Sawmills can be most valuable (even if in accountancy terms they run at a loss) in that they can accept logs at the bottom end of the minimum export price range, export rejects that would be otherwise unmerchantable and can contribute much revenue to the logging profit centre that would otherwise be lost. The sawmill does increase the value also, in these circumstances, of the resource rump that is intended for export in log form by removing Group III species.

In New Ireland Province, Groome (PNG) Limited have attempted to run a stand-alone sawmill for some years at Kaut and Panamana but have found it initially to be uneconomic and have been **forced** into a parallel log export operation for two reasons, namely -

- To reduce our saw log cost to an economic level.
- Pressure from the permit holder who was dissatisfied with returns received from sawlogs against export logs, e.g. K6.00 compared with K20.00.

The returns the land owners required had to be sufficient for them to purchase a large copra plantation and the sawmill did not generate that return, either on a unit or gross throughput basis. Land owners do not like sawmills because of lack of return to themselves as permit holders. There is a similar lack of return to all parties.

If sawmill log furnish is export reject:
Costed negatively (disposal cost) the sawmill is quite profitable.

If the furnish is at straight logging cost it will be profitable but little return will be made to interested parties, i.e. government and land owners.

If sawmill logs are costed into mill at actual cost of production (K$>$35.00 m3) the equation becomes

$$\frac{K35.00}{0.4} \quad \times \quad \frac{106}{100} \quad = \quad K92.75$$

This is acceptable and some profit can be made.

At opportunity cost (the log export price equivalent) the sawmill will be distinctly unprofitable.

i.e. Opportunity cost of logs = K 75.00 m3

Conversion cost 40 per cent = $\frac{K75.00}{0.4}$ = K187.50

At 6 per cent for loss through degrade, theft, etc.

$$= K187.50 \times \frac{106}{100} = K198.75$$

This cost of log furnish is on its own close to the current sale price of green rough sawn untreated lumber ex yard.

By this example I am trying to show that sawmilling cannot give the returns to the government and land owners that export logging does. The example given at the start of this seminar of large sales to Australia of sawn timber at $A370 per cubic metre c.i.f. could only break even if logs were fed into the mill at bare cost with royalties, tax and profit to any parties being forfeited.

Summary

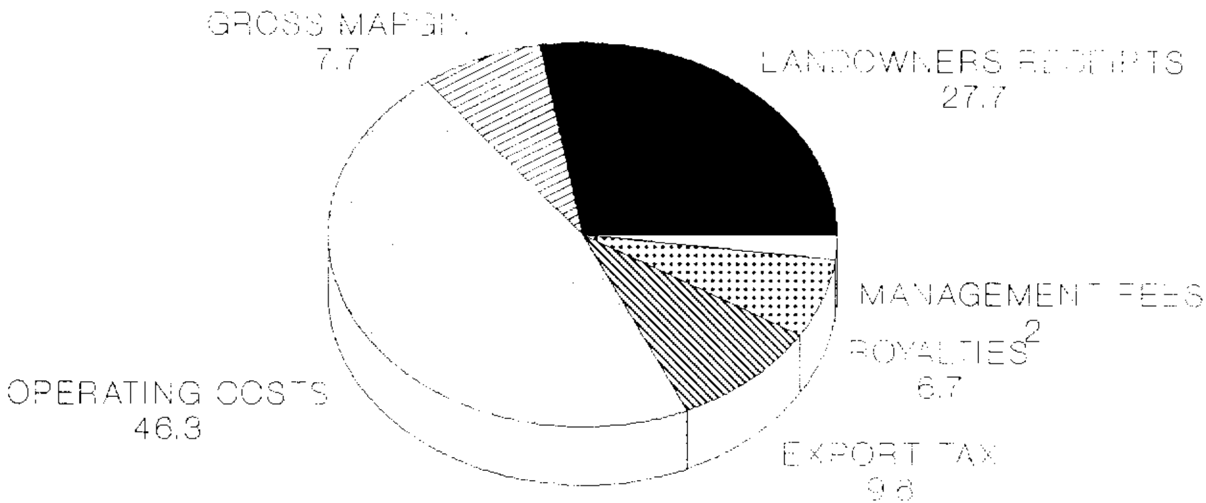
I reiterate - loggers do not damage the forest in as far as it is used by land owners. Loggers provide access and only remove the large stems which are an impediment to village agriculture. Water and soil retention qualities are not affected by logging and if two years of benign neglect is allowed there is no significant residual visual other than to forestry intimates.

Transfer pricing is not a fact and certainly no excuse for increasing the export levy to 15 per cent.

Log production costs are approximately 50 per cent of gross export receipts leaving considerable funds for discretionary spending by government and land owners.

This ability to spend with discretion is lost with total processing although it does give added cash flow.

PNG LOGGING OPERATION
APPORTIONMENT OF EXPORT REVENUE



1987/88 PERCENTAGES

Government - Industry Relationship

Aaron Nawason,
Chairman, Forest Industries Council

It is the view of the government that the industry is -

- unresponsive to new market opportunities;
- not geared to market diversification;
- is not at all operating at optimum capability or capacity;
- generally selling below market prices;
- knowingly undermeasuring logs, downgrading logs, misidentifying species, etc. etc.
- is focussed on exporting logs;
- not serious in implementing the obligations stipulated in the timber permits and project agreements;
- in some instances attempting to dictate to the government what the forest policy should be;
- transfer pricing through intermediaries resulting in -
    - loss of foreign exchange for the country;
    - loss of income for the resource owners;
    - loss of revenues (export levies and corporate taxes) for the government.
- not attempting to sell logs above the Minimum Export Price set by the government.

Taking all that into account the draft forestry legislation allows increased export taxes to counteract transfer pricing and tough penalties to deter other forms of malpractices.

Over the years the number of timber industries have increased dramatically while the level of manpower resources has remained static. The number of timber operations in some provinces are high compared to the number of government officers who are actually involved in the monitoring of timber operations. The government has been doing all it can to monitor and guide the timber industry with the limited manpower it has.

In fact the monitoring of the timber industry has been left to the provincial forestry officers (PFO) who are responsible to the provincial governments so the Department of Forests' headquarter's requests are always given second priority by the PFOs. In fact in most provinces the functions of the Department of Forests are under the Department of Primary Industry.

The constraints experienced by the industry are -

- poor characteristics and great mixture of Papua New Guinea timber species so that buyers use this as an excuse to depress prices;
- high operational costs;
- poor quality of forest stands;

- inflexible official attitudes;
- land disputes;
- uncertainty in the continuity of log supply so that investors are cautious in pouring money towards processing;
- high internal freight rates;
- lack of import protection;
- the strong kina which makes timber exports look relatively expensive;
- grading of logs is a waste of time and effort because the buyers' specifications only refer to diameter classes, species mixture and volume of cargo.

Organisations involved in the timber industry

The land owners: The forest resources of Papua New Guinea are owned by the people and not the state as is the case in, say, Malaysia. It is the view of the government that the people must participate meaningfully in the exploitation of their forest resources and receive a fair share of the revenue earned from the sales of the forest products.

To assist the forest industry the government must clearly identify, without doubt, resource owners and devise a system to -

- involve these land owners in the exploitation of their forest resources and follow-up land use e.g. reforestation;

- make timely royalty payment and distribution to avoid undue disruption to company operations;

- involve land owners in the timber project negotiations.

The Forest Industries Association (FIA): The FIA represents the collective interest of those engaged in logging, milling, manufacturing, merchandising, exporting, utilisation and associated servicing and support industries directly or otherwise dealing with the Papua New Guinea forest resources. It has been said that the FIA membership does not represent the wide and diverse range of operators. Attempts are now being made to correct that situation.

It should be noted that the intention of the draft legislation is to make FIA an official mouthpiece of the industry. This arrangement is not proper as not all forest product operators are members of the FIA. There must be a neutral forum composed of representatives from the FIA, the government and the land owners to address all issues affecting the forest industry.

The Forest Industries Council (FIC): The Forest Industries Council was formed in 1973 to develop and promote the timber industry particularly in the overseas markets because Papua New Guinea has a large forest resource compared to the population. It is responsible to the Minister for Forests and has no statutory powers other than the right to collect levies from the industry to finance its activities and to register major forest product operators.

The Council is composed of seven members representing the FIA (one of whom represent the small producers) selected from a panel of names submitted by the FIA plus those other members who are government representatives. These are currently the Secretary for Forests, Secretary for Trade and Industry and a representative of Coopers & Lybrand which is not a government department. The chairman of the Council is elected by the members of the Council.

Officially, the FIC's general powers and functions are -

- promoting of forest industries;
- stimulating the use of Papua New Guinea major forest products;
- formulating, in conjunction with the Department of Forests, standards and grading rules;
- carrying out enquiries into any aspects of the industry, as found necessary;
- acting as industrys' lobby to government;
- direct marketing and technical assistance to industry;
- providing market and statistical information.

The promotional work of FIC cannot be truly effective in its present form because -

- There are insufficient funds made available to FIC, and consequently it cannot employ sufficient technical manpower.

- Dominance by major export markets with substantial degree of control of Papua New Guinea logging and timber operations so that no attempts are made to tap into new market outlets and to diversify product range for export.

The promotional work is at times done in conjunction with the Department of Forests and the Department of Trade and Industry if funds are made available through the Department of Trade and Industry by overseas funding agencies such as the European Economic Community (EEC).

Widening of executive functions of FIC to include marketing and greater provision for quality control will no doubt give FIC more purpose, direction and control and substantially improve assistance to the industry.

Consideration must be given to the Minister for Forests being invited to all Council meetings as this opportunity will allow the minister to participate meaningfully in the affairs of FIC and make it convenient for questions etc. relating to government policies from the timber industry to be answered on the spot or taken up at the ministerial level by the chairman.

There should be a fair representation of government and industry in the Council and making provision in the FIC Act for observers. The departments to be considered for membership are -

- Finance and Planning:
  To represent the Department on financial matters (e.g. prices).

- Environment and Conservation:
  To represent the Department on environment and conservation issues affecting the industry (e.g. rehabilitation).

- Provincial Affairs:
  To represent the Department on matters relating to decentralisation and provincial affairs (e.g. royalties).

- Works and Supply:
  To represent the views of the Department particularly in relation to usage of timber e.g. treatment of timber sizes, etc.

This will make possible industry dialogue with most relevant government departments and in due course improve relations, currently poor.

The FIC currently represents the industry in the following committees and associations -

- Standards Committee:
  FIC is a member of the Papua New Guinea Standards Council and plays an important role, especially in relation to standards on timber and timber preservation.

- Board of Governors of:

  - The Timber Industry Training College (TITC) in Lae, Morobe Province;
  - The Papua New Guinea Forestry College in Bulolo, Morobe Province.

- The South-East Asia Lumber Producers' Association (SEALPA):

  The FIC is a member and is the country secretariate of SEALPA. The SEALPA Articles of Agreement accepts only trade organisations like FIC to be members of that association.

  SEALPA has become a useful regional timber forum incorporating not only the producing member countries but also national organisation members from the consuming countries of Japan, South Korea and Taiwan. SEALPA has in recent years spread outside the South-East Asian region to include Papua New Guinea and Fiji. At the last meeting the Council allowed Solomon Islands and Vanuatu observer status at the next SEALPA meeting. This organisation is recognised as an international forum where matters pertaining to the regional and global timber industry are discussed and analysed. Important matters arising from the discussion and analysis are then translated into resolutions and recommendations which are then channelled through the respective government agencies or regionally recognised working group like the WGRAF (under the Asian Chamber of Commerce and Industry) for their actions.

  The Minimum Export Guideline Price (MEP) for Logs:
  There is a MEP Committee composed of representatives from -

  - the Department of Trade and Industry
  - the Department of Forests
  - The FIC.

The FIC represents the timber industry. The Committee meets every month to review the minimum export price in accordance with the general South-Sea Log Market Situation.

The FIC collects views from the timber industry and its market intelligence sources overseas and presents a report to the Committee for consideration before a decision is reached. FIC has good office facilities and information received is reliable.

The FIC was instrumental in pushing for the implementation of the SEALPA Log Grading Rules and for the attachment of a logging trainer at the TITC to conduct in-company training with a view to improving logging techniques and presentation of logs.

FIC also employed a professional timber grader trained to the Malaysian Timber Grading Rules to conduct short courses at TITC and do in-company grading service free of charge. These were all done to assist the industry.

<u>Bureau of Customs and Excise, Department of Finance and Planning</u>: The Bureau of Customs is solely responsible for the collection of revenue in respect of import/export/excise goods as well as application of legal provisions passed by the national parliament through various enactments.

The Customs Act Chapter 101 stipulates that the export duty on all export commodities must be paid when the goods are entered for export. In the case of log exports, the duty will be calculated on the volume stated in the export licence application and paid upon inward clearance of log vessel.

The FIC believes that the sections of the Customs Act Chapter 101 relating to export duty payment should be amended to allow log export duties to be paid upon outward clearance of vessels for these reasons.

- Papua New Guinea logs are sold by species, grade and volume. Whilst the negotiated sale volume and price are known at inward clearance, the exact species, grade and volume are not known until the last log is loaded.

- Because vessels do not tie up at a wharf but anchor in some convenient harbour (sometimes, a very poor harbour exposed to rough seas) logs must be towed in rafts, if floaters, or on barges or pontoons, if sinkers, and some losses do occur.

- Log sales are made in United States dollars whilst export duty is required in Papua New Guinea kina, and the exchange rate used is that applicable on the day of outward clearance and negotiation of the Letter of Credit (sometimes, done the following morning if clearance is in the afternoon).

- Some companies are owed thousands of kina in the form of excess log export duties by the Department of Finance and Planning and this is straining relationships.

The Department of Forests: The Department of Forests issues timber permits, monitors timber operations, check-grades logs and recommends log export licences and permits.

Relations with the industry have been strained by -

- Delay in recommending export licences to be issued by the Department of Trade and Industry. Some of the reasons for the delayed recommendation are improper grading by companies, companies failing to meet timber permit conditions and pressure from the Department of Forests on companies to negotiate for better prices, and at times in such cases there have been cases of conflict over grades between PFOs and graders from headquarters, causing confusion.

- The operations of the State Purchase Option (SPO). It is not that the industry is against SPO; rather, the operational aspects of it were never understood by the industry until FIC brought the matter up with the Department and a circular was produced to that effect and circulated to the industry. The situation is clear now.

- Delay in the payment of royalties by the Department of Forests to land owners, causing disruption to company operations.

The Department of Trade and Industry (DTI): The DTI issues log export licences under the Export (Control and Valuation) Act upon recommendation by the Department of Forests. The export licensing officer is usually under severe pressure if there is a delay in recommending the issuance of the export licence by the Department of Forests leading to strained relationships.

It is claimed that the FIC is duplicating the work of the Marketing Section of the Department of Forests; as a result the draft legislation it proposes that FIC functions be absorbed by the Forest Industry Office (FIO) within the Department of Forests. Obviously there is not much truth in the claims and to prove that one has only to refer to FIC functions mentioned earlier.

In fact the FIC marketing and promotion function is a service done for the timber industry because they do not have the time to do it themselves. The Marketing Section of the Department of Forests should of course work closely with the FIC but should concentrate on monitoring and checking such things as export prices of forest products, trade agreements between our trading partners, market studies into minor forest products, etc. etc.

Conclusion

To improve and strengthen the relationship between the Papua New Guinea timber industry, the government and the land owners, the FIC Act needs to be reviewed and FIC levy and level of manpower be increased for FIC to be more responsive and contribute effectively and meaningfully towards the development of our forest resources.

Sustainable Yield

A comment from UNDP/FAO Project Team

Sustainable yield is a concept of an ideal situation and there may be a variety of approaches and options to achieve this goal. It is an objective of development plans, forest management plans, practices and research. Two essential questions concerning the sustainable yield are -

- How is the yield determined and with what precision of estimate; and
- How is it sustained?

As a first step it is necessary to obtain a rough idea of the potential volume available by conducting forest inventories and adequately designed inventories will allow reliable minimum estimates to be made. Preliminary estimates of the productive area of loggable forest in Papua New Guinea have already been made, part of this area has been inventoried and timber right purchase agreements made with the owners. The following actions are now being taken to -

- Improve the estimation of the area
- Improve the estimation of volume
- Determine the increment and silvicultural requirements to sustain this increment.

Current estimates of potentially productive area may vary in practice by as much as a 2 times factor and the increment is expected to vary from 0.25 - 2.0 cubic metres per hectare per annum. With the combined variability of these two it is essential to be cautious in harvesting the forest resource and to take whatever preliminary precautions are necessary to, at least, limit this variation within its estimated range until such time that more precise information is available.

Protection of the future resource is essential if a sustained yield of forest products is to be achieved. Results of logging investigations have already shown that critical damage is being caused at the pole stage of tree and stand development and this is the section of the stand which will be available for harvesting in the third cycle of logging, some 40 - 60 years after the first logging. The area of forest currently cleared for forest roads, skid trails and log landings can amount to over 30 per cent of the land surface and the forest, which could be reduced to less than 15 per cent and a resultant saving of trees which will be available for logging in the next and future harvests.

A supply of benefits from the forests, besides log volume, has to be maintained. Estimates of the future demand for industrial materials must be made if industries are to be developed and maintained. Plans for land development have to be formulated and since the land owners also own the forest resources their aspirations and preferences have to be taken into consideration. Political demands by central and local governments, who view the forests as a source of revenue as well as a resource base for industrial development and employment, have also to be taken into account when determining the area which will be needed for sustained yield management of the forests.

If forests are to be managed effectively there must be a cadre of well-trained foresters and loggers. Whilst logging companies can be readily established, many are inexperienced in sound logging practices and provide little or no adequate training for their employees. The forest services in Papua New Guinea have a ceiling on their establishment of professional and technical staff and budgetary constraints limit the availability of vocational staff, labour and transport. Current licensing practices do not facilitate sustained yield management and the sporadic payments of royalties to land owners certainly is not a very great incentive to them to consider forestry as a long-term business, in particular management of the natural forest. Few land owners are aware that forests can provide a sustained income and be competitive with other forms of land use.

Sustainable Development - Some International and Local Perspectives

Dr. Caroline Sargent
Director, Forestry and Land Use Programme
International Institute for Environment and Development

The International Institute for Environment and Development is a non-governmental organisation with a remit to promote development through sound environmental practice. The forestry and land use programme aims to encourage appropriate forest use through policy review and reform, scientific research, technology and information transfer and support of local non-governmental organisations.

During the past few months we have been working in Papua New Guinea on behalf of the South Pacific Appropriate Technology Foundation (SPATF) and the International Tropical Timber Organisation (ITTO). We expect to be making a contribution to the Tropical Forest Action Plan with funding from the Asian Development Bank.

In this paper I am going to talk about both the ITTO and the SPATF projects, because I think that, at very different scales, they may shed a little light on the discussion on forest policy.

The ITTO project looked at the extent to which the management of tropical moist forest (TMF - or bush as you may prefer to call it) is at present sustainable within the 18 (19 if you include Australia) timber-producing countries signatory to the International Tropical Timber Agreement (ITTA). These countries produce more than 97 per cent of the world's tropical timber exports.

Effectively we asked:

> "Over what areas is natural forest managed for the sustainable production of timber.
>
> Where such management has been undertaken successfully, what are the conditions that have made this possible?
>
> Where such management has not proved possible, or has failed, what have been the constraints that have made it impossible or difficult to apply?
>
> What action should be taken?"

The results were presented by my colleague, Dr. Duncan Poore, at the ITTO council meeting in Yokohama earlier this month. They are extremely worrying. Less than 0.02 per cent of all the TMF which is under current management is being worked in a sustainable way. There is no, or negligible, sustainable management in Papua New Guinea (and indeed in a large number of other countries).

What is meant by sustainable management? I have heard a variety of descriptions here - however the prize must be given to a concessionaire at a recent conference I attended who, in all seriousness, stated that "it is the maintenance of sufficient stocks to last until the end of the concession agreement".

We define sustainable management with an objective. The most important condition to be met for sustainable production for timber is that nothing should be done which will irreversibly reduce the potential of the forest to produce marketable timber (Poore 1988). It is, of cause, possible to manage for many different objectives : genetic conservation, for example, in which event it would probably be most appropriate to simply secure the forest. In practice it is usually best to find a compromise which will provide environmental protection, whilst promoting timber production. Unless TMF has an economic value it is very unlikely to survive. Conversely such a value can, and does, destroy it.

The Forest Minister spoke about the possibility of Papua New Guinea forests being deeded/leased to the European Economic Community (EEC) or the United Nations. We are all becoming increasingly aware that there is very great economic value (which is beginning to be quantified) in the environmental "goods and services" provided by the TMF. This is almost certainly part of the motivation behind such a move. Sustainable management can provide both timber and environmental benefits - although some disturbances will always occur, and it is essential also to preserve certain forest areas.

In its simplest form, sustainable management can mean clear-felling a forest, and then closing it and leaving it to regenerate naturally. Such a monocyclic system has been successful in the lowland Dipterocarp forests of Malaysia. However, it has been shown to be far less successful in mixed and hilly forest (Thang 1988), where it produces a wide, and often unpredictable, range of responses. The canopy which develops is usually dominated by a few fast-growing light-demanding species. To work the method successfully requires considerable local data on regeneration and germination rates, on seed viability, competition and yield.

It has the particular disadvantage of needing a minimum of about 50-70 years between harvests for most systems. It also assumes that the future market will demand these "fast-growing trees".

Environmental disturbance may be unacceptable if the system is operated at a large scale - although there are those who suggest that this merely mimics natural disasters - cyclone or fire damage for example.

A slightly more complex, although certainly more predictable system is sometimes referred to as "minimum intervention". It is polycyclic : that is not all trees are felled at the same time; trees below a determined diameter being retained carefully to provide the second harvest, and to lend an appropriate shade for growth of poles into third cycle trees.

If one takes a cycle of, say, 30 years, three harvests will be present at some stage of development prior to the first cut, and the species composition of the second harvest (dbh between about 30-50 cms at onset) can be predicted fairly accurately (Thang 1988, de Graff 1986, Wyatt-Smith 1987).

Again, in the absence of good data, it is essential to maintain monitoring plots. But the system is more flexible than a monocyclic approach and changes - reducing rotation length - for example can be made within the cycle.

The particular value of such a polycyclic method is that the time between harvests is significantly reduced, and the forest retains genetic variability and potential to accommodate future market demands. (Ten years ago no-one would have considered Octomeles a commercial species.) Further the canopy is permanently maintained, and the system is almost certainly a better compromise between logging and environmental objectives.

Polycyclic methods may lead to smaller harvests (although more frequent) but can, as can monocyclic methods, be improved by silvicultural interventions. Elaborations on these two fundamental systems account for the variety of sustainable TMF managment practices available.

Although experimental work has begun in Papua New Guinea (P. Srivastava, personal communication) and elsewhere, none of these approaches is being effectively planned and operated in more than a very minor way - particularly now that the well-documented system in Queensland is to be discontinued. There is some successful work in Peninsula Malaysia and scattered elsewhere - but the figure of less than one-eighth of one per cent stands.

During the study for the ITTO, conditions that were found to be essential for sustainable forest management (proceeding into the second or third cycle operations) were identified as follows -

- A permanent forest estate within the natural forest with a guaranteed long-term future as part of an overall land-use plan.
- Secure conditions for forest managers, government, private or community.
- Standards for annual allowable cut and harvesting methods.
- Adequate control to assure future crops.
- Economic/financial policies which do not require more than the forest can yield sustainably.
- Environmental policies.
- Enough information for effective operation of all of the above.
  (after Poore 1988).

Clearly some of these conditions cannot be met in Papua New Guinea at present. In particular, there is no adequate estate, except in the hands of the land owners. Comparably the main group with secure conditions for forest management are land owners.

IIED has therefore been working with SPATF on a programme to provide sustainable management techniques to village/landowner sawmill operating groups.

A workshop was held in Lae between November 21-25 for people involved with all aspects of villager sawmilling. This provided a follow up to a technical report on environmental and socio-economic impacts of such operations (Sargent and Burgess 1988). The workshop, much of which was held in the forest, introduced a simplified minimum intervention technique, based on a rotation cycle of 25-30 years.

The landowners: demarcate the area to be managed (a minimum of 25-30 hectares is recommended; enumerate trees above 15 cms dbh by species and diameter class producing a simple stock map; divide the area into 25-30 blocks for annual harvesting; and mark the first cycle cut for directional felling, and the second cycle cut for protection. At all times the importance of caring for the next (second) cycle crop was stressed.

Workshop members appreciated the value of the technique very readily, and found no technical difficulty with the method (a training manual is being prepared). Of particular interest were the discussions on socio-economic benefit, and on what approach would make the permanent setting aside of an area of land acceptable to the community.

It is stressed that this is a technique which is being made available to villagers for their own development - although there are clearly very valuable environmental spin-offs - for example, the protection of an area of land from slash and burn.

Because it is "their" development it is likely that the land owners/villagers will develop their own approach to coordinating village interests. We have, however, briefly examined the economics of such an approach. In Table 1, data kindly made available by the Department of Agriculture and Livestock is compared with data on "Wokabout Somils" from village equipment suppliers.

The "sustainable forest" budget deducts capital and operating costs (based on a two-year life for the wokabout somil), together with a conversion factor of about 55 per cent.

The environmental benefits are not calculated, but at the end of 25 years there is still a complete forest cover. The future of cocoa and copra is less predictable.

I am not alone in feeling certain that such village activities will continue to expand and develop at an increasing rate. At the beginning of 1988 there were fewer than 200 small-scale sawmills in operation. By the end, there will be 300.

It is hoped that land owner education of the kind that is beginning will contribute to safeguarding the forests as well as to development. With one or two sawmills in an area there is little impact, with many the forests could become depleted fast. Legislation may become necessary - although this would be cumbersome and difficult to enforce.

Rather, there is considerable potential for development of forestry - department extension work. The needs of the land owner in this and the wider context should be addressed and more attention paid to them in the forthcoming legislation and policy.

It might also be wise to define what is meant by sustainable management for timber production more closely in these documents. At present there is a very wide general interpretation of the phrase which could divert attention from its scientific meaning, and could be used as a veil to cover less than appropriate practices toward renewing the forest resource.

Table 1
Comparative analysis land useage (Based on utilising 25 hectare block/1987 prices)

Year----------->	1	2	3	4	5	6	7	8	9	10	15	20	25	Total/Ha	Total/25Ha	Return/Labour
COFFEE																
Income	0	0	296	550	841	1145	1357	1403	1414	1320	1443	1443	1443			
Costs	741	91	201	278	356	433	443	443	443	443	443	443	443			
Nett Income	-741	-91	95	272	485	712	914	960	971	877	1000	1000	1000	19291	482275	
Man-Days	305	95	143	141	175	213	234	234	234	234	234	234	234	5518	137950	3.50 /Man-day
COPRA																
Income	0	0	0	0	39	182	384	536	564	550	478	478	478			
Costs	181	101	86	139	140	116	121	124	124	124	124	124	124			
Nett Income	-181	-101	-86	-139	-101	66	263	412	440	426	354	354	354	6457	161425	
Man-Days	102	50	39	39	48	47	50	64	67	67	67	67	67	1578	39450	4.09 /Man-day
COCOA																
Income	0	0	310	491	697	921	919	748	816	854	659	395				
Costs	246	54	81	151	211	95	95	91	91	91	86	81				
Nett Income	-246	-54	229	340	486	826	824	657	725	763	573	314		10220	255500	
Man-Days	180	101	66	41	43	48	48	43	43	43	39	35		1046	26150	9.77 /Man-day
COCOA/COPRA																
Income	0	0	0	202	538	699	1032	1106	850	862	780	544				
Costs	143	236	148	192	256	126	136	137	131	131	129	124				
Nett Income	-143	-236	-148	10	282	573	896	969	719	731	651	420		9506	237650	
Man-Days														1360	34000	6.99 /Man-day
SUS.FORESTRY [25Ha Rotational Harvesting 1Ha pa]																
Income	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500			
Costs	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500			
Nett Income	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000		150000	
Man-Days	60	60	60	60	60	60	60	60	60	60	60	60	60		1500	100.00 /Man-day
CLEAR CUT [25Ha in 1 felling]																
Income	10000													10000		
Costs	2500													2500		
Nett Income	7500													7500	187500	
Man-Days	100													100	2500	75.00 /Man-day

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Land Usage - A Question of Ownership and Economic Decision Making or Guesswork?

David F. Freyne,
Director, Export Crops Investment Branch
and
Balthazar M. Wayi,
Chief Land Utilisation Officer
Department of Agriculture and Livestock

"Traditional society in Papua New Guinea, and indeed in the whole of Melanesia and Micronesia, is a complex evolving organism. Nowhere is the complexity more apparent than in the fields of land tenure and land usage rights. Land tenure and disputes relating to land usage have through their effects on agricultural development, emerged as major problems facing Papua New Guinea." (Aland 1977)

Introduction

Papua New Guinea decision-makers have available to them an ever-increasing store of information on the status of land ownership and a more rapidly increasing deluge of papers from consultants and advisers on how to resolve perceived "problems" with ownership. Regrettably, however, the country lacks a clear policy and set of guidelines as to how we should operate within the current situation so as to ensure continued development. This paper proposes a close working relationship between the Department of Agriculture and Livestock, the Department of Forests and the timber extraction industry as a vehicle by which both agriculture and forestry can both move forward on a better-planned pathway.

Land tenure

Bankers, other lending institutions and investors generally, require clear title to a piece of land before committing their money to long-term developments. A brief review of the current status of land ownership follows.

Customary ownership. Aland (1977) gives a factual description of the overall situation with regard to land ownership and the administration's/government's involvement in land alienation and registration. More detailed studies of selected smallholder areas have been reported by several workers, the most notable being the study by Brookfield and Brown (1963) in the Chimbu province. This study gives an insight into the complex system of "land titles" and the transfer of land between groups through gifts, intertribal warfare and a host of other dealings. The reader is referred to these papers for further information.

Problems of land ownership and availability for development have been recognised for many years. The Australian Administration commissioned S. Rowton Simpson (1969) to report on the Land Titles Commission's functions and procedures for land registration and subsequently largely ignored his recommendations. Sack et al (1974) discussed most of the existing and anticipated problems concerning land tenure and concluded that these "are primarily problems of political choice". More recently as part of the Administration Improvement Programme the Public Services Commission employed the services of a consortium of consultants led by Coopers and Lybrand Associates (1982) to undertake a "Lands Administration and Urban Co-ordination Study". The findings and recommendations of the group are still being examined.

The conclusion of Aland (1977) that "the resolution of these problems lie with the National Parliament" is still true today.

State owned land. The Australian Administration in its general approach to land policy adopted the view that land "belonged to the people". However, areas of land which were sparsely populated and generally not used for gardening were described as "no-mans" land and appropriated as government land. Regrettably adequate demarcation of the boundaries of many of these waste and vacant declarations was not undertaken and has since given rise to many disputes. In addition to these waste and vacant declarations other land required for government purposes or for development was purchased from clan groups or individuals. Table 1 gives an approximation of the extent of land alienation on a provincial basis. The accuracy of these figures is questionable and the sad facts are that the Department of Lands cannot provide more accurate statistics. Customarily-owned land registered under the Land Tenure Conversion Scheme is not included here.

Leased land. Of the approximately 1.3 million hectares of land alienated some 547,212 hectares are leased for agricultural or pastoral purposes. Table 2 gives a breakdown of these by province and by size.

By far the greatest proportion of leases are in the 5-20 hectare category these being on Land Settlement Schemes with West New Britain having over half. Allowing for absenteeism and a percentage of block-holders who have not achieved full development, we can assume that the leases in this category have achieved the greatest degree of development. On the other hand there is no data available as to the proportion of leases in the 5 and 20 hectare categories which have been developed and what level of development has been achieved. There is an urgent need to assess and document the status of these leases.

Table 1
Area of alienated land by province

PROVINCE	AREA (Ha.)	ALIENATED LAND (Ha.)	ALIENATED LAND (%)
Central	3,020,000	408,533	13.53
Gulf	3,508,700	25,100	0.72
Milne Bay	1,450,000	94,365	6.51
Northern	2,220,000	112,303	5.09
Southern Highlands	2,190,000	7,661	0.35
Western	10,800,000	19,735	0.18
Bougainville	956,000	40,972	4.29
Chimbu	656,000	2,061	0.31
Eastern Highlands	1,114.000	16,602	1.49
Madang	2,894,000	48,315	1.67
Manus	212,000	11,842	5.58
Morobe	3,490,000	106,916	3.06
New Britain, East	1,498,000	125,735	8.39
New Britain, West	2,045,000	136,477	6.67
New Ireland	980,000	54,102	5.52
Sepik East	4,426,000	38,841	0.88
Sepik West	3,730,000	8,993	0.24
Western Highlands	2,426,000	64,320	2.65
TOTAL	47,615,700	1,322,829	2.78

(after Aland (1977). Note Western Highlands includes Enga Province).

Table 2
Agricultural and pastoral lease statistics as of 3 October 1984

Province	AGRICULTURAL LEASES								PASTORAL LEASES							
	0 - 5 ha		5 - 20 ha		20 ha +		Total		0 - 5 ha		5 - 20 ha		20 ha +		Total	
	No of Leases	Total Area (ha)	No of Leases	Total Area (ha)	No of Lease	Total Area (ha)	No of Leases	Total Area (ha)	No of Leases	Total Area (ha)	No of Leases	Total Area (ha)	No of Leases	Total Area (ha)	No of Leases	Total Area (ha)
Western	0	0.0	1	10.1	7	788.9	8	799.0	0	0.0	0	0.0	0	0.0	0	0.0
Gulf	6	8.3	45	543.5	33	3951.2	84	4503.7	1	0.4	0	0.0	0	0.0	1	0.4
Central	80	47.7	588	6333.6	212	48446.6	880	54828.0	0	0.0	0	0.0	8	7108.7	8	7108.7
Milne Bay	26	57.5	60	697.3	119	16738.5	205	17493.4	0	0.0	1	19.6	4	176.4	5	196.1
Northern	72	17.6	839	7099.8	55	14597.2	966	21714.7	0	0.0	0	0.0	0	0.0	0	0.0
Southern Highlands	9	0.0	8	111.4	19	4612.9	36	4724.4	0	0.0	0	0.0	0	0.0	0	0.0
Western Highlands	493	1638.6	61	553.1	98	15148.8	652	17340.6	2	0.1	0	0.0	1	8190.0	3	8190.1
Chimbu	1	3.2	4	38.7	6	513.1	11	555.0	0	0.0	0	0.0	0	0.0	0	0.0
Eastern Highlands	29	17.3	21	229.5	110	17175.3	160	17422.1	0	0.0	0	0.0	0	0.0	0	0.0
Morobe	62	92.2	164	1896.4	100	18191.9	326	20180.6	8	0.0	0	0.0	6	9411.2	14	9411.2
Madang	63	156.3	27	284.3	62	12231.7	152	12672.4	5	0.0	0	0.0	1	3151.6	6	3151.6
East Sepik	5	10.3	127	1656.7	43	4628.7	175	6295.8	0	0.0	0	0.0	1	696.0	1	696.0
West Sepik	10	8.3	70	781.1	2	101.0	82	890.5	0	0.0	0	0.0	0	0.0	0	0.0
Manus	13	28.8	157	1671.6	9	942.3	179	2642.8	0	0.0	0	0.0	0	0.0	0	0.0
New Ireland	67	70.5	26	278.1	144	17366.4	237	17715.1	0	0.0	0	0.0	0	0.0	0	0.0
West New Britain	43	24.9	2773	21148.5	46	12307.4	2862	33480.9	0	0.0	1	7.6	0	0.0	1	7.6
East New Britain	71	17.9	423	4256.1	110	14912.3	604	19186.4	0	0.0	0	0.0	0	0.0	0	0.0
Bougainville	8	7.1	31	341.8	54	5350.1	93	5699.1	0	0.0	0	0.0	0	0.0	0	0.0
Enga	4	9.2	6	65.0	11	484.1	21	558.4	0	0.0	0	0.0	0	0.0	0	0.0
National Capital	5	1.8	9	98.8	5	390.7	19	491.4	0	0.0	0	0.0	2	59.6	2	59.6
National Totals	1067	2218.7	5440	48096.3	1245	208880.2	7752	259195.2	16	0.5	2	27.3	23	28793.7	41	28821.7

Furthermore, in view of the problems associated with acquiring customary-owned land for development, government should give attention to the 0.8 million hectares currently alienated but not leased. At the outset the development potential of this land has to be assessed; plans to undertake this work have already been formulated and funding approved in 1984. However, due to problems associated with recruitment no progress has been made to date.

Land resource assessment

General. Land evaluation is defined as estimating the potential or assessing the performance of land when used for a specific purpose. This involves the execution and subsequent interpretation of basic natural resource surveys which should include climate, soils, topography and vegetation and their inter-relationships. Such fundamental information in association with economic and social considerations must constitute the basis of sensible area, regional or national development planning.

Table 3 sets out the various phases in development planning and the scale of surveying required at each stage. It is a well-known fact that many developments are allowed to proceed without sufficient attention having been paid to an economic analysis of the various alternative uses possible. This economic evaluation should be a basic prerequisite of national planners before land leases are granted.

Table 3
The place of land evaluation in an idealised sequence of development planning (after Young 1976)

Purpose of survey	Phase
Resource inventory/ project location	1. Resource surveys, reconnaissance scale; including soil-landform or land system map. 2. Land evaluation : qualitative suitability for major kinds of land use. 3. Preparation of regional plan; identification of possible projects
Feasibility survey of possible project(s)	1. Resource surveys, semi-detailed scale; including soil map. 2. Land evaluation: (i) quantitative physical suitability for land utilisation types; (ii) economic analysis. 3. Selection of project; funding and decision to proceed.
Development survey of project	1. Resource surveys, detailed scale, or supplementary to those of feasibility survey. 2. Land evaluation : suitability for defined land utilisation types in economic terms. 3. Preparation of project plan.

Existing land resource information

CSIRO 1:1,000,000 map. Bleeker (1975) extrapolated the results of fourteen regional reconnaissance surveys by CSIRO across the remainder of the country to produce a map at the scale of 1:1,000,000 entitled "Land Limitation and Agricultural Land Use Potential Map of Papua New Guinea". This map is still the best complete coverage of the whole country available and if properly interpreted is reasonably accurate. For example, an examination of the map shows that large areas of the highlands are rated as having "nil potential for agriculture", areas which we know are producing large amounts of coffee. This does not mean that the map is inaccurate but that at that scale mountain valleys surrounded by steep slopes could not be mapped out individually since the smallest size of a mapping unit on a map at 1:1,000,000 is approximately $4 mm^2$, which means that areas of less than 1,600 hectares cannot be shown.

A summary of the potential of the country is given in Table 4.

Papua New Guinea Resource Information System (PNGRIS). The Papua New Guinea Resource Information System (PNGRIS) is a microcomputer-based implementation of a geographic information system (GIS) for rural land use planning. Operating at both national and provincial levels, PNGRIS has been designed to be of use in a wide range of planning activities. Two major applications of such a spatially-oriented system are -

- identification of areas of country which, given certain criteria, would be suitable for particular types of rural development, and
- given a specific area, determination of the most suitable type/s of land use for that area.

PNGRIS contains detailed information on the natural resources, population distribution, rural land use, smallholder economic activity and land use potential of approximately 5,000 "resource mapping units" which cover the entire land area of Papua New Guinea (Table 5). Mapping has been undertaken at a scale of 1:500,000 on a provincial basis. The system has been established on IBM-compatible microcomputers using the Knowledgeman Data Base Management System and is user-friendly and interactive. Specific queries can be formulated and entered directly via a menu-drive interface. Reports can be produced in various standard formats and a facility is also being developed to display the results of user interrogations in map form to aid in visual interpretation.

PNGRIS is particularly useful in that it combines land type with population density and intensity of current land use (Table 6) thereby enabling planners to focus on areas currently under-utilised. Regrettably no information on natural forest exploitation potential has been included in PNGRIS. However, it is planned to correct this omission in the near future.

Table 4
Agriculture potential of Papua New Guinea by cropping types

Crop type and Area / Capability	Arable	Tree	Pasture (improved)	Irrigated Rice
Very high	4 956	7 796	14 710	11 894
High	16 924	7 668	15 000	26 092
High - Moderate	4 974	1 936	68	3 152
Moderate	17 418	75 362	71 942	14 162
Low	55 334	5 446	6 334	10 122
Low - very low	5 280	1 344	4 272	7 236
Very low	3 676	85 210	127 334	61 434
Very low -- Nil	3 508	37 412	4 852	-
Nil	351 532	240 924	219 086	329 506
Total	463 598	463 598	463 598	463 598

- B79 -

Table 5
Resource Mapping Unit (RMU) description

27. 1

PROVINCE 2 Gulf		RMU No. 27	LAT.	7 deg 31 min S
DISTRICT 1 Kikori			LONG.	144 deg 37 min E
			AREA	432 sq km

NATURAL RESOURCES

LANDFORM Mangrove swamps

ROCK TYPE Estuarine deposits

SLOPE <2 degrees
ALTITUDE 0-600 m
MAX TEMP 32-30 degC
RELIEF Negligible <10 m
MIN TEMP 23-19 degC

RAINFALL
Annual 5000-7000 mm
Seas'lty All months >200 mm
Deficit Rare, minimal deficit, large water surplus

INUNDATION Tidal flooding
Extent >80%

SOIL Hydraquents
Permanently saturated, undifferentiated soils which are soft underfoot and mainly fine textured

Sulfaquents
Permanently saturated, undifferentiated soils which become strongly acidified upon aeration

Tropohemists
Swampy, half decomposed, organic soils often with interbedded mineral layers

VEGETATION Mangrove

POSSIBLE CONSTRAINTS
Inundated area
High rainfall
Strongly saline waterlogged soil

SOILS

SOIL 1 Hydraquents

STONINESS	Not stony/rocky (<1%)		
DEPTH	Deep (>1m)		
DRAINAGE	Water-logged (swampy)		
REACTION	Strongly alkaline	AVAIL WATER CAPACITY	
SALINITY	Moderate to strong	0-25 cm	Low
CATION EXCH	High (>25 meq%)	0-50 cm	Moderate
BASE SAT'N	High (>60%)	0-100 cm	High
% NITROGEN	Moderate (0.2-0.5%)	MIN RESERVE	High
AVAIL P	High (>20 ppm)	TEXTURE TOP	Very fine
EXCH K	High (>0.6 meq%)	TEXTURE SUB	Very fine
ERODIBILITY	Moderate	ANION FIX'N	No problem

SOIL 2 Sulfaquents

STONINESS	Not stony/rocky (<1%)		
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SOIL 3 Tropohemists

STONINESS	Not stony/rocky (<1%)		
DEPTH	Deep (>1m)		
DRAINAGE	Water-logged (swampy)		
REACTION	Alkaline	AVAIL WATER CAPACITY	
SALINITY	Moderate to strong	0-25 cm	Low
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BASE SAT'N	Low (<20%)	0-100 cm	Very high
% NITROGEN	High (>0.5%)	MIN RESERVE	High
AVAIL P	Moderate (10-20 ppm)	TEXTURE TOP	Peats
EXCH K	High (>0.6 meq%)	TEXTURE SUB	Peats
ERODIBILITY	Very low	ANION FIX'N	High

LAND USE

'USED' AREA 1 sq km = 0% of total area

POPULATION DENSITY
Total Population 1995
Density on Total Area 5 persons/sq km
Density on 'Used' Area 1995 persons/sq km

LAND USE INTENSITY sq km
Very low 1

REGROWTH
Mixture of tall and short woody 1

NON-SUBSISTENCE USE

SMALLHOLDER ECONOMIC ACTIVITY
Total Households 436 Total Villages 12

Activity	Households No	%Total	Activity	Households No	%Total
coffee	3	1	spices	5	1
tea	0	0	foodcrops	86	20
cocoa	0	0	fish	184	42
rubber	4	1	cattle	0	0
c'nut/copra	44	10	pigs	146	33

RURAL POPULATION AND VILLAGES

		Males	Females	Total
Total Population		1035	960	1995
Dist 1 KIKORI	Divsn 7 GOPE			
2 GIPI MEAGOMA		245	224	469
3 HOMOBAVI		77	78	155
4 BURI		55	45	100
6 TOVEI		68	65	133
7 MINOGOIRAVI		106	85	191
10 UBOU		117	91	208
Dist 1 KIKORI	Divsn 8 URAMA			
1 AIBIGAI		48	52	100
5 KINOMERE		71	81	152
6 KIVAUMAI 1		64	56	120
7 KIVAUMAI 2		87	88	175
8 LARIMIA		73	62	135
12 OMAUMERE		24	33	57

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EXCH K	High (>0.6 meq%)	TEXTURE SUB	Peats
ERODIBILITY	Very low	ANION FIX'N	High

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'USED' AREA 1 sq km = 0% of total area

POPULATION DENSITY

Total Population	1995
Density on Total Area	5 persons/sq km
Density on 'Used' Area	1995 persons/sq km

LAND USE INTENSITY	sq km
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REGROWTH	
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SMALLHOLDER ECONOMIC ACTIVITY
Total Households 436 Total Villages 12

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12 OMAUMERE	24	33	57

Table 6
Intensity of land use by environmental type

ENVIRONMENT TYPE	POP	AREA	LAND USE INTENSITY										
			LU0	LU1	LU2	LU3	LU4	LU5	LU6	G	S	W	UNUSED
Mangrove Swamps	28531	5698	3	0	1	12	120	85	4	4	10	4	5456
Estuaries & Coastal Plains	18885	2444	26	0	0	29	157	100	49	3	80	20	1980
Beach Ridges & Plains	41907	1891	66	0	0	13	346	279	45	71	20	7	1044
Raised Coral Reefs	162033	7570	619	0	28	514	1619	1412	1252	298	5	0	1823
Recent Alluvial Plains	108273	20982	454	98	309	313	1339	2678	1407	502	997	11	12874
Relict Alluvial Plains	22914	59814	42	0	0	135	653	1671	2137	315	0	660	54165
Alluvial Flood Plains	74996	27445	60	0	3	7	1042	1456	524	148	1752	44	22409
Swamps	48972	35248	34	0	0	26	211	1323	386	317	4476	79	28096
Alluvial Fans	216658	15956	358	304	591	508	1300	1449	1585	3765	350	86	5660
Karst	68116	25463	4	4	283	696	981	958	1278	102	0	0	21157
Hills & Ranges	1229897	219345	357	1236	3835	10191	22389	17003	15920	5292	136	1550	141436
Volcanic Plains & Fans	329280	25331	731	69	1163	2476	3150	2187	1456	459	61	0	13579
Volcanic Steeplands	47878	11403	127	0	24	371	808	383	597	435	2	68	8588

Reconnaissance surveys. During the period 1952 to 1973 CSIRO, Division of Land Use Research carried out fourteen regional surveys. The locations of these areas are shown in Figure 1. The scale of mapping employed for these reports varied from 1:500,000 to 1:250,000 whilst the primary mapping unit is the land system, defined as "an area with recurring pattern of topography, soils and vegetation" (Christian and Stewart 1953).

Figure 1
Reconnaissance surveys carried out by CSIRO
1952-1973

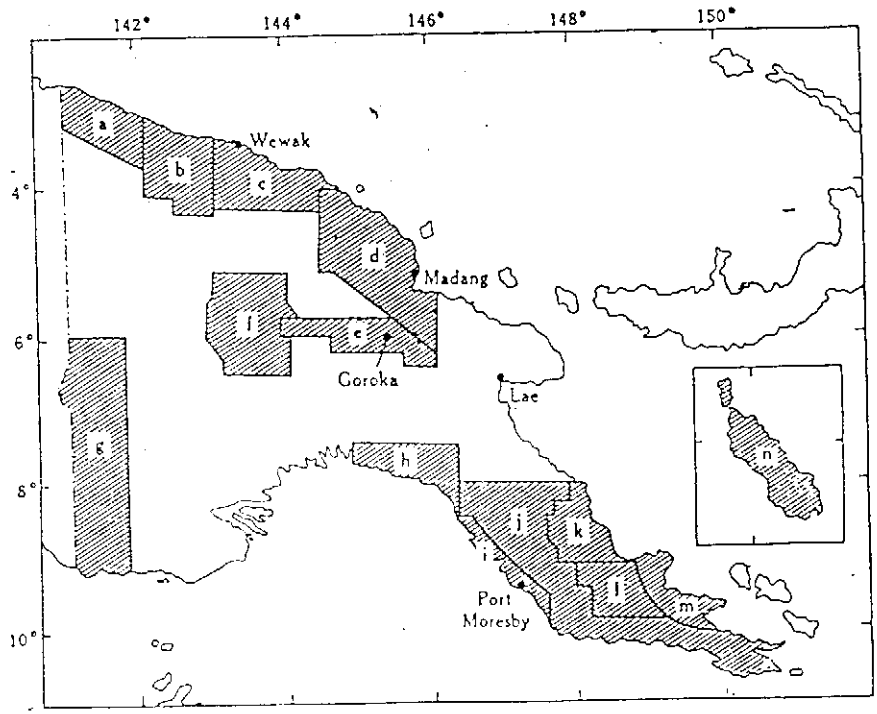


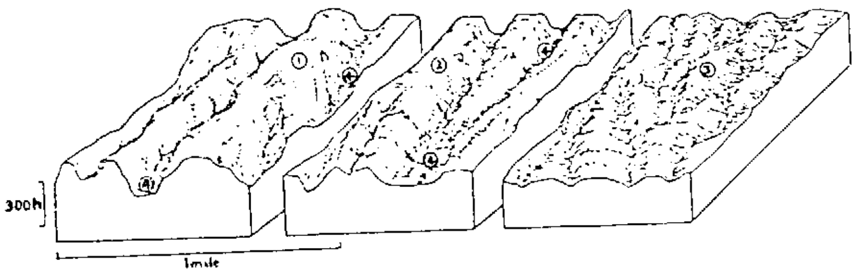
Figure 1 - Areas covered by surveys of Division of Land Use Research, CSIRO, a, Vanimo; b, Aitape-Ambunti; c, Wewak-Lower Sepik; d, Ramu-Madang; e, Goroka-Mount Hagen; f. Wabag-Tari; g, Morehead-Kiunga; h, Kerema-Vailala; i, Port Moresby-Kairuku; j. Eastern Papua; k. Buna-Kokoda; l, Safia-Pongani; m, Wanigela-Cape Vogel; n, Bougainville and Buka Islands.

Interpretation of these land systems maps also requires care. An example of the type of information in the description of each one is given in Figure 2. Generally, each mapping unit is a composite of several land form types, each with several soil types. Converting this type of data into land capability classes requires expertise and experience.

Figure 2
An example of a land system description

(18) Teiga Land System (140 sq. miles)

Rolling to low hilly volcanic ash plains.
Geology. – Pleistocene andesitic volcanic ash, locally underlain by agglomerate and lava.
Physical Features. – Undulating ash plain, largely transformed into low rounded hills by moderate to intensive stream dissection; common slumps on hill slopes; dense, dendritic drainage pattern of narrowly incised streams; relief up to 300 ft; altitude 5000–8500 ft.
Population and Land Use. – 26,300 people using 110 sq miles; 21 per cent intensively, 65 per cent moderately, 14 per cent lightly.



Unit	Area (sq miles)	Land Forms	Soils and Drainage Status	Vegetation	Land Class
1	63	Slumped hills: 100–300 ft high; irregular slumped slopes, 10–25°; rounded crests	Humic brown clay soils (Ogelbeng, locally Daulo on foot slopes). Well drained; small imperfectly drained depressions	Sword grass and shrub regrowth; gardens and garden regrowth; small areas of remnant forest (oak)	VIe; minor II–IIIe; IId
2	42	Dissected slopes: long, undulating, 3–10°; closely spaced steep dissection slopes, 20–35°	Humic brown clay soils (Ogelbeng, Daulo); alpine humus soils (Tomba, Pompameiri) at higher altitude. Well drained	Sword grass and shrub regrowth; areas of mixed lower montane forest at higher altitude, with much *Papuacedrus* in extreme west	II–IIIe; VI–VIIe
3	28	Low hills: 50–150 ft high; mostly smooth convex slopes, 10–30°; rounded crests	Humic brown clay soils (Ogelbeng); locally brown and red latosols (Singa, Bidnimin). Well drained	*Capillipedium* grassland, sword grass, and shrub regrowth; stream-bank vegetation; locally gardens and garden regrowth	VIe; less IIIe
4	7	Valley floors and terraces: up to 100 yd wide; including colluvial basins, up to 500 yd wide	Dark colluvial soils (deep); some humic brown clay soils (Daulo) and lateritic and gleyed latosols (Minj). Imperfectly drained	Gardens and garden regrowth; sword grass and shrub regrowth; stream-bank vegetation	IId; minor IVso,

Semi-detailed and detailed studies. The Land Utilisation Section of the Department of Agriculture and Livestock is responsible for undertaking semi-detailed and detailed surveys of well-defined smaller areas prior to project planning. The CSIRO reports were used when available to demarcate these areas thought to have potential prior to these intensive studies. To date, in the 30 plus years of the section's existence, some 510 such detailed surveys have been carried out with mapping scales varying from 1:50,000 to 1:10,000. Systems of soil and land capability classification have been refined over the years and are continuously being updated as the soil requirements and management of the range of crops grown in the country are better understood.

A list of the more detailed and comprehensive studies carried out by the Land Utilisation Section in addition to miscellaneous papers on selected topics is available from the Department of Agriculture and Livestock.

Development planning – forestry and agriculture

It is clear that a vast amount of information is already available, both in terms of ownership and potential, but the means by which this data might best be used is not so well defined. Consequently, too often we find government departments in conflict as to the most economic use of land when one or other party, or both, have not undertaken the basic analysis required for national decision-making.

In contrast to the extractive industries (such as mining) both agriculture and forestry are sustainable uses for land, provided of course sensible management practices are adopted. Therefore, it is essential that prior to any investment taking place all options should be evaluated both on technical and economic grounds.

Before the issuing of logging permits by government, detailed plans for follow-on land use should be formulated and approved and funding committed for the agreed plan. This will enable the locating of roads and associated infrastructure required during logging to also take account of subsequent development.

Similarly, where major agriculture developments such as nucleus estates and settlements schemes, are being planned the extraction of timber prior to planting of crops should be co-ordinated and planned. Here-to-fore, agriculturalists tended to consider clearing of the existing timber stand as a problem rather than as a potential source of revenue. Concurrently, timber royalties could be channeled by the traditional land owners as equity in development and thereby probably reduce or alleviate problems with resource ownership.

It is envisaged that the Land Mobilisation Project, currently being implemented by the Department of Lands, will go a long way towards institutionalising procedures whereby land for development in the agriculture and forestry industries will be more readily available and will establish procedures for direct involvement of the traditional owners. To this end a Land Use Development Committee has been established comprising secretaries of the major departments involved in development to streamline decisions as to the most appropriate use of the country's land resources. This committee is envisaged as a working group, supported by suitable technical back-up from within the various departments, with power to reach decisions on a wide range of issues concerned with land use planning.

Conclusions

We believe that for the long-term future of rural development in Papua New Guinea a more co-ordinated and positive approach to agriculture and forestry planning must be adopted as a matter of urgency.

Therefore, it is imperative that the Land Use Development Committee functions as an active planning group basing its decisions on the wealth of existing knowledge of the country's resource potential and not on political or sectional favouritism. In any case the least desirable outcome would be yet another committee to add to an already bureaucratic jungle.

Finally, any revised forestry legislation must take into account sustained economic use of land and recognise the compatibility of joint agricultural or forestry ventures.

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Some Technical Forestry Problems Related to Legislation

G. S. Vatasan,
Department of Forestry,
Papua New Guinea University of Technology

Introduction

Forestry, meaning the conscious activity of looking after the forest with the aim of getting products or other benefits from it, in the past was, and still is governed by complex and often draconian legislation. This is so because it was early recognised that forests, more than any other environment, invite abuse and destruction by giving at first sight a feeling of dominance over humans and that they stretch to the end of the world. From the dawn of its culture, man has managed to reduce the extent of forests, be it for defense or to improve hunting, later to gain agricultural or pastoral land and timber.

It is interesting to note that the European colonists have not brought with them the strict laws protecting the forest in their homeland to the new countries they occupied. If anything, they reverted rapidly to the early stages of civilisation, of clearing as much forest and as quickly as possible. Few, if any, former colonies have overcome this handicap. However, there is no doubt in the author's mind that forestry, preserving and using rationally the country's forests, requires well-thought and technically sound legislation, able to cope with the complex issues involved in the administration of a very extensive asset.

This statement should not be seen as criticism of achievements, but rather as a warning that the issues are complex and that there is a need to consult as large a field of people with interests and expertise in forestry as possible. Hence the author considers this seminar most welcome.

The observations presented in this paper refer to the administration and management of the country's forests as a renewable resource for multiple use and with allowances for the development needs.

Spatial organisation of forests in Papua New Guinea

The implementation of a forest management plan requires a spatial framework, the forest area of the country, province, district, etc. being subdivided in smaller and smaller units, so that at the bottom of the scale are units managed by one person, ranger, guard, whatever the designation. On government-owned forests the pyramid should be complete from top to bottom. On privately-owned land the lower level in the hierarchy could be left in charge of the owners and their representatives. This structure is generally the rule in countries with forestry tradition. It is unfortunately not so in Papua New Guinea, where the forest is a quilted pattern of identified timber rights purchases, timber areas and local forest areas, dispersed in an amorphous expanse of land, vaguely defined by clan ownership. At present it does not seem possible to organise a hierarchical subdivision of the forests in Papua New Guinea which the author considers essential for rational management. It is possible though, to make a start and expand a system of organised subdivision of forests in management units with the help of forest inventories. The author has made such a proposal in a discussion paper submitted to the Department of Forests (Vatasan 1987).

The following structure is proposed for the forests in Papua New Guinea -

- **Block.** Up to 3,000 hectares in area, the smallest unit on which planning is based, to be opened up and logged over in a single, uninterrupted operation. Limited by natural boundaries and within one clan ownership.

- **Unit.** Composed of a number of blocks, included in a natural timber catchment, to be considered as a single negotiable timber rights purchase, timber permit or local forest area. Each "unit" would have its individual working/management plan.

- **Conservancy.** The group of forests in a province or district which could be administered and monitored together, with common access and geographical location.

The main component of the system proposed would be the (Forest) **Block,** a well-defined unit both spatially and administratively, concentrating the efforts of monitoring, reforestation or follow-up operations on a concrete, humanly-sized unit.

Such a block can be logged over in a few months, the amount of logs coming out of it can be monitored, and that amount can then be correlated with the estimated volume at the time of the inventory. More important though, a person can be in charge of it, a supervisor can be put in charge over a number of blocks and so on. In this way an effective pyramidal structure can be built up to provincial or national headquarters.

At the same time, extension work on forest management could start with the land owners, identifying areas to be retained as forest and encouraging them to implement sustained yield forestry.

Logging companies can be asked to follow the division in blocks in the preparation of their working plans and in their implementation. And surely it will be easier to help the land owners and the companies to manage the logged-over forest following plans based on the same blocks. The environmental impact of logging and subsequent land use could also be assessed and monitored more effectively on smaller, better defined areas. In time, most of the forests or Papua New Guinea could be included in such a scheme.

Once the concept of spatial organisation of the forest land is accepted and legislated for, one relatively easy way to start implementing it under the realities of Papua New Guinea would be through the resource inventories undertaken by the Department of Forests.

The idea is to reorganize the way in which resource inventories are undertaken; from covering 30 to 40 thousand hectares in one go, to cover "blocks" of no more than 3 to 4,000 hectares each, exceptionally 10,000 hectares. The initial resource inventory becomes the tool defining a manageable area of forest. This area can subsequently be made the responsibility of a particular person, and that person can be made answerable for the activities in the block. The huge areas covered at present by inventories have the effect of reinforcing the feeling that forests in Papua New Guinea are infinite and there is no need to care for them.

There is a major incentive to use the resource inventories as the initiator of subdividing the forest in smaller management units. By considering a "block" the area covered by a base-line and its strip-lines, a "structure" is created within the block, a kind of backbone. The block boundaries can be defined at the same time as the base-line and the strip-lines, as much as possible following natural ground features (ridges, streams). Even if the boundaries are not reached by the strip-lines, the block is defined and can be identified at any time in the future, during the logging operations and even later.

The same "hierarchical" division of forests will fit very well in the "Papua New Guinea Resource Inventory Scheme" devised by CSIRO and will provide at any time an overview of the forest resources, potential, etc. in the country.

There is no difficulty in combining the results of a number of block inventories to provide an assessment for a larger area, without losing sight of the fact that it is made up of these blocks.

Based on many years experience in forestry, the author does not see insurmountable obstacles in implementing such a scheme, with the aim to provide a management framework for the forests in Papua New Guinea. The essential thing is to start with a clear view of the objectives, a set of clear, comprehensive instructions and procedures, field-books, forms, computer programs and the will to do it. Right now, the situation appears propitious, as there are no up-to-date instructions and regulations, making reorientation easier.

It must be clear that such a reorganisation of the forests in Papua New Guinea if implemented on a large scale, through administrative changes, would require the legislation to address it in all its complexity. Implemented solely by administrative measures, it will also require a long time to take effect. It is considered possible, given the policy and legal framework, to achieve the proposed structure in stages, by designing the forest inventories so as to create blocks and units and sections through their lay-out.

If the concept is accepted, although the process might be slow, it has the advantage that it will affect the new areas being developed and provide the indispensable structure for rational management.

Without sufficient research, it is impossible to predict with any certainty the reaction of the land owners to the implementation of such a scheme, but the author is confident that they would welcome it as a concrete step toward the registration of their land. There is little doubt that both the land owners and the other departments involved in land development after logging would like to have some kind of land divisions on the map to facilitate future management decisions, even if the boundaries are not precisely defined; at least areas and locations could be identified. It must be pointed out that such a system is included in the proposed forest policy for the North Solomons Province (Tisseverasinghe 1988).

Commitment to sustained yield

Another unfortunate consequence of the colonial past is the lack of understanding and commitment to sustained yield forestry in many countries outside Europe. Essentially, forests constitute **"renewable resources"** only if managed on a sustained yield basis, which means, in simple terms, that they produce in perpetuity the same (or an increasing) quantity of timber and other products or benefits. This ability of the forest to produce for ever has been recognised since antiquity and the first mention of conserving forest for future production is found in a decree by King Nabuchodonezar of Babylon regarding the Cedars of Lebanon.

The first-known forest management plan dates from the 15th century and refers to the forests from around Salzburg in Austria, supplying firewood to crystallise salt from brine (Zaisberger 1979). The motto of the management plan was "no wood, no salt", hence the need to supply wood for ever. It must be mentioned that there is plenty of commercially-used forest around Salzburg today, simply because it was exploited commercially.

In its simplest form, sustained yield management is achieved by dividing the forest area concerned into a number of equal-sized compartments. The number of compartments is chosen to coincide with the "rotation period", that is the number of years it takes the forest to regenerate and grow to the exploitable age. In most real life situations the management is much more complex, having to make allowances for the differences in the rate of growth in various compartments, the age and volume of timber in each compartment and the desired size of trees at the time of harvesting.

Two essential requirements result from the above statements, neither of them, unfortunately, being fulfilled in Papua New Guinea -

- A well-established spatial structure of the forest, divided in blocks and compartments, identifiable in the field and with responsible persons in charge, down to the smallest unit, again identifiable in relation to their responsibility.

- Known rotation period for the kind of forest involved or, at least, reliable information on the rates of growth.

A third requirement is fulfilled very well here, and that is the need to chop down the trees. It might come as a surprise to people outside the forestry profession to learn that the forest does not grow unless it is cut (or damaged by natural disaster). Most forests reach a more or less climactic situation, a steady state where the production of wood is nil overall, the growth of some young trees being balanced by the decay of older trees. Only if all or most of the older trees have been extracted will the forest consist of a majority of young, growing trees, adding on timber at a fast rate and, incidentally, absorbing carbon dioxide and producing more oxygen than they consume. However, to achieve higher rates of growth, it might be necessary to change the basis on which the forest harvesting is done in Papua New Guinea, that is "selective logging", in favour of more radical clear felling and replacing some natural forest with plantations. This will relieve the pressure from the remaining natural forests, some of which could be preserved for posterity and, at the same time, releasing land for agriculture. In other words, allowing (us) to have the cake and eat it too!

Land administration problems

Land, as everyone is aware, is a very difficult topic in Papua New Guinea. Based on experience in a different part of the world (Romania) the author thinks that there are some aspects which should be taken into account by forestry legislation here. As in Papua New Guinea, in some East European countries traditional **collective** land ownership, particularly forests and pastures, was quite common before the second world war. Usually the whole village owned a relatively large piece of forest, with every family entitled to make use of it. However, while the right of ownership was guaranteed by law, the use of the forest had to conform to the management plan prepared by the authorities. The aim of this management plan was to implement sustained yield and to prevent the reduction of the forest patrimony. In other words, the right of use of their own forest was subject to very stringent rules.

In fact it is the author's firm belief that forests have survived and prospered in Europe to a large extent due to the fact that the rights of individuals have been strongly restricted when it came to the use of forests. Very often the people living next to the forest have short-term interests not compatible with long-term plans. However, even in the tropics, **forestry is always a long-term activity**. Under such circumstances, some legislation might appear to be undemocratic if it imposes restrictions on what people might want to do with their own land, **reducing it to desert for instance**, but it is definitely necessary. Sometimes people must be defended against themselves.

A stage has been reached where the extent and the limits of ownership must be defined if the country is to develop and prosper. Any forest legislation must address the land problems, after all forests cover 80 per cent of the country.

Forest administration problems

One of the peculiarities of forest administration is that it contains a large component of **policing** the activities of both forest owners and operators, to conform with the rather unpalatable long-term policies and management objectives and operational and financial requirements. For various reasons, owners and operators alike tend to resent and break the operational rules imposed upon them. Probably the most important reason is that the forest always appears to stretch beyond the horizon, no matter how much or how badly you cut, it does not seem to make any difference. Hence the need to police and enforce the management objectives and rules.

To achieve this, the Forest Service in countries with successful long-term forestry is invariably organised as a hierarchical monolith, a pyramid, covering the whole forest patrimony of the country. The responsibilities are precisely set out, both with regard to the area of land covered by each staff and the person to whom he reports.

There appears to be no substitute for a relatively large, hierarchical and territorial responsible forest service if the intention is to enforce and police an effective forest policy in the country.

No matter how draconian the law and harsh the penalties, there will always be numerous law breakers if the policing is sporadic and the chances of being detected small. In fact, poorly policed enforcement combined with high penalties might lead to the disillusionment of more honest operators, the proliferation of unscrupulous ones and wide-spread corruption. High chance of detection is a much better deterrent than high penalties.

It must also be pointed out that staff fitting into a hierarchical system, with precise line of command and duties, are usually happier in their work, more likely to do it with dedication.

Timber harvesting organisation

It is relatively easy to predict that, for some time to come, the main activity in Papua New Guinea forestry will be concentrated on harvesting the mature, natural forests. The author sees nothing wrong with this in principle, as rather intensive but well-planned harvesting is an essential condition for increasing the growth of timber. What needs improving is the system of planning and managing the resource as well as the way in which harvesting contracts are allocated.

Starting with the allocation of contracts, the author feels that the often not well-defined requirements for infrastructure building as part of a "development proposal" should be replaced with a uniform, comparable bidding for the resource in monetary terms only, part of which could be used to build the infrastructure exactly as required. Both the Department of Forests and the developers would know precisely where they stand at any stage of the operation.

However, the fragmentation of operations and the frequent lack of a management objective for providing timber in perpetuity from a given project is considered much more important. At this point, the spatial organisation of forests becomes, in our opinion, essential. The **unit** mentioned before should be seen and managed so as to produce timber forever, by planning the harvesting operation so as to last a rotation cycle and to be ready to start again afterward. The developer would be committed for a long-term operation, would have incentive to invest and, more important, the system would deter outfits chasing the quick buck. On the basis of long-term timber availability from one (or more) "units", planning for further processing and increased value-added would become a reality.

By contrast, the duration of some present operations are much too short to be considered rational forestry. It was distressing for the author to visit such an operation in which what could be considered a "unit" was logged in just over three years, resulting in a gap of twenty to forty years till a new crop might become available again (Vatasan 1988). It must be mentioned that it was not the logger's fault, it is the normal procedure.

Conclusions

There is no doubt that many flaws in the utilisation and development of forest resources common to most developing countries are present in Papua New Guinea. However, the country is fortunate in that it has many favourable factors missing elsewhere. The country is rich in many other resources, the population pressure is generally low and the political system is democratic and stable.

What the author would like to suggest is that some of the ideas put forward in this paper be given consideration and that the following aspects be implemented through the new legislation -

- A strong, well-manned forest service, capable of effectively monitoring all operations continually and in detail throughout the country.
- Firm commitment to sustained yield management and the implementation of a spatially structured forest land policy.
- A simpler, clearly codified relationship between the Department of Forests, land owners and developers, ensuring long-term stability to attract meaningful investment and permit the implementation of realistic forest management objectives.

Finally, the author wishes to draw attention to the fact that the University of Technology in Lae has a department of forestry manned by staff with long field experience who are willing and capable to help all parties involved with sound advice.

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Sustainable Yield in Forestry in Papua New Guinea

M. Komtagarea
Secretary, Department of Forests

Introduction

One of the most publicised topics during the last few weeks has been forestry. Perhaps it is one of the most misunderstood departments, especially to those who are not in the department. The activities of the department have been taken so lightly especially by the industry who have alleged that the department is not functioning.

My topic today is a timely presentation of one of the major changes in forestry in Papua New Guinea. For the first time, I am discussing a topic which is not commonly understood by a layman or even a manager, unless he is a forester. I have been asked several times during meetings with industry what sustained yield management is all about. I have been confronted by managers and asked why "sustained yield management" has not been gazetted. I am pleased therefore to present in simple terms the changes we in the department are initiating to correct the wrongs that have transpired in the past. I am referring to the management of the forest resources of the country.

"Sustainable yield" probably cannot be defined at present because of the lack of accurate information on the growth of the forest trees, and information on the volume we are talking about. In a macro sense it is really an endless debate when we talk about sustained yield. Some proponents, even within my department, would like once and for all to assess all the forest resources as a means of defining sustained yield policy. Once again we lack information on how fast our natural trees grow. Thus, the debate will go on and keep going on for as long as we do not understand what we are going to sustain. In a broad sense the term means "What you take you cause to be replaced".

Despite this, we have, for the first time, identified where we should start the sustained yield program. The sustained yield approach we are thinking about and implementing is not a macro one; it is micro. That is, it refers to the individual forest resources allocated to the timber industry for development.

My department is an economic organisation responsible for a resource that is replaceable and manageable. Unlike other departments, Forests will be here forever, for as long as the resource remains economic; so will the industry and the flow of economic benefits. This means that we have to manage the forest resources we are dealing with to yield the same or more volume or value of harvest in the future. We do not believe that sustained yield in forestry will include agricultural perennial crops, which can also be sustained. It should therefore be noted that we will always restrict and refer to the yield of the forest resource in the micro sense.

The timber rights purchase (TRP) and the timber permit (TP) allow us to practise sustained yield management for the following reasons -

- The boundary of the area is identified.
- The people who own the land are identified.
- The resources are identified.
- The operator of the area is identified.

- Any deficiency of the operator is identified.
- Forestry services, national and provincial, are identified.
- Timber permits and conditions of operation are granted and approved.

There are some instances when the department is not able to manage the forest resources and these are mainly the areas under the Private Dealings Act. It is apparent that this system of allocation of the resources will have to be limited to the very remote undeveloped areas of the country, mainly to develop the people in the hinterland, as projects under this system can start a lot quicker than a TRP.

This year we have advertised 833,522 hectares of TRP and Minister has expressed intention to declare certain areas under the Private Dealings Act. This allocation will create jobs for over 2,000 people, generate an additional K6.3 million export levy and K3.5 million royalties, all in the hinterland areas. This has frightened some foresters in the department for fear of losing the resources of the country forever. On the other hand, the province, the people of the area, and the timber industry are happy for the long-awaited development in their area.

We will advertise more resources in the future to bring development into the hinterlands. I might perhaps be criticised by some people, journalists, politicians, timber industries, and others. This does not mean that we are selling our resources cheaply to the industry, more specifically to the foreigners. We can do this because we are thinking about the future, and more importantly of sustained yield. This is in fact the basis for allocating more resources. It is also one of the bases for proposing changes in forestry legislations, policy, replacement, management, negotiations, systems, monitoring, etc. We would like to place emphasis on the timber industry who have been cutting trees merely to get profit without regard to the young trees, and on the unregulated logging practices that create a cutover forest with plenty of stems left standing, good enough to maintain a forest cover, but too many of them injured and unfit to continuously supply raw materials in the future. Therefore, it is also relevant to review the responsibilities of the timber operators who will be our management partners.

Responsibilities of timber operators

The timber permit is a privilege, not a right, and as such the permit holder must conform with the policy, rules and regulations set by the government which owns the right to the timber through TRP from the land owners. While the purpose of the timber permit is to harvest the commercial and economic trees in the area for profit, the permit holder must also cut the forest in an orderly and rational manner to attain the sustained yield. The permit holder and the government should take advantage of that attribute of the forest as a replaceable resource. Trees should not be cut without considering replacement; otherwise, if the harvesting of timber is done indiscriminately, it would be purely exploitation.

The organisation needed for sustained yield management of the forest resources is a significant criteria that the industry must consider. The present trends of not employing foresters in the company is an indication of the failure of the company to recognise the importance of sustained yield in the country. Control of the logging operation should be guided by the amount of resources available for various uses and allocated considering the perpetuation of the operation of the company. Expansion of the industry within a limited resource will only result in wastage occurring in the logging operation.

We also have this task today to review government requirements to be included in the terms and conditions of the permit.

Present timber permit conditions

The condition of the timber permit can be seen from the TP format. The conditions start with Clause 4 in the format entitled "The Project". The first condition is log harvesting which sets the volume of harvest of the company. The details of the basis for the determination of harvest does not consider sustainability of the resource in the area. This is the beginning of the problem in sustained yield management.

Utilisation follows the clause on log harvest then reforestation, agriculture development, then roads and bridges and so forth. Sustained yield may have to be mentioned to emphasise the importance of a perpetual operation just as permanent infrastructures such as bridges.

The tool of sustained yield is the forest working plans (FWP) in clause 5 of the TP format. The model plan proposed for use may have a bearing on the contents of the FWP. The sub-clauses in forest management (6.3) may have to be transferred to replace the FWP as the main heading and the FWP as the sub-heading. There is no section for the monitoring of the operation of the company which may need to be considered as part of the format of the TP to make the implementation more effective.

The present situation in the industry

The timber industry has capitalised on the shortage of staff of the Department of Forests and the provincial offices and the shortage of funds and transport problems which contribute to the failure of the government to monitor the resources. The timber companies would prefer not to be inspected by the forest officers and be able to log indiscriminately. The present situation is one in which the industry tends to control the officers inspecting the areas rather than improving voluntarily the monitoring of the operation by the company itself.

The present situation does not lead to progress towards sustained yield. There is no forest management without sustaining the yield. Inspections of operations and counting of logs is not a management tool. Inspectors' main concern are the clauses relating to the environmental controls in the TP conditions and royalty assessment. In the meantime the industry keeps on doing what it wants to do during the logging operation. This has been the cycle of monitoring in Papua New Guinea and it has persisted ever since the start of forestry in the country. The whole monitoring job is left to the provincial forest officers and headquarters' RD division. Unfortunately, the system sometimes does not work so the provinces are mainly blamed for the failure since 1978.

It is perhaps about time that the department and the provinces realise that there are not enough forestry graduates and trained forestry assistants working in the government. It should also be realised that the industry can employ people who can monitor all facets of the forestry operation even though working with the company. The lack of people in the government does not mean lack of staff in the industry. The land owners are also available if called upon to monitor. This is one of the untapped resources we have in Papua New Guinea.

Common faults during the timber operations

Assessment of forest resources. One of the most common faults in the timber industry is the reliance on the Department of Forest inventory for production scheduling. This often leads to the department being blamed for supplying wrong figures. Production inventory is an activity that the timber industry must execute prior to logging for their marketing and production use. The inventory figures of the government are average figures over large areas and are not specific to individual areas.

Construction of roads without formal road surveys. So many timber companies in Papua New Guinea have used the technique of establishing road alignment without survey of the roads. It is simply estimated from the map. The efficiency of the machines are affected by the inability of the logging supervisor to determine the snigging distances that will maximise production and economics of the operation. As the operation progresses, the operation gets more and more difficult to locate even by the foresters in the province. Roading efficiency is ignored which leads to higher logging costs in the area.

Logging without cutting boundaries. Generally there is no company establishing cutting boundaries until the department started implementing FWP requirements of the timber companies. The unlimited distance of skidding during the logging operation is caused by the absence of a cutting boundary. The occurrence of high volumes of abandoned logs is the result of the inability of the logging manager to recognise the importance of the cutting boundaries. The officers and workers are afraid to work because they may be lost in the bush in the absence of a boundary line. Abandoned logs are created due to the absence of skidding limits guided by the cutting boundaries.

Unwarranted destruction of trees that are not utilised. It is a common practice to fall trees without direction. This causes the destruction of so many young trees which could have been saved if they were marked similarly to the reserve trees within the villages. The destruction continues with skidding as the skidder tracks widen during the operation. Painting of these young trees would have saved these trees for the next cut.

High density of snig tracks. There is no restriction to the number of snig tracks to be constructed in any logging operation. The skidder operators decides to make as many snig tracks as possible in the absence of restraining rules for the operators of the machine.

High density of roads. There is no restriction on the roading density of the logging operation. The operator may construct as many roads as he wishes which destroys more residual trees as well as sawlog trees often buried under the road. The thinking that there are plenty of trees means that the timber operator does not worry about wastage.

Sustainable yield

We should all understand that sustained yield systems can be implemented only in government-controlled resource areas. However, we are also considering areas under Private Dealings Act as one of the conditions for the granting of the Local Forest Area. We should also understand that the government is not the sole responsible agency to manage the forest; rather the industry should play a major role. We should also remember that sustained yield is not realisable now but will be in the future. We should also recognise that a sustained yield approach would require changes from the present practices to a more efficient practice that will save the company costs and save as many residuals for the future operation in the area.

With all the above assumptions, the approaches the department is taking towards sustainable yield are as follows -

- Ensure compliance with the conditions in the TP of each company specially that section relating to FWP.
- Training of provincial staff in sustained yield management system.
- Implementation of allowable cuts during negotiations.
- Creation of a monitoring system that the company can comply with.
- Requirement for a planning section in the company which will be responsible for submitting a FWP.

The identification of sustainable resource by location and area is also an important feature of the sustained yield management system. A list of the forest resources of the country is available from the Department of Forests.

As well as identifying the resources for each province the forest working cycle for sustained yield must be estimated. Our understanding of sustainable yield is just starting. We have to request FAO staff to help us in sustained yield management.

Our main proposal will therefore be the FWP that each company is required by law to submit for approval. We shall implement this TP requirement as a means of sustaining the yield from the forest. We do expect to have problems in the logging operation in the future but all this is based on sustainable yield from residual retention and protection. This is also one of the highlights in the proposed forest legislation.

If all timber companies practise sustainable yield, it is clear that we will be able to develop the full potential of the forest of Papua New Guinea. The government can delegate the monitoring of the operation to the company, with few visits by the government staff, as a means to alleviate staff shortages and funds shortages in the government sector; or the government can hire consultants to monitor the resources and activities of the company. The collection of levy in the future to fund the monitoring will ensure a better result in the management of the forest resource.

In summary

- The time for just simply cutting out a resource in a given time under a timber permit is gone. Now all operations have to be properly planned so that forestry and forest products remain a renewable resource.

- Responsible planning of all logging operations is therefore required to ensure -

  - Best use of available resources;
  - The most appropriate logging methods which guarantee maximum production with minimum cost.
  - The various phases of logging are scheduled to maintain a continuous flow of timber forever.
  - The extent of disturbed area is minimised to reduce damage to the residual stand which account for the subsequent forest crops, as well as to safeguard the environmental stability.
  - Potential bottlenecks area identified and corrected.
  - An effective follow up to refine future planning processes.

Without the above which emphasise environmental and sustained yield, a logging operation is reduced to one time resource exploitation, industrial activity and economic evaluation for short-term direct benefits only, which we wish to avoid at all cost.

Forest Resource Development in Papua New Guinea
An Environmental Consideration

T. Nagare
Department of Environment and Conservation

The land area of Papua New Guinea is estimated to cover approximately 46.5 million hectares of which 36.4 million hectares is **forested.** This forested area from a socio-economic viewpoint contributes significantly to the well-being of our local communities and Papua New Guinea in general. This contribution is basically from the resources it possesses. The forest resources are of great importance to mankind and if managed properly they can constitute a powerful instrument for improving the socio-economic conditions of our country.

The uses of these resources traditionally are very well known and vary throughout the country with evidence showing that these uses took place some 40,000 years ago (see Groube 1988, "The taming of the rainforest: a model for Late Pleistocene Forest exploitation in New Guinea") for a discussion of the evidence of early human impact on New Guinea. These uses, although existing for many years, do in fact contribute to the degradation of our environment, but these environmental changes are no doubt gradual compared to the current trend of exploitation where modern technological knowledge, machinery and equipment are applied. Note also that our local people do have some traditional knowledge about environmental conservation.

In recent years because of the high demand for economic development, commercial utilisation of the forested area and its resources has intensified. This development coupled with modern technological utilisation imposes a much more severe impact on the natural environment. As stated in the introductory remarks by Tolba (1987, UNEP Profile) -

> "**All Human Societies** are built on fragile ecological foundations. Without clean air, fresh water, productive soil and a sustaining web of life, **Homo-Sapiens** can neither survive nor prosper."
>
> "In a few short decades we are eroding those foundations beyond repair. By the year 2000, if present trends continue, one-third of the world's productive land will have eroded or turned to dust. One million species may have been driven to extinction, the sharpest setback to life on earth since our remotest ancestors first appeared on the planet. And the world's climate will almost certainly change, with enormous, but incalculable, consequences. In each case, human activities will be to blame."

Environmental policy and the Environmental Planning Act

The government has recognised our responsibility during the development of Papua New Guinea to maintain and, where possible, improve the quality of our environment. We all need to become more aware of our activities upon our environment. It is the government's policy to promote and maintain this awareness.

Development is a means of **increasing our prosperity** but at the same time it means **change.** This change can be good or bad, appropriate or inappropriate for Papua New Guinea. By careful planning we can control the rate of change and we can make sure that the kind and nature of the development we choose is good in all aspects, not just when measured in economic terms. This development must be **ecologically, socially and cuturally 'suitable'** for Papua New Guinea and her people.

As is already being realised, we wish to avoid the expensive mistakes we see in other countries where poorly planned development has caused problems and has required costly measures to improve the quality of the environment.

The fourth of the five goals of our constitution recognises our responsibility to the environment. This goal requires that **Papua New Guinea's natural resources and environment be conserved and used for the collective benefit of all, and be replenished for the benefit of future generations.** The constitution also calls for -

(1) wise use to be made of our natural resources and the environments in and on the land........, in the interests of our development and in trust for future generations; and

(2) the conservation and replenishment (e.g. of forests), for the benefit of ourselves and posterity, of the environment and its sacred, scenic and historical qualities, and

(3) that all necessary steps be taken to give adequate protection to fauna and flora.

In order to achieve the aims of the above goal we have adopted the following to be our environmental policy -

- All our people have a basic right to live in freedom and equality in an environment that provides for our physical and spiritual well being. We accept the responsibility to protect and improve this environment for our children and for future generations.
- The natural resources of Papua New Guinea including the air, water, plants and wildlife and especially examples of the different kinds of plant and animal communities must be protected for present and future generations by careful planning and management.
- During our development we must safeguard and wisely manage our wildlife and its habitat. Nature conservation including wildlife must be given consideration in planning for economic development.
- During our development we must consider economic, social and ecological matters together. Development must lead to an increase in the quality of life for all our people and without causing significant destruction to our environment.
- The ability of the environment to produce renewable resources must be maintained, and where possible, restored or improved.
- Planning must be applied to human settlements and urbanization. We must avoid bad effects on the environment and obtain better social, economic and ecological benefits for all.

AND in addition :

- We will, as much as possible, follow the "polluter pays" principle. This means that the people, including government, who use our natural resources for financial gain must pay the costs of environmental protection. Prevention is identifying and solving the problems before actual environmental damage occurs. Where damage has already occurred because of environmentally unwise practice in the past, the environment will be restored to the greatest extent possible within reasonable financial limitations.

- We recognise that any development project, whether based on agriculture, forestry, mining, industry, transport, water, tourism or human settlement, must take into account the impact on the natural environment and human communities. Failure to do this often results in future social and economic costs.

The above goal and its accompanying directive principles necessitate **environmental planning**, and they were given legislative effect with the passage of the Environmental Planning Act, Chapter 370.. This Act sets out the legal requirements for the submission and assessment of **Environmental Plans** for any development projects.

In the Environmental Planning Act, **environment** is defined as "the total stock of" physical, biological and social resources available to man and other species and the ecosystems of which they are part. It is important to note the breadth of this definition and in particular the inclusion of **"social resources"** within the meaning of the word environment. This **environmental planning** is the development of projects, programmes and policies with full consideration given to maximisation of economic as well as physical and social environmental benefits and minimisation of economic, physical and social environmental costs.

The most important point to understand is that environmental planning must go hand in hand with economic and engineering planning - it will not be effective if it follows the completion of feasibility studies. If this latter approach is taken, options and alternatives which may be far superior from an environmental point of view may be rejected for much less significant economic or engineering reasons. Integration of environmental planning with overall project planning is also important to prevent needless disruptions to project implementation, between the completion of feasibility studies and construction. Such disruptions can occur if the government (Department of Environment and Conservation) feels that a developer has not adequately considered environmental factors in project decision-making and requests an environmental plan at a late stage of project development. These needless disruptions can be easily avoided by including consideration of environmental factors at the earliest stages of, and throughout the project planning and implementation period.

It is particularly important to emphasise that social planning is an important component of environmental planning for projects. Indeed social impacts are usually the most significant of the environmental effects of a project. They are also the most difficult to plan for, because of the complexity of social systems and because the responsibility and means for undertaking social planning initiatives are shared between the project developer and a large number of governmental agencies. Thus **co-operation** between the project proponent and all government departments who have a role in social development is particularly important to ensure the development of socially-successful projects.

The aim of the Environmental Planning Act is environmentally-sound planning of projects with adequate consideration for environmental (as well as economic) benefits and costs in both the short and long term. This involves making decisions about the appropriateness and feasibility of the project and detailed planning to minimise negative environmental impacts after a decision has been made to go ahead with a project.

The mere production of environmental plan documents is **not** the aim of the Act - an environmental plan should be a summary of an environmentally-responsive planning process. In this respect, it is important to note that although environmental factors should be considered in any planning process, environmental plans are only necessary for projects (e.g. forest resources development) with potentially significant environmental impacts.

Therefore for all forestry projects it is recommended that the requirements of the Environmental Planning Act must be met prior to initial operation.

Comments on the drafting instructions

In brief, the Department of Environment and Conservation views the proposed drafting instructions as undermining the functions and requirements of the Environmental Planning Act, a fundamental Act for the Department. Nevertheless the following are our comments -

- Reforestation - There is not very much said about this activity although it was mentioned once or twice that the proposed forest management agreement provides that certain portion (20 per cent) of the forest area to be harvested shall be dedicated for reforestation or other land use activities. A question which one could ask is - what would happen to such project at the end when 25 years lease is completed? Also would this be an appropriate project for the people in the long run?

- On page 7 of the drafting instructions it was stated that an environmental plan submission is an optional requirement for forest resource developmental projects. This we feel is incorrect because an environmental plan should be treated as part and parcel of the overall project planning. Let me warn here that if an environmental plan is classed as an optional rquirement, sure enough there will be problems coming up thus jeopardising chances for successful projects.

- Page 13 states that forest officers may be appointed as wildlife and conservation officers by the Minister for Environment and Conservation (incorrectly written) on recommendation by the Minister for Forests.

  This point is supported but the Department would also want to stress that under the Environmental Planning Act, the Minister for Environment and Conservation has the power to appoint environmental inspectors.

Conclusion and recommendation

Once again it is very important that environmental planning must go hand in hand with economic and engineering planning because it will not be effective if it follows the completion of feasibility studies of a particular project. Therefore for the above points raised it is highly recommended than an environmental plan is a must, NOT OPTIONAL, for any developmental projects.

Macroeconomic Considerations

Koiari Tarata
Deputy Secretary, Department of Finance and Planning

Introduction

It is a pleasure to be here today to participate in your timely and important seminar on the forestry sector. My task is to outline some of the macroeconomic considerations.

The forestry sector has a potentially important role to play in assisting us to meet our key macroeconomic objectives of economic growth, employment creation, external balance and so on. Equally true the prospects for development of the forestry sector will depend considerably on an appropriate set of macroeconomic policies being in place. For the sector to grow and contribute to the nation we must have appropriate policies in such areas as taxation, wages, exchange rates and credit to facilitate productive investment.

This being said, I would like to contend strongly right at the outset that inappropriate macroeconomic policies have not been the root cause of the forestry sector failing to achieve its full economic potential in recent years.

In my view inadequate performance in the sector more fundamentally relates to deficiencies in the capacity and integrity of private sector management combined with administrative incapacity on the part of both central and local bureaucracies to properly supervise the sector.

As these important, but contentious, issues are largely outside of the topic I have been allocated I will leave them for others to cover and now retreat to the relative safety of macroeconomic policy issues.

Broad national and sectoral objectives

While the Namaliu Government's 1989 Budget saw considerable re-focusing of national objectives towards areas such as law and order, education, infrastructure and social services the objective of economic growth has not been dispensed with. Economic growth and development remains a key priority of the government to assist in the provision of productive employment and improvements in material living standards.

The renewable resources areas of agriculture, forestry and fisheries are of crucial importance to the bulk of Papua New Guineans in providing a subsistence base, aligned with opportunities for increasing cash income and improving family and national well-being. The provision of increased employment, both formal and informal in the renewable resources sector is a key objective of the new government.

The forestry sector has considerable potential for increasing income and employment opportunities providing it is managed in a sustainable manner which takes appropriate account of resource replacement and sensible conservation. Government aims to maximise the economic potential of the sector while proceeding responsibly to avoid potential dangers and pitfalls that clearly exist. We are very much about developing the sector but not at the expense of ruining the environment in the process.

Macroeconomic considerations

I shall now discuss some of the key macroeconomic considerations, turning firstly to growth.

Growth. It seems a little known fact that the Papua New Guinea economy has been growing at quite respectable rates in recent years. Real annual GDP growth in the four years to the end of 1988 is likely to exceed 5 per cent per annum, yet commentators from I.N.A. and elsewhere continue to typify the economy as being one incapable of growing faster than the growth of population. This is no longer the case.

Certainly much of our recent improved growth has been mineral sector led, but there has also been sound growth in the renewable resources sector, including forestry. Log export volumes grew quite consistently from 743 thousand cubic metres in 1981 to 1,450 thousand cubic metres in 1987 and are currently running at higher levels still in 1988. There has also been good growth in production for domestic use. Recent World Bank forecasts suggest the forestry sector can grow in real terms at 7 per cent per annum between now and 1995, which is faster than the economy as a whole will grow.

Actual contribution to GDP of the sector nevertheless remains relatively low at a maximum of a few per cent of total GDP in most years due to relatively low value-added which is closely related to high levels of intermediate consumption, which leave quite low levels of operating surpluses.

In this sense the question of local processing of logs is an important consideration for economic activity, especially as the ratio of processed to non-processed forestry exports appears to have fallen quite considerably over the course of the eighties.

Our standard macroeconomic policies have been quite clear on issues of this nature for many years now. We support increases in domestic value-added through increased processing, providing that production is occurring efficiently at prevailing wage rates and providing output is internationally competitive at prevailing exchange rates. We are not in the business of providing long-term protection or subsidisation to inefficient industries and will not do so in the forestry sector.

What we want to see develop is a vibrant private sector grasping opportunities for processing in the sector without recourse to government handouts. Other macroeconomic policies are obviously of some relevance here, especially exchange rate policy and wages policy. I will return to discuss these points shortly.

Investment. With a few notable exceptions such as Vanimo Timbers there has been a relatively disappointing growth of investment in the sector in recent years at both the smallholder and large-scale sector.

Given the relative wealth of our timber resources combined with the apparent success of the industry at avoiding tax and other forms of rent in recent years this is something of a surprise.

Perhaps those who have been getting away with it rightly thought it all too good to last, and perhaps thankfully they have also been too tight-lipped to allow the message to flow too far to the outside world.

The fact, nevertheless, remains that we possess bounteous forest resources which we wish to see developed in responsible ways such that development is sustainable in the environmental sense and so that the nation is able to extract an appropriate level of economic rent for usage of the resource.

Now the Barnett Inquiry is close to conclusion the government will again actively pursue new investment for the sector from both foreign and domestic investors for small and large-scale projects.

However, a new administrative and policy framework is being progressively put in place to ensure that unscrupulous investors are weeded out of the sector. Legitimate investors will be allowed to achieve a reasonable return on their investment, but we must in future ensure that appropriate levels of economic rent are collected in relation to returns being achieved from the resource.

Wider government economic policy remains very much pro-foreign investment. This was evidenced in the recent budget with announcements to simplify procedures with NIDA, work permits and visas and decisions to cut the corporate tax rate. Efforts to improve the law and order situation are also strongly related to desires to improve the climate for investors. New investors to the forestry sector are welcome and they are welcome to extract a fair return on their investment. However, we wish to avoid at all costs the problems of transfer pricing and taxation avoidance that have occurred in recent years.

<u>Taxation.</u> From the state's perspective the capacity to collect revenue from forestry projects is a very major consideration. The need to generate revenue however, must be weighed against the importance of providing a fiscal regime that is fair for both the state and developers and thus provides a satisfactory return to both.

In the post-Barnett era our immediate challenge is to provide a balanced tax regime which significantly improves the state's revenue position while still providing sufficient incentive for investment and production to occur. This represents a delicate balancing operation and there is still much fine tuning to be done to arrive at the appropriate mix of revenue instruments. There is also still much work to be done in providing a supervisory system which can properly collect taxes that are due.

While the Barnett inquiry has generated a lot of publicity about tax rorts, the problems are not new and were not unknown to us. Quite frankly collection of corporate taxes from the sector have been abysmal since independence and the amounts are barely worthy of mention. What the rigorous analysis of the Barnett Inquiry will provide us with is detailed actionable information on the worst offenders in the private sector. It will also provide a clearer picture of the most common rorts that have been adopted, including -

- transfer pricing;
- use of repricing subsidiaries in tax haven domiciles;
- misdescription of timber categories;
- incorrect disclosures of quantities and values.

The detailed knowledge gained out of the Barnett Inquiry has already led to corporate tax assessment of K25 million being issued during 1988 to cover back taxes on non-declared profit. I am pleased to say there is much more in the pipeline and I am adamant that resources in the Taxation Office will be significantly increased in coming years to properly supervise tax collections in the industry. If necessary we will use technical assistance in the first instance.

Obviously government has a long way to go in terms of improving its capacity to weed out unscrupulous operators from the industry and to properly supervise those that remain. This involves improvements not only with taxation and customs but also within the Forests Department especially at the level of forests inspectors. There is also need for a closer look at our accounting profession and standards such that we can have some increased confidence that so-called audited profit at least to some extent equates to actual profit. In the recent past there seems little correlation between the two.

One approach to improve revenue collection that was taken pre-Barnett was a move to impose further taxes that can be more easily collected. This saw a doubling of the export tax to 10 per cent from 1986 and continued emphasis on royalties based on turnover. This saw a significant growth in export tax collections to around K10.2 million in 1987 and collections are currently running in advance of this for 1988. Collection from royalties are also currently running at levels of around K6 million per annum, with 25 per cent going directly to provincial governments and 75 per cent to land owners.

Our basic approach to macroeconomic policy is to disfavour export taxes and royalties based on turnover. These tend to act as disincentives to export and also create distortions in the resource production process including tendencies to high grading, early departure from the asset and sub-optimal approaches to reafforestation.

Nevertheless in the short term, given our significant problems with tax avoidance we have seen no option but a movement towards such more readily collectable forms of taxation. Indeed until improved industry self-regulation can be demonstrated and until government supervisory capacities can be improved we will need to keep under close review our options for taxes that can be readily collected. This view will include -

- rates charged for royalties and export taxes;
- import duty rates for imported capital equipment, which in most cases attract a low 8-1/2 per cent;
- revision of taxation arrangements on equipment leased locally or through offshore agencies (some of these loopholes have already been closed in the 1989 Budget);
- the possible introduction of large front-end licensing fees on new developments as a trade-off for later tax payments.

Foreign exchange. There have been some foreign exchange benefits from the sector but these have often been overstated by concentration on gross export revenues without reference to high external leakages which pay for imported inputs and meet external debt servicing.

Total exports of forest products have grown from K61.7 million in 1982 to K110.9 million in 1987, with exports in 1988 currently showing sound growth over 1987 levels. In 1987 forest product exports comprised some 9.9 per cent of total merchandise exports. This compared with a figure of 11.2 per cent in 1982. Obviously growth of forest product exports have not kept pace with growth of mineral sector exports. Even with continued sound growth, forest product exports are likely to decline further as a proportion of total exports as mineral production increases further into the nineties.

The downside of the external picture is the very high level of external leakages from the sector. Statistical estimates suggest that almost 80 per cent of total sector production is eaten up by intermediate consumption, the bulk of which involves foreign outflows.

In addition to a high import content for production inputs, many of the larger projects are highly geared, involving considerable outflows for debt servicing. Incidentally the supervision of external debt transactions is another area that will come under much closer scrutiny in coming years, as this is another device that has been used as an instrument for transfer pricing.

Given my earlier analysis of taxation, in an industry where virtually no major operators make profits it is not surprising that at the end of the day there have been very minimal net foreign exchange benefits from the industry to date. Unfortunately the sector has operated in classic enclave fashion with foreign exchange benefits funneled offshore often through the device of transfer pricing.

The challenges we face in implementing an appropriate tax regime that can be properly supervised are obviously central to our desires to improve the net foreign exchange benefits from the sector.

Wages and employment. Consistent with what appears to be a flat investment performance in recent years there also appears to have been little significant growth of formal employment in the sector recently. Indeed the Central Bank index of formal employment in the industry has dropped from a level of 100 in March 1978 to a level of 82 at June 1988 (a fall of 18 per cent).

This is simply a further reflection that all is not well in the industry. Despite our bounteous resources in a region where there has been significant diminishment in the supply of the natural resource we have seen absolute declines in numbers formally employed. While production is up over the same period, suggesting some improvement in productivity aligned with increasing smallholder production, we cannot be happy with the overall picture of stagnant investment and declining formal employment in a sector with so much potential.

Clearly our future policies post-Barnett cannot be simply directed at imposing punitive tax and other provisions that will simply act as disincentives to further productive investment. As I noted earlier we have a very delicate balancing act to perform in establishing a new fiscal regime which will sort out the unwanted elements while continuing to be sufficiently attractive to genuine and responsible investors.

On the broader wages front government has announed in the 1989 Budget its intention to push for lower wages in the forthcoming wages case. This approach if actually implemented by the Wages Board should over time make the employment of wage labour in the sector more attractive. This is likely to be especially so in the further processing of the raw material where current wage rates, especially in urban areas, are in our view a major constraint to the development of manufacturing activities.

The exchange rate. The government made its exchange rate intentions quite clear in the 1989 Budget. The current exchange setting mechanism is currently market related with the kina set at a level which is not being propped by undue foreign borrowings or excessive foreign exchange controls.

Our immediate term approach to improving international competitiveness will be addressed by pushing for lower wages aligned with a continued attack on long-term constraints such as transport, infrastructure, education, training and extension. Accordingly, in the medium term investors can retain continued confidence in the convertibility of the kina and its relative strength in relation to currencies of our major trading partners.

Government budget and medium-term policy. Most government efforts at development of the sector will be directed through the Department of Forests. As I understand they will be addressing you separately on their medium-term plans I will merely highlight to you some key features for the sector recently tabled in the five year planning document. These include -

- increased forestry research;
- increased management and administrative capacity building including a considerable increase in technical assistance (some K4 million in technical assistance has been budgeted for 1989 alone under the Public Investment Program);
- continued priority to developing reafforestation programs for national and community forests;
- preparation of resource inventories;
- preparation of a National Forest Development Plan;
- reorganisation of marketing arrangements;
- increased support for community forestry programs and land owners.

As well as such improvements to be addressed through the Forests Department as I have already indicated I am anxious to see further planning and administrative improvements in my own Department, at Tax, Customs and in foreign exchange control areas at the Bank of Papua New Guinea.

Conclusions

Having discussed some of the main macroeconomic considerations it is time to conclude.

The sector remains one of high potential, but one where recent performance has been disappointing.

I believe the government is proceeding appropriately to develop sound long-term plans for the sector. Past abuses are already being addressed and will continue to be addressed even more vigorously once the Barnett Inquiry completes its investigation. There is a clear commitment to root out and prosecute corrupt elements in the public and private sectors as well as in public life.

There is clearly a period of some further catharsis and blood-letting ahead as the corrupt elements are confronted in the courts and elsewhere by the findings of the Barnett Inquiry.

Concurrent with this inevitable trauma ahead our role in Finance and Planning is to develop an appropriate fiscal regime that while sorting out the unwanted elements will still provide appropriate incentives to generate further investment and employment in the sector.

If the Barnett Inquiry merely sorts out the unwanted elements and in so doing puts a complete brake on future investment and development then it will have failed. The need for us to diverify our economy away from excess reliance on the minerals sector is a very real one and we must get on in the medium term with appropriate and sustainable development of our forestry sector.

Value-adding : A case study
Log Exports versus Processing

Peter J. Eddowes
Forestry and Timber Consultant

Despite the proposed legislation to ban certain higher-value timber species from round log exports and to increase sawn timber production, there are many unanswered questions about the economics of processing. Most genuine operators in Papua New Guinea are in favour of processing and believe that a sawmill operation complements a logging operation. But investment will stagnate if all future operations are based solely on processing.

What is the main purpose or motive behind the government banning log exports in favour of processing? Does the government anticipate gaining more from processing, if so in what way -

- Employment?
- Revenue?

Lending institutions have already indicated that financing of timber operations is high-risk. Is sawmilling then higher risk than log export? How do the lending authorities view the financing of sawmill operations?

Lending authorities and indeed the overseas marketplace will look at the potential of Papua New Guinea sawn timber with some scepticism as they have in the past, mainly due to -

- continuity of supply;
- guarantee of quality and supply;
- species supplied according to specification;
- grading rules and issuing of grading certificates;
- foreign exchange rates/fluctuations;
- freight rates.

Banning of higher-value timber species

Banning of higher value timber species could only be considered feasible if the producer stood to gain an equivalent or greater amount for his sawn or processed product as for export in raw log form.

Under the proposed legislation two classic examples arise concerning the proposed banning of Kwila (Intsia spp.) and Pencil Cedar (Palaquium spp.). Log export figures show at the end of the third quarter, 1988 Kwila realised an average f.o.b. price of approximately US$168.00 per cubic metre whilst Pencil Cedar realised an average f.o.b. price of approximately US$124.00 per cubic metre.

The point to be made here is that, in a converted or processed state, both timbers would be generating a negative value to subsequent beneficiaries including the producer, the land owners and the government.

In the case of Pencil Cedar, its highest value is in log form as a first-class peeler (Rotary Veneer). As a sawn timber product it has some but limited value. As an example Nyatoh, from Indonesia, which includes Palaquium and Planchonella, attracts a C and F price in Singapore and Taiwan of US$275.00 per cubic metre.

Therefore, at the going rate in round log form of US$124.00 per cubic metre f.o.b. and allowing for a 50 per cent recovery upon conversion of the log, the producer has a raw cost component of US$248.00. Upon addition of milling and freight costs the absolute minimum landed cost in sawn form would be US$400.00, a price at which it would obviously be non-competitive and non-feasible.

Increased sawn timber production

- What are the projected demands for consumption in the domestic market?
- In respect of sawn timber exports, Papua New Guinea still does not have a uniform set of Standardised Grading Rules nor a Standard Nomenclature of Papua New Guinea Timbers.
- All sawn timber exports should be graded in accordance with an internationally accepted grading standard e.g. Malaysian Grading Rules, inspected by a qualified timber grader and a certificate issued prior to export. As this grading is generally carried out by qualified government timber graders, what provision has the government made for qualified graders?

Over supply and dumping

It is feared that the smaller producers, especially those engaged solely in sawmilling, will be at a distinct disadvantage. Log export quotas given as incentives to increase sawn production could lead to dumping on both domestic and export markets by larger producers to the detriment of smaller producers engaged solely in sawmilling.

Questions posed in summary

Why ban specific timber species from round log exports when their value and subsequent monetary return is greater in round log form than in sawn form?

What sawn timber markets have been developed?

What grading rules are going to be adopted and adhered to so as to ensure uniformity of grade throughout Papua New Guinea?

When will the nomenclature for Papua New Guinea timbers be finalised and published? Such nomenclature is of paramount importance to protect both producer and buyer especially for sawn and/or processed timber for export.

How will sawn timber parcels be inspected and graded prior to export?

What measures has government taken against over-production of sawn timber and possible dumping on both the domestic and export markets?

Log Export Restrictions and Forest Industries Development in Southeast Asia (1975-1986) The Case of the Philippines

R. N. Byron & M. A. Quintos
Department of Forestry, Australian National University

Introduction

This paper is part of a larger study examining the strategy of accelerated development of forest industries pursued by certain Southeast Asian nations since the mid-1970s.

This strategy had three related components -

- to regulate, maintain or increase the rate of harvesting of natural forests;
- to restrict the export of unprocessed logs; and
- to subsidise and promote the expansion, relocation and/or restructuring of wood processing industries, particularly plymills and sawmills, and occasionally pulp/paper mills.

The arguments underlying this strategy were primarily the creation of domestic employment, economic growth through value-added processing, and foreign exchange earnings. The process of implementing the general strategy in particular countries, has been extremely complex, often buffeted by political expediency and/or questionable practices. As a result, the consequences differ quite markedly between countries purporting to follow the same strategy.

Data on the volume, value and direction of exports of the major wood products from Southeast Asia between 1975 and 1986 (the major policy changes occurred in 1980) and the nature and composition of Japanese wood imports, have been used in analysing the policy's effects -

- on the exporting countries which followed this strategy - Indonesia, West Malaysia, Sabah and the Philippines;
- on the exporting countries which did not follow this strategy - Sawawak, Papua New Guinea, Solomon Islands;
- on the major log importing countries - Japan, South Korea, Taiwan, and Singapore; and
- on other countries importing forest products from Southeast Asia.

While the log export restrictions were imposed effectively, in general, and dramatic expansion and restructuring of wood processing has occurred, the ultimate test of the policy's success is whether the stated objectives have been achieved. The detailed examination of the case of the Philippines suggests the desired results are far from achieved, thus far, but it may still be too early to assess the long run success.

Policies

In the mid-1970s, it became obvious to the Southeast Asian log-producing countries that the logs they exported, (over two-thirds of their total log harvest) were being processed in Northeast Asia and subsequently, much of it was being re-exported to North America and Western Europe. There was increasing dissatisfaction with the role of primary commodity exporter, exacerbated by erratic log prices, tax evasion by the multi-national concessionaires, and inadequate employment generation. Although the Southeast Asian log exports represented over 80 per cent of the world trade in tropical timbers, they were basically price-takers. Progressively stricter restrictions and more generous incentives were brought into place. The chronology of the policy changes is shown in Table 1.

Although the most striking feature of the policies were restrictions, disincentives or bans on the export of unprocessed logs, there were, in fact, a suite of policies to favour expansion of domestic wood-processing industries. These often included corporate income tax holidays, the waiving of export taxes, reduced log royalties, provision of export incentives, technical assistance and grants to industry, low interest loans, and/or the right to export logs in some proportion to the volume of wood processed locally.

Apart from the desire to move into value-added processing, there are two other themes often raised in relation to the log export bans : the conservation effect and the OPEC-like cartel argument. The tremendous rate of logging and export, and the very dramatic expansion in the 1960s and early 70s, aroused great concern about depletion of the forests, particularly amongst Western conservationists but also in Peninsula Malaysia and the Philippines where the established processing industries feared future log shortages (Byron 1988). Nevertheless, it is argued here that the policies were not primarily intended to promote or achieve conservation of the tropical rainforests, and their ultimate impacts in this regard is open to question.

While the absolute and relative volumes of Southeast Asian timber on world markets do suggest significant potential market power, one must realise that the world traded volumes are small relative to world production. Furthermore, there is a vast, and continually growing, array of substitutes for sawn timber and plywood, and temperate softwoods can readily be substituted for tropical hardwoods in many applications. The real market power of the log producers is much less than might initially appear. If the primary goal of the log export restrictions had been to increase the world market price for hardwood logs through an OPEC-like cartel, it would simply not make any sense to restrict exports to zero, as West Malaysia and Indonesia have done.

All the evidence suggests that the producing countries' motivation for restricting log exports and stimulating processing, was to earn more, and more stable, foreign exchange and create jobs - any conservation or price-increasing effects were just co-incidental.

Table 1
Policy changes in log exporting countries

		Sealpa members			**Non-members**
Indonesia	Pen. Malaysia	Sabah	Philippines	Papua New Guinea	Sarawak
1970–state grants concessions valid for 20 years. 1974–concessionaires obliged to sell 10% of annual log production to the local market. 1977–logging companies must make deposits of Rp 415 per cubic m. of log exports to be invested in local processing. 1980–joint decree to reduce log exports to zero by 1985. Permits to export only granted once the exporters have met requirements to sell logs locally. 1984–export tax of 40 to 50% f.o.b. imposed on logs. Companies with ply capacity can export 25% of logs. Those installing ply capacity can export 66% of logs. 1985–proposed complete ban on log exports.	1972–first imposed log export restrictions. 1984–govt. announced a total ban on log exports from 1.1.1985.	1979–log export quotas introduced. Log export tax of 60% f.o.b.	Early 70s log export controls encouraged log smuggling. 1976–log export ban imposed but relaxed to allow a max. of 20% of logs to be exported. 1980–log export tax of 10% f.o.b. applied. 1982–Govt. policy for log exports to cease in 1982, but exceptions from quota limits were granted and log smuggling took place.	1977 restrictions 1982 restrictions lifted	1973–formation of Sarawak Timber Industry Dev. Corp. 1980–Log export tariff raised from 5 to 10% f.o.b. 1985–Licensees required to invest in local processing capacity under the Timber Industry Development Plan (TIDP). Only permitted to export logs in first 3 years. Failure to conform to TIDP requirements results in an immediate reduction in allowable cut.

The effects

Log exports. Figure 1 illustrates the dramatic impact of Indonesia's phasing out of log exports, from almost 20 million cubic metres in 1978 to virtually zero in 1985. Only in Sarawak (and Papua New Guinea and the Solomon Islands, not shown in Figure 1) were there significant increases in log exports after 1980. Not surprisingly, when faced with a serious reduction in log availability from Indonesia, Sabah and the Philippines, the importers (from Japan and South Korea mainly) bought instead from countries which would still sell to them. It was at this time that logging for export accelerated in Papua New Guinea and Solomon Islands, where the forests have long been regarded as less desirable than in Kalimantan.

As Figure 2 shows, the unit prices received by Sarawak after 1980 are totally at odds with previous trends, and the 1980-85 price trends for the other countries which imposed restrictions. It is also readily apparent that the SEALPA countries' post 1980 policies had NOT increased their log export prices.

Sawn timber exports. Sawn timber exports from Indonesia and the Philippines almost doubled post-1978 (Figure 3) and Sabah's annual exports have gradually grown from zero in 1975, to 80,000 cubic metres in 1979, to over 1.4 million cubic metres by 1985, from 68 new sawmills. As might be expected, Sarawak's sawn timber exports remained very modest, although they still attract the highest unit prices (Figure 4). Peninsular Malaysia developed its very large and successful export sawmilling industry much earlier than its neighbours, and since 1980, has been progressively moving out of bulk timber exports in favour of higher valued products - joinery, mouldings, louvre doors, knock-down furniture. This transition is encouraged by concerns about future log supplies for the West Malaysian sawmills (Byron 1988).

Plywood exports. Indonesia's plywood capacity rose from 28,000 cubic metres per year in 1973, to 6.2 million cubic metres by 1985, making Indonesia the world's largest producer and exporter of tropical plywood. There has been a very deliberate policy to concentrate on plywood, and, in production terms, it has been implemented with spectacular success (Figure 5). Although Menz and Krutilla (1987) assert that the log export bans and increased Indonesian exports of plywood "caused the contraction of the plywood industries in Japan, Singapore, Korea and Taiwan", it would be more accurate to state that the Indonesian expansion "was accompanied by and facilitated by the planned and voluntary contraction of what the NICs saw as a sunset industry" (Byron 1980, 1981).

However, in financial terms, there have been severe problems. The world market for tropical plywood is extremely thin, and it appears that the frequent huge additions to Indonesian capacity and exports only served to further depress world market prices (Figure 6). (Again it is curious that Sarawak's price trend for export plywood is much more favourable than its neighbours'.)

There is now very strong evidence that Indonesia's much-vaunted plywood industry has consistently generated **negative** value-added, e.g. logs which could have been exported for \$200 have been converted, at considerable expense, to plywood that was sold onto world markets for \$150! It is still quite profitable to the private owners, due to the government subsidies - another case of privatising the gains and socialising the losses! Lindsay (1987) has calculated that logs with a potential royalty value of \$30-35 without the "forestry industrialisation" policies, could now have a shadow price of **minus** \$30 to \$75 per cubic metres - such is the extent of the subsidies and the differential between the world export prices for logs and for plywood.

Figure 1: Volume of Log Exports (000 cubic metres)

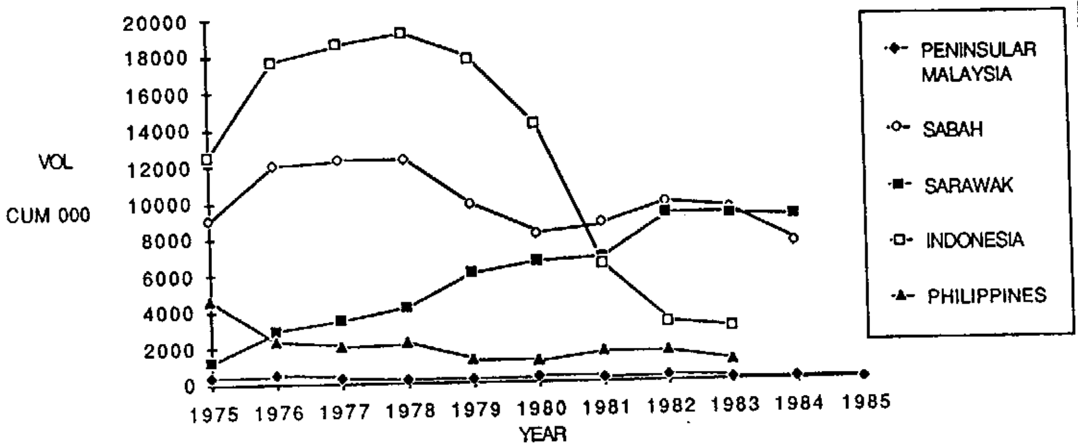


Figure 2: Unit Values of Log Exports ($ US deflated, 1980)

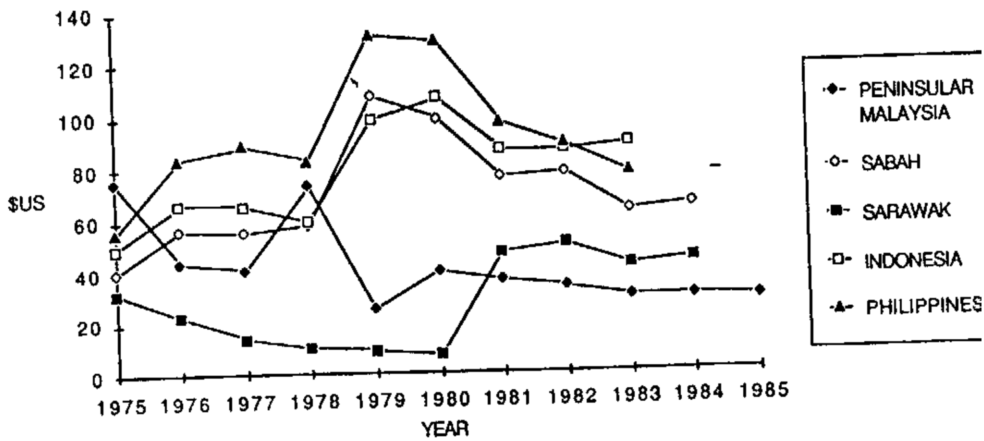


Figure 3: Volume of Sawntimber Exports (000 cu.m.)

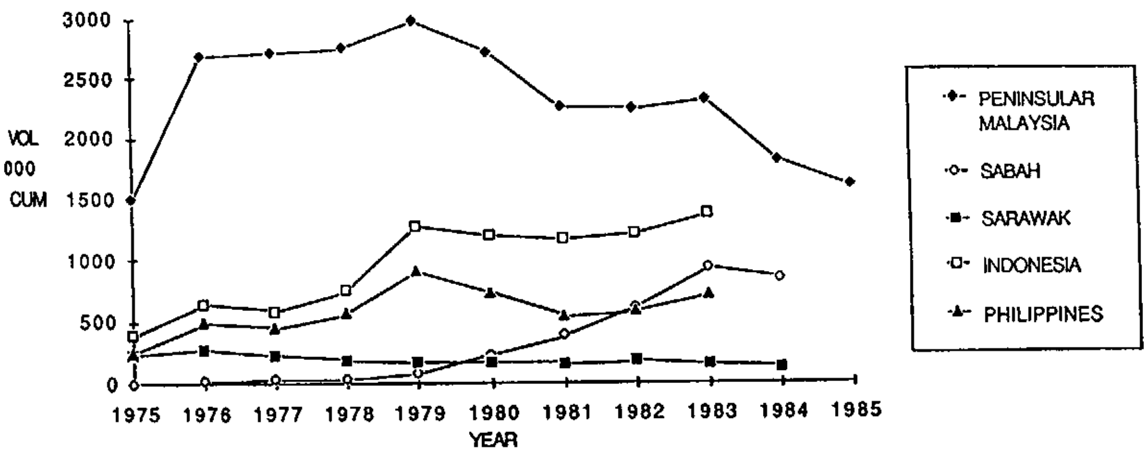


Figure 4: Unit Value of Sawn Exports ($ US 1980)

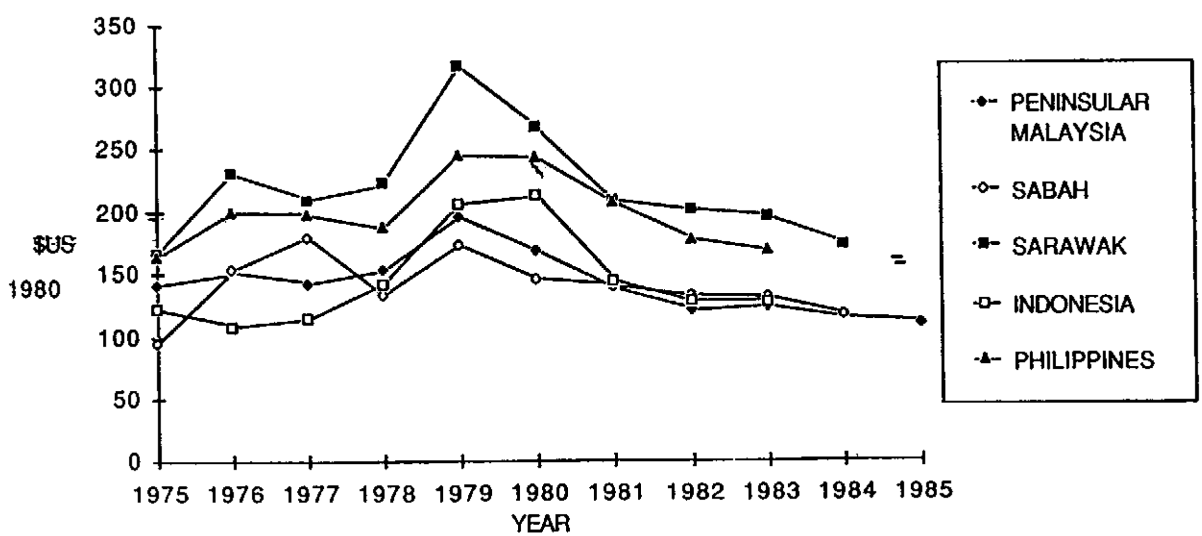


Figure 5: Volume of Plywood Exports (000 cu.m.)

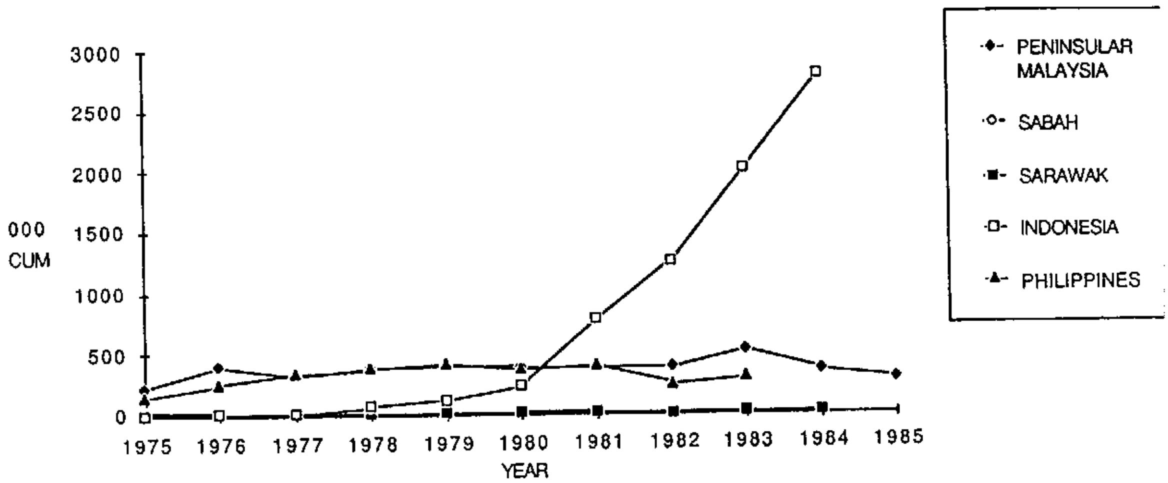
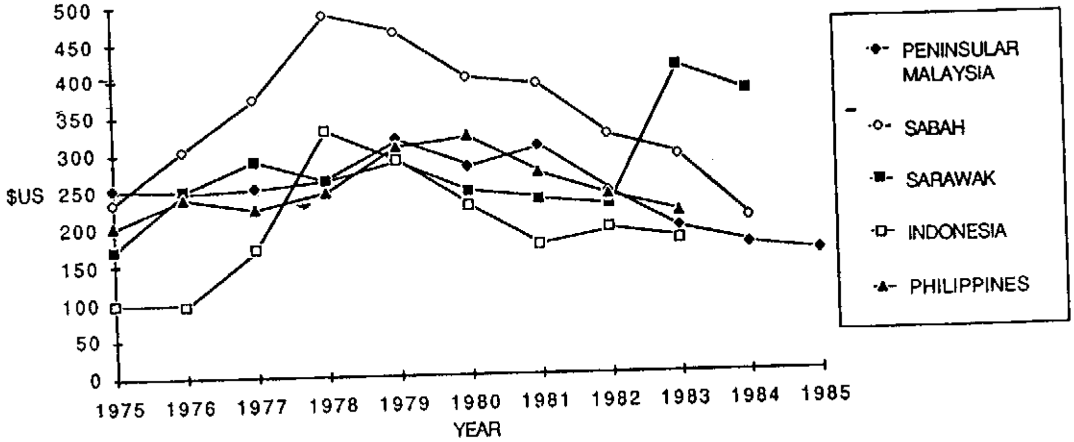


Figure 6: Unit Value of Plywood Exports ($ US 1980)



This phenomenon of negative value-added in wood-processing has also been observed in New Zealand and in Solomon Islands; it was the primary reason why Papua New Guinea decided it could no longer afford to follow the SEALPA log export bans in 1982; it may also have relevance to current proposals for massive expansion of the forest industries in Australia, in which production costs could be double world market prices!

The Philippines

The Philippines began exporting logs in the late 1940s, and by 1970 was the major log exporter of the region. It was among the first of the ASEAN countries to impose log export restriction, in various forms, but has always had difficulty enforcing them, as log smuggling has been officially recognised as widespread (and perhaps supported at very high levels of government[1]).

There is concensus that the virgin forests of the Philippines are rapidly disappearing - e.g. only 1.8 million hectares left in 1985, which is expected to be logged out by 1995-2000 (Ganapin 1986). Yet Figure 7 suggests that the (officially recorded) annual log harvests has not approached the calculated sustainable yield (Annual Allowable Cut), at least since 1970. Perhaps the earlier calculated AAC was overly optimistic, but 15-year log production is well below the much more conservative limit of 9.77 million cubic metres set in 1983. Is the forest being under-utilised, or are the calculated sustained yields (AACs) grossly over-optimistic still?

Since the 1976 log export "ban", not only have log exports fallen substantially to a fairly steady 700-800,000 cubic metres per year, but total log production has steadily fallen. Given that the policies were intended to expand the domestic wood-processing industries and these industries claim to be suffering from serious shortages of logs, why is the national log harvest still falling, and so far below the sanctioned allowable cut? Why would a government restrict the total log harvest and yet stimulate new capacity, if existing mills already faced critical log shortages? Log exports are relatively modest and regulated, and now represent about 17 per cent of log harvest compared to 27 per cent in 1976 and 80 per cent in 1971.

The reason perhaps for the declining log production was the declining production from the sawmills, plymills and veneer mills. Figure 8 shows clearly that the volume of logs delivered to local industries for domestic processing has fallen steadily from 6.3 million in 1976 to 2.7 million cubic metres in 1985. While the volume of processed exports grew rapidly in 1976, there has been very little growth since and the volume of processed wood destined for local markets has gradually declined since 1975. Figure 9 reveals the enormous increase in sawmill capacity in 1973, about the time the fiscal incentives and log export bans began, but virtually no response in sawn timber production.

---

1. A former minister was issued with log export permits covering much of the production from his six concession areas. When the price per cubic metre for logs on the export market was approx. $US50 more than the domestic price, the value of an export permit for one million cubic metres is obvious. The incentive for smuggling and/or the possibilities for corruption were very strong! Ganapin (1986) noted recent estimates by the Ministry of Natural Resources that the real level of log exports was four times the recorded level of $US350 million - the country may have lost Peso 2.4 billion per year between 1978 and 1982 due to smuggling.

Figure 7: PHILIPPINES: allowable vs actual cut.

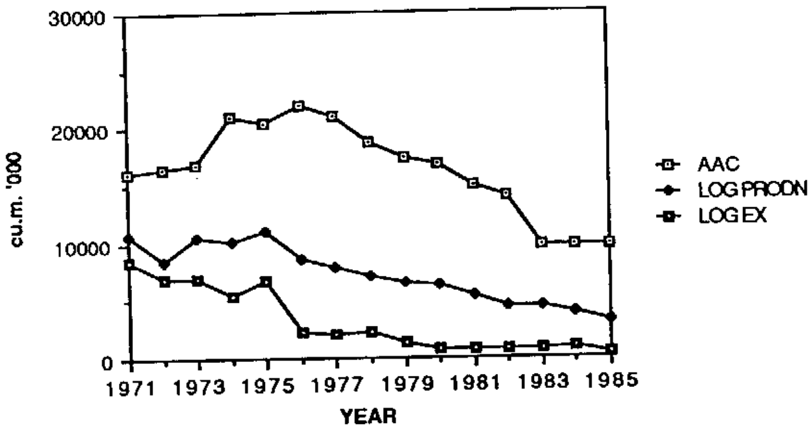


Figure 8: PHILIPPINES-log production, consumption & exports(000 m3 log equivalent)

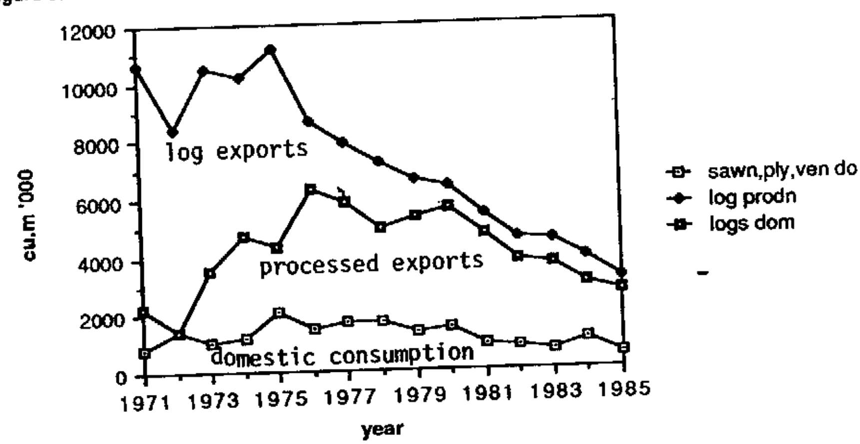


Figure 9: PHILIPPINES-sawntimber capacity, production & exports

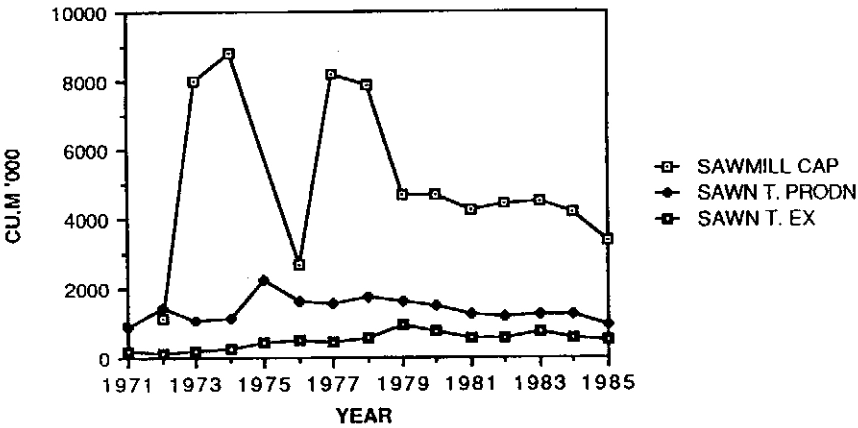
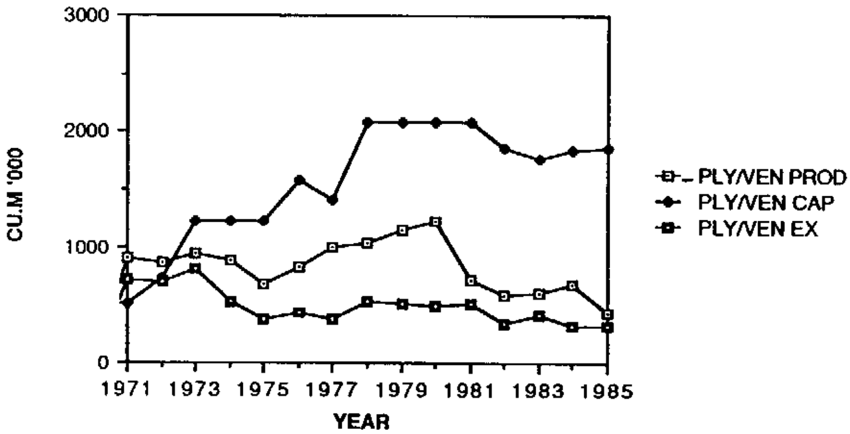


Figure 10:PHILIPPINES-plywood & veneer capacity, production & exports



Sawn timber exports have grown, in absolute terms, and as a proportion of total sawn timber output, i.e. the volume of lumber supplied to local markets has fallen substantially, from 1.8 million cubic metres in 1975 to 400,000 cubic metres in 1985 or from 80 per cent to 45 per cent of lumber production in 1985 (also shown in Figure 8). Menz and Krutilla (1987) argue that sawn timber exports were erratic in response to whether or not log export restrictions were currently being enforced or relaxed, implying a raw material supply constraint. Other equally plausible interpretations are that export volumes respond to demand, prices and international competitiveness; or that greater sawn timber exports were possible at times logs were also offered for sale; or thirdly, that export volumes were related to requirements to earn foreign exchange.

The situation for plywood and veneer is similar (Figure 10) - great increases in installed capacity that was never utilised and was eventually shut down, and a major decline in production since 1980, although the volume exported only declined gradually. Again this implies a substantial decline in domestic consumption, an indicator of the generally severe macroeconomic conditions of the Philippines over the period from 1980 to 1985.

Thus, the state of the forest products sector following the adoption of the policies to accelerate domestic processing, is not much better than before, and perhaps worse. With little expansion in production and/or exports, stagnant or declining domestic consumption, great excess capacity, high production costs (despite the subsidies), localised wood supply shortages and a great deal of corruption, the sector is not in a happy state! This is despite (or was it because of) a series of "rationalisation plans" since the early 1970s.

Foreign exchange

A stated principal objective of the policies was to increase foreign exchange earnings but as Figure 11 show, the (current) value of forest products exports is now at the lowest level since 1970, and in real terms, the decline is much greater. The nominal value of exports fell over 52 per cent between 1980 and 1985, and not only in the log category.[2] Why? There are a number of factors -

i) Prices collapsed (Figure 12) by about 30-35 per cent for all forest products, in nominal terms. But as Figure 13 show, that was from an abnormally high level. In fact, in 1985, prices were still above 1978 prices, but total forestry sector export earnings were much lower ($US1.9 billion in 1985 compared with $US4.6 billion in 1978). If the volumes actually exported from 1980 to 1985 could have all been sold at the 1980 peak prices, total forestry sector export earnings would have only declined 27 per cent. In those five years, the Philippines would have received an additional $US295 million or on average, $US59 million or 20 per cent more per year.[3]

---

2. It is interesting to note the 1976 log export restrictions also resulted in a massive reduction in the value of sawn timber that exporters could sell. As mentioned earlier in regard to Sarawak, the Japanese importers are not inclined to import processed goods, but are more likely to if accompanied by substantial volumes of raw materials. Conversely, "You don't sell us logs, we don't buy your processed wood". This seems to also apply to Tasmanian woodchips and processed pulp!

3. This is similar to Lindsay's (1987) estimate that the forest industrialisation policies cost Indonesia at least $US4.5 billion between 1981 and 1985, based on estimated prices and volumes that might have prevailed without the policies.

Figure 11:PHILIPPINES-VALUE OF FOREST PRODUCT EXPORTS

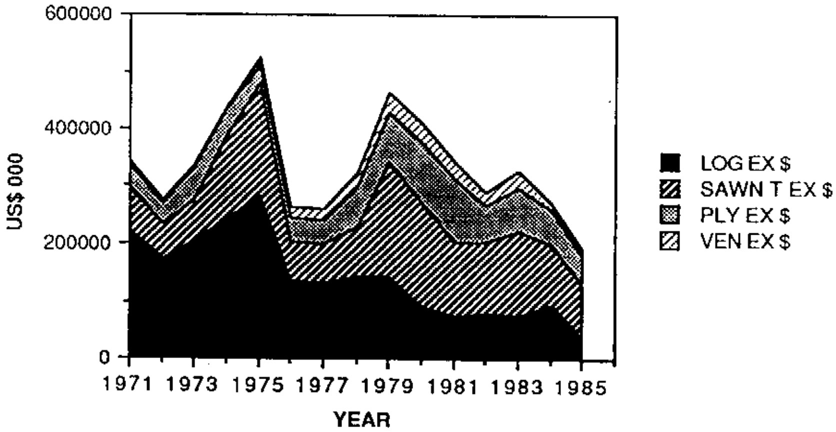


Figure 12: PHILIPINES-unit value of forest product exports

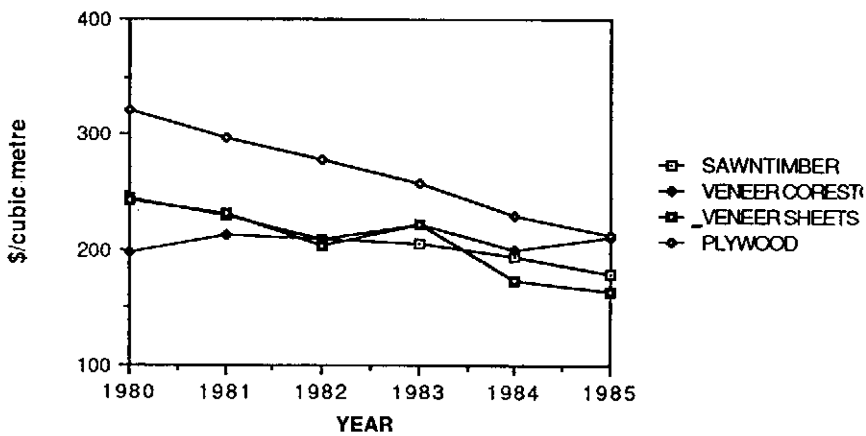


Figure 13: PHILLIPINES-UNIT VALUE OF FOREST PRODUCT EXPORTS

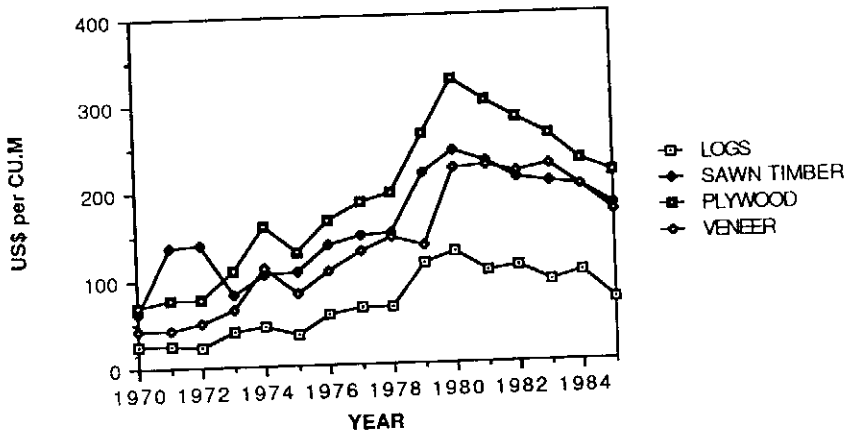
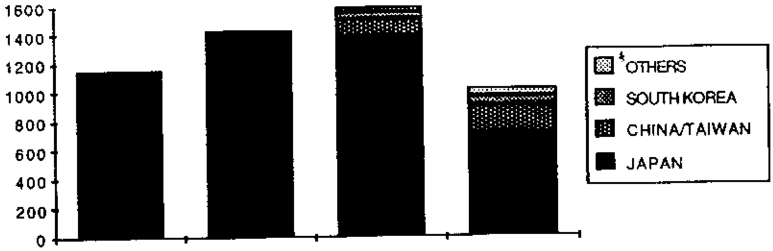
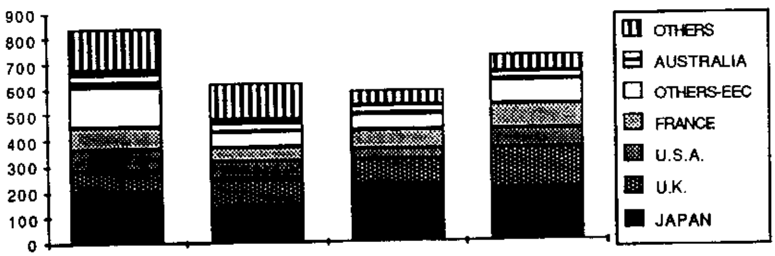


Figure 14: Volume of Exports
(000 cubic metres)

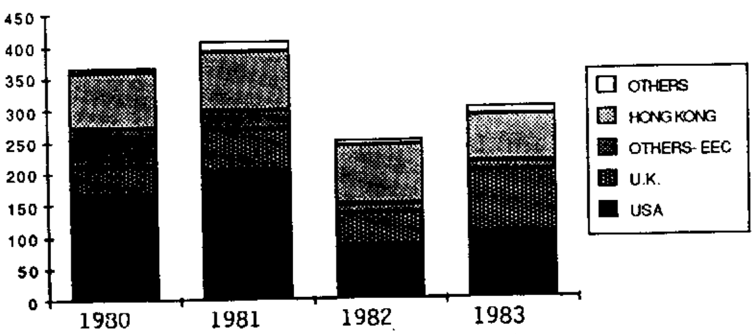
PHILLIPINES:- LOG EXPORTS BY DESTINATION



PHILLIPINES:- SAWNTIMBER EXPORTS BY DESTINATION



PHILLIPINES:- PLYWOOD EXPORTS BY DESTINATION



Source:- FAO yearbook of forest products

Was it just bad luck that most of the Southeast Asian countries endowed with tropical forests chose to create or stimulate forest industries at the exact time the Japanese (and hence world) demand passed it peak? Or perhaps the Southeast Asian producers actually depressed world market prices for their products by their simultaneous policies of very rapid and substantial expansion of production. There are grounds to believe that Japanese demand for forest products would have declined from about 1980 onwards, as the 1960-80 period was merely a short-term abberation in demand related to the post-war economic boom and housing the "baby-boomers" (Parsons 1985).

ii) The total log harvest from the Philippines is now much less (58 per cent less) than in 1978, as shown in Figure 7. The amount of foreign exchange earned per cubic metre of logs harvested nationally, has risen in nominal terms from $37 (1971-78) to $66 (1979-85) with a very clear discontinuity in 1979. This implies the country is earning more foreign exchange per hectare clear felled, for example, but that is not only because of the changed product mix, due to domestic processing. As noted previously, there were also higher average prices prevailing in the latter period, and a substantially higher percentage of all wood cut was being exported - at the expense of "starving the domestic market".

Employment

There are no (reliable) data on employment in forest-based industries in the Philippines apart from a sample survey conducted by the Bureau of Forest Development between 1974 and 1978, so it is really impossible to evaluate the policies according to this criterion. However, it does seem that the government has actively discriminated in favour of the export-oriented mills, which are larger and more capital-intensive[4]. The decline in labour-intensive mills with declining local consumption, and the stagnant performance of the export mills, leads to the conclusion, a priori, that total sector employment would have fallen substantially.

The environment

As argued earlier, it is extremely doubtful whether the log export restrictions and forest-industries incentive packages were ever intended to reduce the rate and extent of logging of tropical rainforests, at least in the eyes of the governments and their supporters (cronies?) in industry, although some environmental groups (rather naively) impute this motivation. However, unlike Indonesia, which is still planning to further increase (virtually double) the rate of logging there, the Philippines has introduced some logging bans in certain areas and reduced the AAC nationally. There have been numerous exemptions and exceptions to various quota schemes introduced over the past 15-20 years, but there is now a growing forest conservation consciousness in the Philippines post 1986.

---

4. To be successful in international forest products markets requires reliability of supply, high quality control, moderate prices and sizeable shipment volumes - all of which, typically, add up to large, capital-intensive mills (Byron 1988).

Conclusions

The primary conclusion is that it is still too early to draw conclusions about the effects and effectiveness of the policies to stimulate forest industries in Southeast Asia, but a few observations are perhaps possible.

It is important to carefully consider the time span - if tropical deforestation is a 10-20 year phenomenon, there may be a 10-20 year cure, but if it is a 100-500 year phenomenon, then a quick technical fix is unlikely!

We really only have five years of data to assess a long-term strategy that was introduced between 1976 and 1980, that could take 20 years to work! But in the short term, we can observe -

- West Malaysia has created, over 20 years, a model of export-oriented forest industries, which have indeed generated value-added, local employment and foreign exchange and which continue to move "up market", getting more dollars from less wood.

- Indonesia has created an enormous plywood industry, at very great financial cost to the government (subsidies from oil earnings) which, to date, does not seem to have real economic viability. Perhaps it could be seen as an infant industry which will become viable if/when prices for tropical plywood rise again. Like many highly-protected infant industries, it is not under pressure to be very efficient. Employment has been generated, but again, at great cost. Unlike West Malaysia, the plan is to log more, and it may be much more difficult in future to cease or reduce logging when the wood is for locally-owned mills, than it was in the case of log exports. This line of logic suggests accelerated industrialisation of Southeast Asia's forestry sectors could lead to much more, rather than less, forest exploitation.

- The Philippines forest industries seem to have responded very little to the incentives provided, although, no doubt, a small group of people have benefited greatly. But though (or because) the industries' performance has been uninspiring, the rate of logging in the remaining forests is being reduced. The Philippines forestry sector seems to be in need of a major re-assessment and restructuring.

- The countries which elected not to follow the SEALPA plan in the quest for industrialisation (Sarawak, Papua New Guinea and Solomon Islands, although it is still written into their national forest policies) have benefited in the short term by being able to export more logs at higher prices than they would have received otherwise. Log exports are simply too profitable, and processed export too unprofitable, for them to have much choice! It is yet to be seen whether or not they are the beneficiaries in the long term.

It seems that the tropical forests have been consistently undervalued by the governments responsible for them, and underpriced to those who would buy logs from them. Logically, this would lead to over-exploitation and little emphasis on conservation. The incentive packages to the domestic processing industries just caused the tropical timbers to be even further undervalued and underpriced in the producer countries, and they seem to be used more wastefully. The future seems now to depend on two economic factors (apart from political/environmental pressures) -

- the rate of growth of the domestic market for forest products in Southeast Asia (e.g. the Forest Development Center at the University of the Philippines at Los Banos estimated sawn timber consumption rising from 0.4 million cubic metres in 1985 to 6.1 million in 1990, 9.1 million in 2000 and 20.3 million in 2025[1]). Such a scenario would certainly increase the recognition of the value of the forests, and may slow the rush to "cash them in".

- the response to the continuing decline in Japanese demand for large volumes of commodity timber. The Southeast Asian producer countries could opt to -

  - not sell at all - the preservation option;
  - only sell when prices are high, recognising the intrinsic value and opportunity cost of their forests - the economist's option;

or
  - sell even more, even at low prices, in order to earn the requisite foreign exchange - the expedient option.

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