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NATURAL RESOURCES MANAGEMENT PROJECT

BAPPENAS – Ministry of Forestry
Assisted by
USAID

A REVIEW OF PLANNING ARRANGEMENTS FOR SUSTAINABLE MANAGEMENT OF NATURAL PRODUCTION FOREST ON FOREST CONCESSIONS IN INDONESIA

AN INTERIM REPORT

Associates in Rural Development
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PREFACE

This report is one of a number of reports produced under the Government of Indonesia's Natural Resources Management Project (NRM) that is assisted by the United States Agency for International Development.

The NRM Project, working with the Indonesian National Planning Board (BAPPENAS) and the Department of Forestry (Departemen Kehutanan), provides through a specially established project Policy Secretariat advice to BAPPENAS on natural resource issues relating to long term and short-term national planning. In addition, working with the Department of Forestry the NRM project carries out field activities in two pilot project areas one in West/Central Kalimantan and one in North Sulawesi including the preparation of management plans for the Bukit Baka - Bukit Raya National Park in Kalimantan and the Bunaken National Park in North Sulawesi. Each report addresses an aspect of the planned NRM project activities that are agreed on and laid out in an annual NRM Implementation Plan and each report aims at providing specific recommendations for future work in the area addressed.

This report, which looks at the present management plan for sustainable management of natural production forest in forest concessions is a preliminary report which will be followed up by additional work in early 1994. This report looks specifically at the long-term forest planning guidelines (RKPH) and makes recommendations for possible improvements.

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EXECUTIVE SUMMARY

This report is on the first phase of a two-stage consultancy in the Ministry of Forestry. It examines planning arrangements for the management and use of natural forests in forest concessions in Indonesia. The second phase will be conducted in 1994. The focus of studies in this report is a review of the guidelines for long term forest planning (RKPH). It considers the structure and content of the guidelines, how amendments would enable forest information to be shown in a more effective manner, procedures for collection of economic information, issues concerning the potential harvest of nonwood products and guidance for planning fire mitigation Programs.

Major Conclusions from a review of the planning guidelines are:

- To a large extent the RKPH guidelines require the presentation of information on issues which are important for effective long term forest resources planning. However, revision is desirable to encourage the formulation of plans which will be more broadly based than are required presently where the focus is primarily upon harvesting wood from old growth forests. New factors that need to be considered are environmental and community development issues and greater technical and economic emphasis upon measurement of forest growth and yield forecasting. Rather than being presented as Forest Utilization Plans the consultant suggests that the RKPH now be considered as **Forest Resources Development Plans** that can be integrated into the overall development Programs within a province. The RKPH could become, more openly than at present, an instrument in the achievement of provincial development policies.

- There is a prominent need for clearly defined, realistic and attainable **Goals** to be stated in each RKPH. Specific **Objectives** are also necessary.

- **Monitoring and reporting** mechanisms for forest utilization and development operations require strengthening to improve accountability of a concessionaires management of State forest resources.

Section I of the guidelines provides a firm foundation for the documentation of facts that can be evaluated and contribute to the determination of clear and coherent plans. Particularly helpful paragraphs are those on **Forest Composition and Structure, Forest Protection, Social and Community Issues, Prospects for Forest Management and Prospects for Forest Products Processing.** All could be strengthened by asking planners to examine and evaluate the

managerial implications of each topic. New chapters could be included identifying and evaluating the **major management issues** that are expected to influence the management of forests during the term of a long term plan, on **environmental impacts assessment** and on **economic and financial analysis.**

Section II provides a broad basis for the formation of action plans and proposals aimed at achieving sustainable management of natural forests and, to a degree, for supporting the development of the locality within which a concession is located. It mixes the presentation of plans with basic and derived information and does not provide sufficiently clearly for monitoring and reporting of progress in plan implementation. There is no requirement for five and one year plans to be coordinated with a RKPH. Positive though the present guidelines are, they could be reinforced by including new components in the following fields; **land use planning, public and community relations, implementation schedules** for each set of activities, **monitoring and reporting of achievements**, improved guidance for **boundaries and forest management sub-divisions,** a **wood yield plan**, a **nursery management and transplanting plan,** the formation of a unified **forest products processing and marketing plan,** formation of a **forest communities settlement and development plan** and a requirement for **corporate and business planning.**

A new format for long term management planning is suggested. Guidance is provided on mechanisms for data collection that can be used in economic studies, for implementing, at a pilot level, community focused fire mitigation arrangements and in respect of the collection of data on nonwood forest products.

1. INTRODUCTION

The structure, content and formulation of guidelines for the preparation of long term forest utilization management plans for forest production concessions (Hak Pengusahaan Hutan, or HPH) in Indonesia are reported on in this review.

The study is a technical component of the USAID funded Natural Resources Management Project in the BAPPENAS and Ministry of Forestry (Directorate General of Forest Utilization). It is a contribution to the demanding task of achieving high quality production forest management of forest concessions where sustainability of forest ecosystems, maintenance of wood-using industries and employment of people is emphasized.

There are three principle elements in the consultant's Terms of Reference, namely,

> *Part 1: To review the guidelines and plan revision arrangements for the RKPH (Rencana Karya Pengusahaan Hutan) - for long term forest utilization with guidance and recommendations for data collection, forest fire mitigation, arrangements for reviewing long-term plans and preparation of options for improving guidelines for long-term plan formulation,*
>
> *Part 2: To review Ministry of Forestry guidance for preparation and application of the RKL (Rencana Karya Lima Tahun) - 5 Year Operational Plan, with recommendations for making improvements,*
>
> *Part 3: To review existing guidelines for formulation of the RKT (Rencana Karya Tahunan) - One Year Logging Plan.*

Full Terms of Reference, expected outputs and reporting requirements are described in Annex No.1. Most of Part 1 of the Terms of Reference are considered in this interim report; Other aspects of Part I together with Parts 2 and 3 will be reported on in 1994.

The most constructive outcome of the consultancy will be amendment of the RKPH planning guidelines having the acceptance of concessionaires that will progressively lead to more progress in achieving sustainable management of natural forests. To be a useful management tool the guidelines need to visibly strengthen the Ministry of Forestry's ability to achieve the discipline of regulating the harvesting, silvicultural, protection and environmental conservation operations on forest concessions. Of particular importance is the need to specify and regulate the yield of wood and other products that might be harvested and to have a

sensitive regard for the interests of communities living in or near natural forests and having a long standing dependency upon them.

The reviews and proposals in this interim report were undertaken for ARD Inc. as a short term consultancy by Ian Armitage, Tropical Forestry Development Consultant. A working timetable for the 1993 assignment is attached to this interim report as Annex No.5.

2. BACKGROUND

In line with broader economic policies, the objectives of the forestry sector are to conserve and sustain Indonesia's natural resources for longer-term benefits through higher income and employment. Sustainable forestry is a central feature of forestry development policies and underpins the nation's aim of bringing increasing benefits to the people. The Ministry of Forestry is working to progressively strengthen the capability of the forestry sector with the aim of managing all forest resources on a sustainable basis.

A comprehensive study of the forestry sector made in a World Bank/FAO Forestry Studies project between 1989 and 1990 [1] identified a wide range of opportunities for achieving sustainable forest management. Important structural, technical and strategic issues were identified during the studies and have been succinctly brought together in a concluding report [2] entitled *Agenda for Forestry Sector Development*. An important outcome of the Forestry Studies project has been the initiation of the process of planning for sustainable forest resource development.

This project builds upon the substantial technical and economic base within the forestry sector and it is a step towards testing new initiatives for managing natural production forests and protected areas. Although the Ministry of Forestry is placing considerable attention upon plantation forest development on degraded lands, the sustainable effective management of the country's natural forests is essential to maintain the productive base of the forest economy of Indonesia. This review was made in consultation with officials in the Ministry of Forestry in Jakarta, Pontianak and Palangkaraya and in association with the forest concession of PT.Sari Buma Kusuma (SBK), a company of the Alas Kusuma Group, in the provinces of Central and West Kalimantan.

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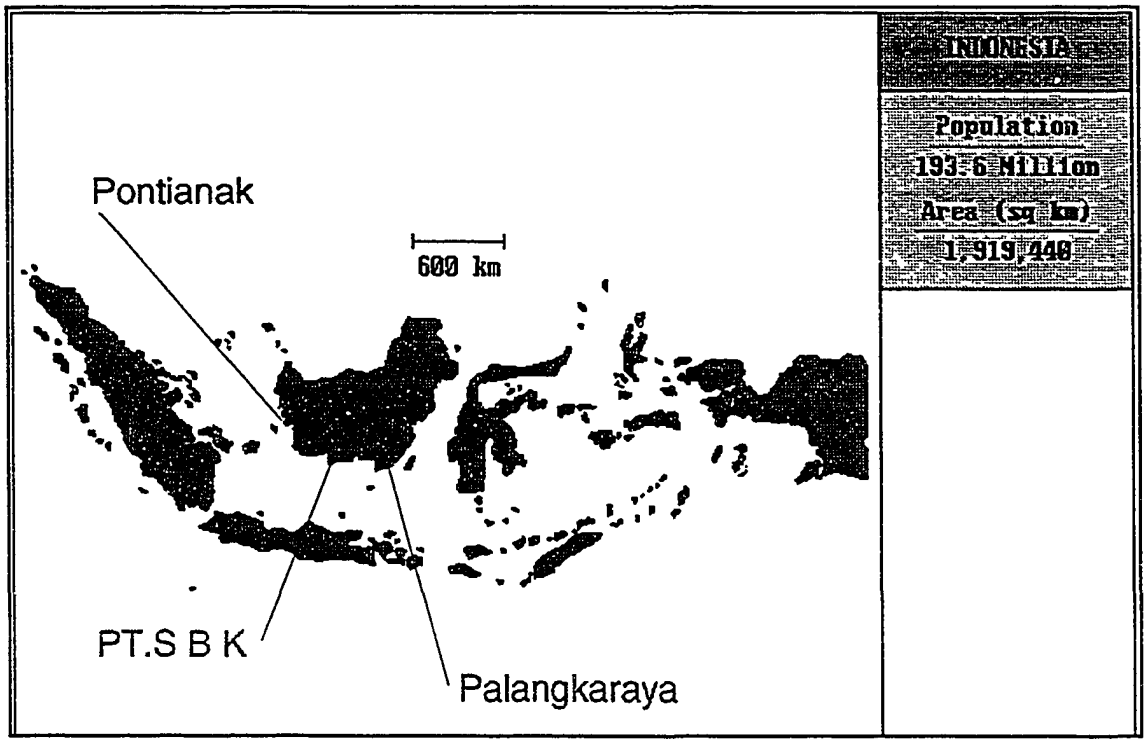
1 Situation and Outlook of the Forestry Sector in Indonesia: Four Volumes. Directorate General of Forest Utilization, Ministry of Forestry and Food and Agriculture Organization of the UN (Proj.UTF/INS/065/INS). Jakarta, 1990.

2 An Agenda for Forestry Sector Development in Indonesia. Directorate General of Forest Utilization, Ministry of Forestry and Food and Agriculture Organization of the United Nations; (Proj.UTF/INS/065/INS). Jakarta, 1991.


INDONESIA
Population
193.6 Million
Area (sq km)
1,919,440
Pontianak
600 km
PT.S B K
Palangkaraya

3. POLICY AND TECHNICAL DETERMINANTS INFLUENCING THE FOREST MANAGEMENT PLANNING PROCESS

There are several issues of a policy and technical character that are expected to influence the process of forest management planning and plan use on forest concessions. The significant determinants are identified in this chapter.

3.1 Policies on Forest Development and Management in REPELITA V

As a statement of Government policy and commitment towards sustainable forestry the objectives and targets for forestry sector development expressed in RRKLK in 1989 [3] for the period up to March 1994 have a direct bearing upon the management of natural forests. The long term goals are:

- improved soil and water management, particularly flood prevention and retention of soil fertility,
- improved forest productivity and marketing,
- effective protection of biological resources,
- to provide support for other sectoral goals, such as transmigration, agriculture, estate crops.

Comparable goals are expected to be expressed in REPELITA VI.

Specific objectives of RRKLK are:

- to increase "value-added", through processing, to the production of wood from forests,

- to increase the productivity of forest resources through:
  - establishment of productive forests by rehabilitation of damaged forest resources,
  - establishment of new planted forests,
  - improve logging efficiency.

- to increase the emphasis and activity in conservation of soil and water resources and of biological activity.

The RRKLK also expresses forest production targets. It is desirable as a part of the planning process that guidelines for long term planning recognize the goals and objectives in REPELITA V and VI and interpret specific themes aimed at reflecting the expectations of Government in the management of each forest concession.

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3 REPELITA V, Rancangan REPELITA Ke Lima Kehutanan, (RRKLK) Dept.Kehutanan, Jakarta, March, 1989.

3.2 Basic Forestry Law of 1967

The Basic Forestry Law of 1967 [4] is both a law and a statement of forest policy. It is the primary source of authority and guidance of all forest administration and regulation [5]. In setting out responsibilities for Government in respect of forest management, Article 5 specifies;

a. *Determining, organizing and planning the purpose, supply and use of forest according to the interest and benefit of the State and population;*

b. *Management of forest in broad meaning;*

c. *Determining and arranging the legal relationships between people and legal entities with forests and managing legal activities on forest lands.*

Other Articles provide authority for classification of forest lands, forest exploitation (harvesting) and rights to carry out forestry activities, including of forest exploitation. Several regulations have been made under the authority of the Basic Law on planning, forest protection and security and forest production concessions. A revision of guidelines for the preparation of management plans for forest concessions will need to be mindful of the requirements of the Basic Forestry Law and subsequent regulations.

3.3 The Concession System as an Instrument in the Management of Natural Forests

The concession system has been and continues to be a major instrument in the management of natural forests in Indonesia and provides the basis for extensive industrial development and employment of people. Experience has been gained and lessons learned as the system has evolved over a period of more than 20 years. Gray and Hadi (1989 - Footnote 5) in an analysis of institutional aspects of forest concessions drew attention to a number of issues of direct relevance to the management of natural forests. Four specific matters are:

(a) definition of concession boundaries,
(b) aerial photography and inventory,
(c) forest management work plans,
(d) evaluation of forest management planning.

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4 Basic Forestry Law of 1967. Undang-Undang Pokok Kehutanan No.5/1967.

5 Forest Concessions in Indonesia: Institutional Aspects. John A.Gray and Soetrisno Hadi. Min.Forestry, Jakarta and Food and Agriculture Organization of the UN. Field Doc.No.VI-1, For.Studies Proj.UTF/INS/065/INS, 1989.

Under the conditions of concession licenses, concessionaires are supposed to manage a concession on the basis of three levels of work plans: a 20-Year Overall Concession Work Plan, Five-Year Work Plans of Blocks and Annual Work Plans of Cutting Areas (Gray and Hadi - Footnote 5). The 20-Year Overall Concession Work Plan divides the concession into seven, 5-year Work Plan blocks (based on a 35 year cutting cycle), identifying those to be operated over the 20-year concession period.

3.4 A Strategy for Management of Natural Forests

(a) Sectoral Considerations

In a recent benchmark statement from the Minister of Forestry (see an *Agenda for Forestry Sector Development*, Chapter 2) a wide range of policy matters covering strategic, institutional and developmental issues and forest management have been identified. Although interlinked, they are nonetheless separate but decisive sectoral development policy statements.

In particular, strategies are identified for achieving sustainable management of the country's natural forests. These need to be considered in the forestry planning process, especially for long-term (RKPH) and five years operational (RKL) plans. The major strategic elements recognized for sectoral development are:

(i) rational forest land use allocation,

(ii) improved management of natural forests,

(iii) large-scale forest resource expansion,

(iv) efficient forest resource utilization and properly structured forest industries,

(v) strengthened environmental conservation,

(vi) enhanced social contributions,

(vii) streamlined institutions.

(b) Forest Management Strategies

Leading features of the natural forest management strategy are as follows:

> *Forests are a renewable natural resource covering only a limited area of land. The need for sustainable forest management has been acknowledged and indeed is a leading aim of Government. Although natural forests will continue to be an important source of supply of high quality wood for some time the management of forests is*

no longer seen as an exclusive timber oriented activity. It needs to be considered more as a process leading towards wood and nonwood production and to achieve environmental conservation and protection goals. Forests are important for regional development. Management planning should take socioeconomic factors into consideration and the role of timber and nonwood products for improving the welfare of local communities. Systems of integrated, multiple purpose management need to be developed to develop the full potential of forests. Despite their importance it is recognized that effective management of natural forests remains minimal and has steadily led to a decline in the quality of the resource.

The strategy argues that improvements in management planning are needed, including:

- *management and stock maps that have relevance to the objectives and technical needs of forests,*
- *improved management technology,*
- *silvicultural systems that are appropriate to the ecological characteristics of forests,*
- *yield estimating and regulatory mechanisms,*
- *logging specifications that are practical and effective,*
- *measures for enforcement of management prescriptions, forest protection and maintenance of the resource,*
- *effective research support.*
- *consideration of socioeconomic factors,*
- *the role of timber and non-timber forest products for improving the welfare of local communities.*

A major constraint on achieving sustainable forest management has been the short term perceptions and time preferences of the private sector. It is asserted by Government that the right balance of incentives and controls, though difficult, is regarded as an important factor in working to overcome this difficulty. Equally important is the need for planning arrangements for natural forests that could provide continuity over a long time span for a realistic, coordinated pattern of operational activities having consistency with management goals and objectives together with effective mechanisms for monitoring and reporting. Review and possible amendment of the guidelines for each level of planning will need to consider the forgoing forest management strategies.

3.5 Sustainability of Natural Forest Ecosystems

The structural complexity and broad genetic diversity of Indonesian forests is well known to foresters and has been clearly documented by Whitmore [6]. Critically important to the goal of achieving better natural forest management is the preservation of both genetic diversity and ecological structure. It is central to the theme of achieving sustainability in the production of wood and all other values, including environmental conservation, employment and income generation.

Sustainability in the management of natural tropical forests has been realistically defined by Wyatt-Smith [7] as follows;

> *" To exploit a forest in a way that promotes a regular yield of forest produce without destroying or radically altering the composition and structure of natural forest as a whole. Thus it is more than maintaining the rate of production at a low level which merely replenishes natural mortality. It is used in the sense of enhanced production through silvicultural practices while conserving the protective role of the vegetation and the genetic pool of all species other than those regarded as weed species and which compete with and suppress favored timber trees."*

The point has been made (Poore and Sayer [8]) that sustainable production of timber from managed natural forests is potentially one of the most effective ways of ensuring the conservation of the ecosystem and the social and economic development of the regions. Such managed forests will retain most of the diversity of primary forest, both in terms of numbers and population of species. The economic value of the wood and the environmental benefits produced will justify investments in maintaining the resource.

Recognition of the fundamental importance of sustainability in forestry is essential in the preparation and subsequent application of management plans. **Practical implementation of plans embodying the concept of sustainability requires a knowledge of both forest structure and growth that must be translated into managerial terms, that is, objectives, Programs and control arrangements.** The planning process needs to be able to identify appropriate technical

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6 Tropical Rain Forests of the Far East. Whitmore, T.C. Oxford Science Publications, Clarendon Press, Oxford, 1984.

7 The Management of Tropical Moist Forest for the Sustained Production of Timber: Some Issues. Wyatt-Smith,J. IUCN/IIED Tropical Forestry Policy Paper No.4, 1987.

8 The Management of Tropical Moist Forest Lands; Ecological Guidelines. Poore, D and Sayer, J. International Union for Conservation of Nature and Natural Resources, Gland, Switzerland, 1987.

requirements, and further, to specify what action is needed, the priorities for study and how, where and by whom the work might best be carried out.

3.6 The Role of TPTI

Achieving sustainable forest management will involve the setting in motion of a range of interrelated actions consistently over a long period of time. A significant step will be implementation of the TPTI (Pedoman Tebang Pilih Tanam Indonesia)[9] in lowland forests.

As a silvicultural system the TPTI has the objective of improving the timber added-value in harvested forests by developing a mixed species growing stock to serve as a sustainable industrial wood supply. It aims to control felling and regeneration activities in lowland dipterocarp dominant forests such that a minimum of 25 nucleus trees per ha with a minimum diameter of 20 cm are maintained until the end of the cutting cycle. It aims to achieve disciplined though flexible control over felling, skidding and the development of residual stands on logged over forest land and requires that concessionaires make appropriate institutional and adequate budgetary support arrangements. The long term planning process will need to accommodate the TPTI system as an important determinant in working towards sustainable forest management.

3.7 ITTO Forest Management Guidelines

The International Tropical Timber Organization (ITTO) has established a set of principles comprising an international reference standard for the development of more specific guidelines, at a national level, for sustainable management of natural tropical forests for timber production [10].

ITTO guidelines have policy and operational considerations and in regard to long-term management planning cover the following issues:

- *static and dynamic inventory,*
- *setting of management objectives,*
- *choice of silvicultural concept,*
- *yield regulation and annual allowable cut (ACC),*

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9 The Implementation of Indonesian Selective Cutting and Replanting System for Timber Improvement in the Logged-Over Areas. Djamaludin. Paper presented to the 4th Round Table Conference on Dipterocarps, pp.95-110; Biotrop Special Publication No.41, SE Asia Regional Center for Tropical Biology, Bogor, Indonesia, 1991.

10 ITTO Guidelines For The Sustainable Management Of Natural Tropical Forests. ITTO Policy Development Series No.1. International Tropical Timber Organization, International Organizations Center, Pacifico-Yokohama, 1-1, Minato-Mirai, Nishi-ku, Yokohama 220, Japan. July 1992.

- *management inventory and mapping,*
- *preparation of working plans,*
- *environmental impact assessment,*

Guidelines on related issues having a bearing on the need for effective long-term planning include:

- *harvesting (preharvest prescriptions, roads, extraction, postharvest stand management),*
- *protection (control of access, fire, use of chemicals),*
- *legal arrangements (concession agreements),*
- *monitoring.*

ITTO guidelines have recently been given legal effect through a Ministerial Decree setting out criteria and standards for achieving sustainable forest management. Refer to Chapter 3.9 (g) for particulars. Specifically, the Decree states that sustainability shall form the foundation of production forest management and it describes five sets of standards (criteria) against which sustainable management will be judged. These concern the following topics:

- *definition of forest resources,*
- *sustainable wood production,*
- *conservation,*
- *social and economic issues,*
- *institutional standards.*

Based on the requirements of the Decree the Indonesian Forestry Community (Masyarakat Perhutanan Indonesia, or M.P.I.) has recently set out working criteria for use by concessionaires for the preparation or revision of concession management plans [11]. These include a checklist on compliance with ITTO criteria. An essential question to be considered in this review is the extent to which the RKPH and RKL are consistent with the requirements of new ITTO guidelines issued by the M.P.I.

3.8 Social Developmental Values of Forest Concessions

The social developmental potential of forest concessions has been identified as being high [12]. Two conclusions were drawn from the 1990 Ministry of Forestry/FAO studies report:

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[11] Hasil-Hasil Komisi Tetup Persiapan Evaluasi Pengelolaan Hutan Lestari. Masyarakat Perhutanan Indonesia, Jakarta, Mei 1993.

[12] Situation and Outlook of the Forestry Sector in Indonesia, Vol 4: Social, Environmental and Institutional Aspects. DG of Forest Utilization, Min.Forestry, Jakarta and FAO. Tech.Rep.No.1, Vol 4, Forestry Studies Project No.UTF/INS/065/INS, 1990.

i) In general, the concession system could contribute more towards local employment and sustainable productive development, and

ii) Integrated forest industrial complexes could contribute more to sustainable forest management than simply being logging operations.

Because of more intensive management requirements and the need for a long term commitment and investment, plantation development Programs can provide employment over an extended time period and tend to assume a long term relationship with local communities. More intensive planned management of natural forests could provide the same benefits. The Forestry Studies project made the following important points:

> *... there are only a few concessions having long term plans for local development. The potential of making the concession system an important ingredient of local development is large, but difficult to mobilize. The reason for most concessionaires not investing in local development appears to be that they do not find any need for it from their profit maximization point of view. Some minimal development input should be made conditional for all concessions along with the necessary mechanism to monitor their performance.*

These points are of planning as well as policy significance and need to be considered within the framework of guidelines for preparation of both RKPH and RKL.

3.9 The Existing Forest Management Planning Framework

Requirements and specifications for the planned management of forests are specified in a series of Decrees issued by the Minister and the Director General of Forest Utilization. Up to 1989 the titles and purpose of decrees and guidelines have been summarized by Gray and Hadi (refer to footnote 5). The more significant Decrees controlling forest management (issued before and after 1989) are as follows:

(a) PP No.21/1970: Forest Concessions and Forest Product Collection Licenses; (Peraturan Pemerintah Republik Indonesia No.21/1970 tentang Hak Pengusahaan Hutan dan Hak Pemungutan Hasil Hutan oleh President R.I.tgl. 23 Mei 1970)

Under this basic concession regulation all concessionaires are required to manage concessions on three levels of planning, namely:

- Twenty year overall concession work plans,
- Five year work plans of blocks,
- Annual work plans of the cutting areas.

(b) **SK MENHUT No.274/Kpts-II/1989: Obligations upon Concessionaires to Prepare an Overall Forest Utilization Workplan; (Kewajiban Pemegang Hak Pengusahaan Hutan Untak Membuat Rencana Karya Pengusahaan Hutan Yang Meliputi Seluruh Jangka Waktu Pengusahaan Hutan; 3 Juni 1989)**

This Ministerial Decree specifies that concessionaires are required to prepare a forest utilization workplan covering the full period of the concession term and must do so within a period of two years.

(c) **SK DJPH No.131/KPTS/IV-RPH/90: Guidelines for the Formulation, Evaluation and Approval of an Overall Working Plan for Forest Utilization; (Pedoman Penyusunan, Penilaian Dan Pengesahan Rencana Karya Pengusahaan Hutan Yang Meliputi Seluruh Janga Waktu Pengusahaan Hutan. 20 Juni 1990)**

This Decree of the DG of Forest Utilization specifies the formulation requirements and procedures for the preparation of an *Overall Working Plan for Long Term Development and Management of Forest Concessions*. The Decree specifies that plans are to set out strategic goals and objectives, yield control, regulation of management operations, organization arrangements, economic and financial considerations, community development matters and environmental issues. An English language translation is attached to this report an Annex No.3.

(d) **SK MENHUT No.200/KPTS - II/1991: Guidance on the Formation of Production Forest Management Units; (Pedoman Pembentukan Kesatuan Pengushaan Hutan Produksi)**

Although not directly related to forest concession management this Decree has the purpose of defining Productive Forest Working Units (KPHP) as a mechanism for working towards sustainable management of forest areas. KPHP can be defined using natural and administrative boundaries and in a manner which aims to make management economically viable and from which there will be positive national, regional and community benefits. The Decree provides scope for the preparation of management plans.

(e) **SK MENHUT No.114/1992: In Conjunction with Five Year and Annual Working Plans; (Rencana Karya Lima Tahun Dan Rencana Karya Tahunan Pengusahaan Hutan. 11 Februari 1992)**

A Ministerial Decree specifying requirements for the formulation, evaluation and approval of five year and annual forest concession working plans. It requires that a Five Year forest Utilization Plan should specify objectives and targets and plans for forest management activities, community development, environmental management, human resources development, infrastructure development, income and expenditure and research. One Year plans

are to specify objectives, targets and detailed proposals for implementing the TPTI, harvesting, processing, marketing, protection, environmental management and community development.

(f) **SK DJPH No.196/1992: Guidance for the Preparation, Evaluation and Approval of the Five Year Forest Concession Working Plan; (Pedoman Penyusunan, Penilaian Dan Pengesahan Rencana Karya Lima Tahun Pengusahaan Hutan. 16 Maret 1992)**

This technical Decree specifying the structure and content of five year forest utilization working plans for forest concessions and evaluation and approval procedures. It expands upon SK MENHUT No.114/1992 by setting out standard tables for data presentation and for specific operational plans.

(g) **SK MENHUT No.252/Kpts-II/1993: Criteria and Indicators for Sustainable Management of the Natural Production Forest; (Kriteria Dan Indikator Pengelolaan Hutan Produksi Alam Indonesia Secara Lestari. 29 April 1993)**

This recent Decree gives legal effect to ITTO guidelines on forest management. It specifies that natural forests will be managed in a sustainable manner, it establishes criteria and standards for achieving sustainable forest management and against which sustainability can be evaluated. These criteria are:

- forest resource definition,
- sustainable production,
- conservation,
- social economics,
- institutional issues.

An English language translation of the Decree is appended as Annex No.5.

4. THE PLANNING PROCESS IN FORESTRY

4.1 Some General Observations about Forest Planning

The term 'planning' can be used to describe anything from a series of arbitrary decisions to a critical investigation into a wide range of possible choices open to an enterprise or Government agency [13]. Planning as an integral part of a management system is an active process involving careful thought about what could or should happen in the future and it involves the coordination of all relevant activities for the purpose of achieving specified and achievable goals and objectives. Planning uses information to evaluate the benefits and drawbacks of alternative courses of action and enables preferred options to be determined, coordinated with other activities and clearly expressed. Plans must be prepared in relation to defined goals and objectives. The only valid basis for adopting a particular plan is that it will achieve the implementation of policy objectives more effectively than other possible courses of action. Objectives of management are the basic standards by which the effectiveness of proposals or prescriptions in plans need to be judged.

Planning in forestry need not be a complicated process. It requires imagination and a willingness to consider all points of view having relevance to a given situation. It also involves gaining a first hand knowledge of resources, evaluating the technical, social, economic and environmental values of those resources and forming a balanced outlook from which proposals for effective management can be written. Planning is basically about deciding upon the wishes (or objectives) which Government, people or companies have, and for setting out the various steps and targets in order to achieve those chosen wishes. An element of flexibility is desirable to cope with incidents which could impact upon the achievement of objectives. Unforeseen events, such as fire losses, disease problems, changes in markets, costs and prices or political issues may occur which might influence the course of management during a planning period. It is desirable to arrive at a reasonable balance between flexibility and continuity.

An essential element of modern forestry and business management practice is maintaining continuous or periodic surveillance over the implementation of Programs set out in approved plans. Two types of monitoring can be considered to provide information for controlling plan implementation. The first is a retrospective comparison of physical achievements and financial expenditure with program targets and budgets at the end of given time periods, such as six-monthly or quarterly periods. The second type of control is

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[13] Forest Planning. Johnston D.R, Grayson A.J, Bradley R.T; Faber & Faber, London, 1965.

applied continuously throughout the monitoring period and enables information to be collected frequently, such as at monthly intervals, thereby allowing quite sensitive control over forest operations. In public (Government) and non-profit organizations the monitoring and reporting procedure enables comparisons to be made between planned outputs and inputs with actual outputs and inputs [14]. Comparisons have value for controlling current management activities, for evaluation of the operating performance of an organization and for evaluation of management Programs.

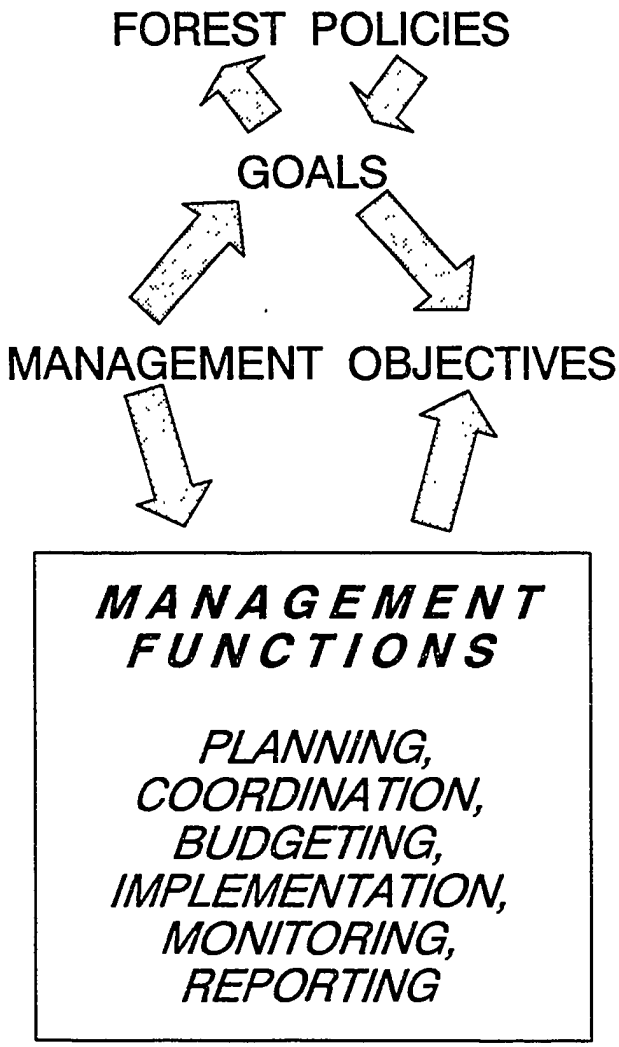

Diagram 1

General relationships between forest policy, goals and objectives with management functions and activities are shown in Diagrams 1 and 2.

[14] Management Control In Non-Profit Organizations. Robt.N. Anthony & Regina E. Herzlinger, Grad.School of Business Administration, Harvard University; Richard D. Irwin, Inc. Publishers, Illinois, USA, 1980.

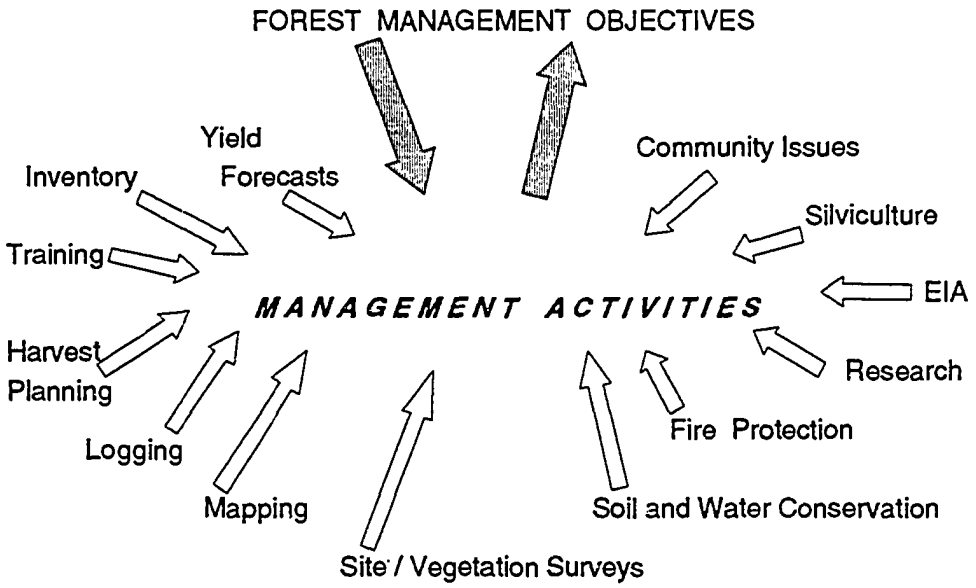

Diagram 2

4.2 The Role of Management Plans

In broad terms the purpose of management plans is to translate national policies, such as Decrees, into thoughtfully prepared and effectively coordinated schemes of operational activities for specific localities and for specified time periods. In regard to the management of production forest a plan needs to provide firm guidance on the yield which may be cut for all forest products and from where and under what conditions, or constraints, the yield may be harvested.

Written plans have the purpose of not only recording selected management strategies and Programs but equally importantly, of communicating these to managers and others involved in implementation. The planning process and a written plan for a specific locality can be considered as being a tool for helping to secure the national goal of sustainable wood production and, in turn, it becomes a policy tool contributing towards sustainable employment, income generation and new investment. In a recent global review of natural forest management [15] the conclusion has been drawn that a major cause of failure of many forestry projects, as well as routine work, in tropical countries has been the failure to plan and execute the work in a social, institutional and

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15 The Management of Natural Forests J.Palmer and T.J.Synnott. Chap.13 in **Managing the World's Forests: Looking for Balance between Conservation and Development.** Kendal/Hunt Pub.Co. Iowa, USA for The World Bank, 1992.

political context. Forestry has been treated as something apart from the normal life of a country, perhaps because of the relatively long periods of maturity of most of its forest products.

It is important to recognize that neither the planning process, of itself, nor the approval of plans, will necessarily lead to the successful implementation of proposals or prescriptions. Implementation depends upon a good level of understanding and acceptance by company management staff, and officials, of the objectives and prescriptions in a plan and a firm commitment to allocate funds, staff and other resources for the duration of a plan period, and beyond, to enable proposals to be implemented.

4.3 Monitoring and Reporting

An essential element of modern forestry and business management practice, is maintaining continuous or periodic surveillance over the implementation of Programs set out in approved plans. A common approach involves comparison of physical achievements and financial expenditure with program targets and budgets at the end of specified time periods, such as annual or six-monthly intervals. Another approach is applied continuously on specified key indicators and enables information on the progress of plan implementation to be collected frequently, such as at weekly intervals. Frequent monitoring enables quite sensitive control over forest operations to be applied. Guidelines for RKPH planning will need to show the indicators, such as areas of forest cut and volume outputs, planting, tending, inventories and community development, and how these will be measured and reported.

5. GUIDELINES FOR LONG TERM FOREST CONCESSION PLANNING: RENCANA KARYA PENGUSAHAAN HUTAN (RKPH)

5.1 Review of the Existing Planning Guidelines

This section of the study considers the first two sub-paragraphs of the Terms of Reference, namely:

i. review the existing guidelines for formulating an indicative plans for forest utilization (RKPH), and

ii. strengthening the RKPH to more effectively reveal general information about forest concessions.

(a) Questions Considered in Reviewing the Guidelines

The existing guidelines for the preparation of long term forest concession management plans are described in SK DJPH No.131/KPTS/IV-RPH/90: Guidelines for Formulating, Evaluating and Approving of an Operational Working Plan for Forest Utilization. Refer to Chapter [illegible] (a) for reference details and to Annexures 2 and 3 for an English language translation of the Decree and Guidelines. The approach followed in making this review has been to evaluate each chapter and paragraph against criteria which the consultant considers are basic in regard to strengthening the basis of planned forest management. Five sets of questions have been asked:

1. Do the management planning guidelines cover topics and issues which may be considered to be essential in regard to achieving sustainable management of natural forests?

2. What topics or issues are not covered in the guidelines but which should be considered, and why?

3. Do the guidelines specify the preparation of information or proposals which are unnecessary in terms of achieving sustainable forest management? Is there duplication in the presentation of information?

4. Will the management planning guidelines contribute towards achievement of:

   - the strategic development goals for the forestry sector expressed in 1991 by the Directorate General of Forest Utilization?[16]

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16 Action Plan for Forestry Sector Development in Indonesia. [illegible] General of Forest Utilization, Ministry of Forestry, March 1991.

- the ITTO Guidelines?

5. Are the guidelines logical and practical to use? What improvements are desirable in order to improve interpretation and use by concessionaires and officials?

The aim of the analysis is to examine the various issues having a bearing on the planning process and as such it is a step towards identifying options which may be considered in proposing amendments to the planning guidelines.

(b) Criteria Against Which the RKPH Can Be Reviewed

In a report on the situation and outlook of the forestry sector in Indonesia at the conclusion of an internationally funded Forestry Studies project in 1990 [17] the following findings were presented in respect of natural forest management. Each has long term policy and planning implications:

1. Forest management at present has an emphasis on trade (commercial species). Emphasis needs to be shifted towards investment for sustainable production, based on sound silvicultural principles.

2. More efforts are needed to ensure: proper management planning, adequate management and stocks maps to guide field operations, physical demarcation of the boundaries of concessions and of different functional categories of forests, adequate infrastructure, post-logging silviculture.

3. Flexibility is needed in management regulations, to permit adoption of systems most suited to crop conditions and the silvicultural requirements of the species involved.

4. Logging systems should be flexible and be adjusted to suit the terrain, soil types and other physical and ecological aspects.

5. Concessionaires should be required to plan, design and implement measures for residue utilization.

6. Intensification of management would facilitate better monitoring and control and help (achieve) fuller utilization of resources and reduce logging wastes.

7. Protection of forests from fire, pests, diseases and illegal activities should be treated as an integral part of forest management systems.

8. Alternate potential management systems are to be tried on a pilot scale in the field, to facilitate their introduction in suitable areas.

9. Fields where R & D support is required include:
- *growth and yield studies,*
- *alternative silvicultural treatments,*
- *regeneration of major species and enrichment of growing stock,*

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[17] Situation and Outlook of the Forestry Sector in Indonesia. Vol 1: Issues, Findings and Opportunities. Ministry of Forestry, Indonesia and Food and Agriculture Organization of the UN. Technical Report No.1, FAO Project No.UTF/INS/065/INS, 1990.

- *development of more efficient forest products processing,*

10. The overall system of planning should encompass forest protection, wildlife conservation and non-wood products as well as wood production.

The Ministry of Forestry subsequently prepared an Action Plan for development of the sector (DG of Forest Utilization - see footnote 15). It is the most recent definitive Government statement on long term development of the forestry sector and sets out important "benchmark" positions in respect of sustainable management of natural forests. These are as follows:

1. *a recognition that natural forest resources are limited,*
2. *sustainable forest resource management is a development goal,*
3. *forest management needs to focus on multiple use management,*
4. *forest management should consider socioeconomic factors and the role of timber and nonwood products for making improvements to the welfare of local communities.*
5. *"reliability" in the preparation of forest management and development plans,*
6. *monitoring arrangements are required to ensure that plans are not disregarded.*

A third set of reference points are contained in the Minister of Forestry's recent Decree relating to application of the ITTO Guidelines - "Criteria and Indicators for Sustainable Management of the Natural Production Forest". See Chapter 3.9 (g) for details. It specifies that:

... natural forests will be managed in a sustainable manner and establishes the following criteria against which sustainable forest management can be evaluated.

- *forest resource definition,*
- *sustainable production,*
- *conservation,*
- *social economics,*
- *institutional issues.*

Taken together these three themes provide points of reference against which the existing guidelines may be evaluated in the first part of this study.

(c) Strengthening the RKPH to more Effectively Reveal General Information about Forest Concessions

A part of the review of the planning process is a consideration of how planning guidelines can be revised to more realistically reveal general information about forest concessions. The aim is to strengthen the value of RKPH as documents which present reliable

and relevant management data and, in doing so, are able to support specific proposals which focus on achieving sustainable forest management. The principal questions are these:

- *What is the relevance for sustainable forest management of information which is required in plans presently? Does it directly contribute towards achievement of management goals?*
- *What information having management relevance should be included in RKPH, and for what reasons, which is not presented now and in what form should it be presented?*
- *What are the strengths and weaknesses of the processes used to collect information presently? What alternative information collection methods could be used?*

5.2 Analysis of RKPH Guidelines

(a) SECTION I - Presentation of Data and Analyses

Section I: Chapter I - Introduction

Chapter 1 contains eight sub-paragraphs which in all but one instance (legal status) are drawn from later chapters. Positive requirements of chapter 1 of the guidelines are:

- presentation of **forest management and industrial objectives,**
- statement of the **legal status** of the concession,
- statement of **allowable cuts** upon which industrial wood use will be based.

There are five prominent shortcomings in the Introduction:

- no statement of **long term development goals,**
- no expression of **area, land use classes** or **forest types,**
- no overall statement of **forest resources,**
- no expression of **social, local community** or **economic issues,**
- no statement of **physical** or **biological environmental issues.**

The guidelines require the presentation of material which is of questionable value or is even unnecessary in an introduction to a management plan. At the same time the chapter overlooks issues which are central to achieving sustainable forest resources and community development. Material which is not needed at this stage are species selection (1.2), management unit working divisions and

road construction (1.4), silviculture systems (1.6), site classification (1.7b), research (1.7c) and annual allowable cut calculations (1.8). Presently the guidelines lead to the presentation of an incomplete introduction to the issues and characteristics concerning long term forest concession management, nor do they require a complete summary of what is to be presented in detail in subsequent chapters.

The consultant's overall impression is that chapter 1 is not particularly helpful to readers as an introductory part of a long term plan. It is neither an effective introduction nor is it a balanced summary of development or management issues. A more useful component would be an **Executive Summary** which would comprise a concisely worded statement on the principal features of a plan. Flexibility is needed on the content of an Executive Summary but it should contain information on location, ownership, area, goal, specific objectives, prominent social and environment issues, proposed harvest level and the type of business activities which are based on sustainable management of the concession.

Section I: Chapter II - Main Data

2.1 Statements on *location* and *area* as required in clauses 1 to 4 is endorsed. Clause 5 (effective area suitable for sustainable timber production) would seem to fit more comfortably with other data on forest conditions if it were moved to paragraph 2.6.

Noticeably absent from this paragraph of the guidelines is a requirement for a succinctly written statement of the *legal status* of the forest concession. It is desirable that a legal reference for each concession be shown, including the HPH license number for which a plan is being prepared.

2.2 The need for *topographical data* is endorsed as it is a key feature of many aspects of the forest management planning process. It is unclear why information on "class and slope directions" (2.2.2) and "slope class descriptions" is required; there appears to be some duplication here. There is insufficient guidance on how data should be presented. The essential requirements are:

- tabulated data on altitude (max. min. mean),
- tabulated information on slopes: slope classes, areas, location,
- a short descriptive account of significant topographical features which will influence management decisions, especially those requiring expenditure by a concessionaire on roading, bridging and boundary

definition, such as mountain/hill ranges, rivers, lakes, coastlines, swamps and cliffs.

- presentation of information on maps or aerial photographs is essential, preferably on a scale of not less than 1:50,000. Larger scale maps or remote sensing imagery are technically acceptable is 1:50,000 maps are unavailable.

The consultant was advised during discussions with Dinas and Kanwil forestry staff in West Kalimantan that aerial photography which is acceptable to the Ministry is a prominent constraint in preparing effective maps for management plans and, in turn, in working to achieve sustainable natural forest management. The consultant shares the concern of regional staff which this constraint imposes. Greater flexibility in the RKPH guidelines is desirable which will enable concessionaires to make their own arrangements for providing maps, aerial photographs or remote sensing imagery, all of which are able to technically satisfy the mapping requirements for planning and plan implementation.

It would logical to bring paragraphs *2.1* and *2.2* together to form a single more comprehensive paragraph which could be termed *Location, Area and Topography*. These topics are closely interrelated and need not be separated as they are presently.

2.3 Statements on *soil* and *geology* are endorsed as required in clauses 1 to 5. Other than for the scale of maps to be provided the guidelines do not indicate what level of detail is required. It is suggested that a description of soil types (5.) be presented before information on unstable land, erosion and land slides (4.) because in many if not most cases erosion commences with soil loss; movement of rock detritus usually follows subsequently. The guidelines are not sufficiently clear regarding references for soils and geology. It is suggested that the guidelines be written more explicitly to ensure that concession planners can be quite clear about reference material that should be consulted. Specific components of the soils and geological classifications which need to be followed <u>should be written into the guidelines</u>. It is suggested that closer links be made between climate and topography. This could be by way of a short descriptive comment on how topography influences the character of local climate. What is absent from the guidelines is a requirement for an evaluation of any special soil characteristics which might influence soil stability or productivity in respect of either natural or plantation forests. This might be in either a positive sense (such as high natural productivity, robust, stable soils) or a negative sense (such as impoverished, poorly structured, unstable soils).

It is questioned whether the map scale indicated in the present guidelines for soil mapping (1:20,000) is realistic. Unless maps of this scale for soils mapping are already available it is suggested that a more flexible requirement be made which would allow planners to use the most appropriate scale map which is available for the general locality of a concession.

Although important, the need to present information on and evaluate land suitability seems to be out of place in this paragraph. Logically this issue should follow climate (2.4) and hydrology (2.5) as both influence land suitability in addition to soils and geology. It is suggested that clause 6, "evaluation of land suitability", be transferred to paragraph 2.10 - "Local Forest Development Conditions" as this topic is more closely related to the wider evaluation of forest development potential covered by paragraph 2.10.

2.4 A requirement for statements on *climate* is endorsed as specified in clauses 1, 2, 4, 5, 6 and 7. It is suggested that clause 3 be dropped as it is meaningless in the Indonesian context (with rare exceptions all precipitation at lower elevations is either rain or leafdrip from intercepted cloud). There is questionable benefit for forest concession management planning of presenting a classification of the climate; all that is needed is a simple statement of local climate. A climate map is unnecessary as it adds nothing not provided by other information in this paragraph.

2.5 Hydrological information in clauses 1, 2, 3, 4 and 5 is endorsed. In respect of *utilization of water bodies* (4.) it would be helpful to indicate from where water is being taken (map grid references) together with the quantity (volume) being taken. Some clarification is desirable in regard to *discharges*. In addition to requiring specification of the flow (a volume range) and water quality of the discharge it would also be helpful to identify the location or the source (map grid references). The term *level* in regard to 4. has little practical meaning and could be dropped. Specification of the *depth of ground water* is endorsed but it is questioned whether it is necessary to specify the *rate of flow*. On what criteria can this be measured? It is suggested that this feature be dropped from the guidelines as it does not clearly contribute towards achievement of management goals. Given the difficulty many concessionaires have with mapping it is suggested that the map scale be flexible and left to concession planners to determine, depending on map availability.

2.6 Clauses 1 and 2 concerning forest conditions are endorsed with the following qualifications. Given the importance of *type and distribution of vegetation* (1.) it would be helpful to require concession planners to provide more explicit information on

this topic together with the information source(s) used. If the term "type" specifically requires concession planners to document vegetation ecotypes, (using the "forest type classification", see table 1) then the use of the term "form" in the clause seems unnecessary; it doesn't add anything that is not already covered. The clause could be reworded along these lines to improve clarity: - "Forest Types, Areas and Distribution". The requirement to support this information with a map is endorsed.

Clause 2, *dominant species*, could usefully be expanded in order to cover two specific points which are not required in the present guidelines:

- list the dominant and also *rare and endangered species* (trees and other plants),
- show on a map the *localities* where the listed species are known to occur.

This information is important not only in regard to planning wood supplies but also for environmental management and community development planning.

Clause 3 concerning *usage and benefits of vegetation to local people* seems to be misplaced here; although important it would be more logical and balanced to place this requirement in sub-paragraph 2.8 (*Socioeconomy and Community Culture*).

The meaning of clause 4 seems to lack clarity and precision. If it means requiring concessionaires to provide a description of former logging or other previous interference with the forest cover, such as damage from fire or shifting cultivation, then this should be clearly expressed. The consultant would endorse the presentation of information on earlier interference with the forest cover, through logging or for any other reason. The most effective way of doing this might be to ask concession planners to tabulate areas of forest which have previously been selectively logged, clearcut, burnt, forest set aside for reserves (for various purposes) and forest cleared under shifting cultivation. It should be supported by a map showing the location of each forest category together with roads and rivers.

What seems to be missing at this point of the present guidelines is a requirement to show a summary of forest types against land use (TGHK) classes. The benefit of doing so is to establish for each RKPH a clear relationship between forest types and TGHK classes for production, protection, nature conservation or conversion in a real sense to reflect specific values of forest land. Of particular importance is the need, especially on steep land where an erosion potential is evident or where forest has unusual biological values, to exclude such land areas from log production. The most appropriate place would be in this chapter which is concerned

generally with land resources. Information could be presented in the form set out in Table 1.

Table 1: Forest Types and Land Use Classes Table

LAND USE CLASSES (hectares)					
FOREST TYPES	Regular Production	Limited Production	Conversion	Not Classified	TOTALS
Coastal					
Tidal					
Heath					
Peat					
Wetland					
Evergreen Hill					
Forest on basics					
Sub-montane					
Bamboo					
Savanna					
Plantations					
TOTALS					

As in paragraph 2.6 many concessionaires have difficulty with natural resources mapping. It is suggested that the map scales be flexible and left to concession planners to determine, depending on map availability.

The meaning of this paragraph could be made clearer if the title was to be amended to read - *Summary of Forest Composition and Structure*. This is a broader and more meaningful title than that used presently.

2.7 The importance of the paragraph on *accessibility* is primarily economic in that it tells a reader of the relationships between concession location and towns, cities, harbors, rivers and airports. Clause 2 is the most significant element and it is suggested that it be expanded briefly to show spatial relationships in kilometer distances. It would be better placed in the position of clause 1.

Clause 1 and 3 cover broadly similar topics and could be combined as a new clause 2; there seems to be little point in dividing these topics nor requiring concession planners to duplicate the presentation of material. Clause 6 is realistic and is endorsed.

It would be helpful for accessibility information to be tabulated, as illustrated in Table 2.

Table 2: Physical Accessibility Data

Mode	Direct Distances from HPH HQ and other points to nominated locations		Existing Services	Capacity
	Kilometers	Location (places)		
Road				
"				
Sea				
"				
Rivers				
"				
Air				

Clause 4 (*Infrastructure and Physical Development Plan*) is out of place in this paragraph. As a part of the overall plan it has relevance but needs to be placed in Section Two (which concerns the presentation of specific plans) rather than in this paragraph of Section One (which concerns the presentation of basic data).

It is questionable whether it is either necessary or realistic to require *transportation costs and fares* to be stated (clause 5). On its own this is relatively meaningless information because it is not related to the economics of forest development or management. Also, it can quickly change and go out of date. The question of costs is discussed within the context of a Financial and Economic Analysis (Section II, chapter 2) and this is a more appropriate place for the cost of transport to be considered. The requirement for concession planners to provide this information at this point of a plan could be dropped.

2.8 Population, density and distribution data required in clause 1. of the guidelines is endorsed. The topic is likely to become increasingly important in the management of natural forests because of increasing populations of people in forest areas, greater dependency on forest land for food and housing and the direct relationship between community development and forest protection. The importance of the topic has been stressed to the consultant by Ministry staff in Jakarta, by forestry officials during discussions in West and Central Kalimantan and with staff of PT.SBK. Inevitably there will be a need for a partnership between local communities, the Government and concessionaires as agents of Government in the management of a forest concession. It is desirable that RKPH planning guidelines be amended to reflect this expectation.

A missing feature of the guidelines is a requirement to show the location and names of all villages in a concession, the ethnic background of local communities and their actual or estimated population growth rates. Population growth rates are a critically important feature of any planning exercise which is directed at sustainable natural resources management. By an amendment to the guidelines concession planners could be asked to provide population growth trend data for villages for the 20 year planning period together with an assessment of the land use implications for food supplies and employment. Clause 2 is endorsed but could be expanded to include spiritual and religious affiliations of local communities.

Clause 3 of paragraph 2.6, (*useage and benefits of vegetation for local people*), could be placed into paragraph 2.8 and expanded to include a summary of traditional forest uses. Specifically the summary should include the following themes and the economic dependency upon them in terms of employment and income generation:

- fuelwood collection (estimates of quantities collected per month),
- slash and burn agriculture (estimates of areas cleared by villages annually),
- collections of food and medicinal plants and hunting/trapping for meat (amounts and values),
- collection of gums, resin (amounts and values),
- collection of rattan, bamboo (amounts and values).

Clauses 3 and 4 concerning local regional development are endorsed but could usefully be expanded to require concession planners to identify and evaluate the character of relationships between the HPH and regional development Programs. Two specific questions which concession planners could be asked to comment on are:

- How does the HPH contribute towards the development of the locality?
- What are the strategic social and economic connections between the HPH management and regional development Programs?

Ministry of Forestry officials and PT.SBK staff have emphasized the importance of the social and community development dimension in sustainable forest management. The consultant firmly endorses this position and suggests that the RKPH guidelines be strengthened to require field studies to be made by each concessionaire which will

provide and evaluate data along the lines indicated in this paragraph. The outcome will be a more confident basis for planning a sustainable and lasting partnership between local communities and the Government.

2.9 This paragraph concerning *history of forest management* is endorsed. Clause 1 concerning "changes in forest area" could be expanded to require brief comments on why forest area changes have occurred and also to evaluate the managerial consequences of area changes.

Clause 2 concerning "forest conditions" is not specific and, as worded, is far from clear as to what is required. It is questioned whether it is necessary at all especially as the topic is already covered in paragraph 2.6. A more helpful requirement would be to link clauses 2 and 3 to call this *Changes in Forest Management Objectives and Practices*. It makes good sense to discuss forest practices in relation to the management objectives which might have been followed at an earlier stage in the management of a concession (or prior to a concession being granted) and to link this discussion to the reasons why particular practices were followed. Again, the managerial consequences need to be evaluated by asking questions, such as:

- what are the strengths and weaknesses of previous management practices,
- are previous management practices appropriate in relation to the a sustainable management goal,
- what changes are required and why?

Clause 4 concerning disasters is endorsed; specific mention of fires is desirable.

2.10 The purpose of the paragraph is endorsed in broad terms. It would however be helpful to place the focus upon *sustainable forest development* rather than *forest utilization*. A specific requirement of this paragraph should be for concession planners to identify and evaluate those issues which are expected to have a bearing on achieving sustainable forest development during the term of the plan. This could include social and community development issues, industrial and forest products marketing considerations (for both wood and non-wood products), soil and water, wildlife and biodiversity conservation matters and issues concerning infrastructure. An evaluation of "land suitability issues" needs to be added as a technical consideration in clause 2.

Against the background of the foregoing comments it is proposed that this whole paragraph should be moved to Chapter III - *Prospects for Forest Management*. The reason for doing so is in relation to the purpose of the paragraph and what it says. In contrast to earlier paragraphs of chapter II it does not ask for new information but requires concession planners to describe, or evaluate the feasibility of forest management (utilization) in respect of data which has already been presented.

2.11 Although identification and evaluation of the impacts of forest management, wood harvesting and industrial processing upon physical, biological and social environments is necessary this theme makes little sense in respect of the paragraph title indicated in the guidelines - *Sustainability and Business Principles*. Given the importance of the environmental impacts topic it is the consultant's view that this paragraph should be elevated to the status of chapter level and could be termed *Environmental Impacts*. Reference to *Business Principles* has little meaning and could be dropped from the guidelines.

An assessment of environmental impacts should require concession planners, as a part of the planning process, to document both positive and negative impacts of forest and industrial development and indicate what action might be needed and how that action might be implemented to minimize adverse impacts. All forestry operations have some effect on the environment. Some effects are planned and deliberate, such as harvesting trees from natural forest, but there are also unintended effects, such as erosion of soil, or disturbance of established cultural patterns of rural communities, which may be either beneficial or harmful. If the decision maker is to adopt policies and apply procedures which are sustainable and which are acceptable to reasonable public opinion, a full awareness of the various possible side effects of the decisions and actions is needed and a willingness to modify procedures to provide the greatest overall benefit.

The aim is to reach the best possible decisions about any proposal before expenditure is committed to it and to ensure that any development does not meet unforeseen snags and will be sustainable. The guidelines could ask concession planners to consider the following questions in considering environmental impacts:

- What changes, beneficial or adverse, can be expected from forest management activities?
- What will be the extent of the changes? Do the changes matter?
- What can be done about them?

- Whose responsibility is it to take action? Is specific research required?

- How can the public, including local communities, be kept informed that their best interests are being looked after?

Previous specific studies made under Government Decrees (AMDAL and SEMDAL) [18] should be used in this evaluation.

Section I: Chapter III - Forest Management Prospects

3.1 This paragraph requires planners to describe and evaluate one or more silvicultural systems which might be technically applicable to forests comprising a concession. Although this is a necessary step in the planning process and can be endorsed, the emphasis needs to be upon evaluation of systems for local management conditions and not on system description. Silvicultural systems are well known to both Ministry of Forestry and to concessionaires so detailed description is unnecessary. In particular, concession planners should be asked to consider how appropriate the TPTI, THPB, TPHA or any other silvicultural model might be in relation to the vegetation, land, climate, soils and other site characteristics of a locality for which a plan is being prepared.

Evaluation of the benefits and shortcomings of alternative silvicultural models needs to be done with regard to what the silvicultural manipulation of forests is intended to achieve. The guidelines do not establish a linkage between purpose, or objectives, and action. Concession planners need to ask the following questions in order to evaluate the role which silvicultural systems might have in concession management.

- What is the **expected outcome of application of selected silvicultural systems?**

- Is a selected silvicultural system the right **silvicultural "tool"** for helping to achieve the broad management goal and specific objectives for a concession?

- What **adaptations to the silvicultural "tools" are desirable** in order to reinforce, or strengthen, the likelihood of achieving management goals?

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18 Analysis of Environmental Impact (AMDAL) Peraturan Pemerintah No.29 tahun 1986; Analysis of Environmental Impact and the Evaluation of Environmental Impact (SEMDAL) SK MENHUT No.500/Kpts - II/89.

In addition to an assessment of the positive and negative aspects of each silvicultural system which might be used it would be helpful if guidelines were to ask concession planners to identify the strengths and weaknesses of each proposed system in respect of the ecological and physical circumstances of the concession. Presently the guidelines do not invite coherent arguments for proposals for silvicultural innovation of the standard silvicultural systems. In view of the richness and diversity of Indonesian forests it needs to be recognized that flexibility is desirable when planning the use of one or more silvicultural systems. The aim of forest planners should be to work with nature and not against it and this might mean making adaptations to standard silvicultural designs which will accommodate the local variations in forest structure, composition and growth characteristics. Application of appropriate modifications can be expected to strengthen the technical basis for achieving sustainable forest management.

The guidelines do not explicitly require concession planners to describe and evaluate plantation silviculture systems for forests being developed under the HTI program. **As the establishment and sustainable management of plantations becomes more important in the timber economy of Indonesia during the 20 year term of management plans it is eminently desirable that planning of wood supplies from natural forests and industrial plantations be considered together in a balanced and holistic manner.** A consideration of the silvicultural issues for plantations as well as for natural forests will contribute towards reaching this balance. An amendment to the guidelines is suggested which will accommodate this need.

3.2 The requirements of this paragraph do not appear to be logically related to the management goal, to management objectives or to the resources base of a concession. The paragraph tends to mix issues which would be better considered in other paragraphs. The focus is only upon the wood production component of *Forestry Business Classes* and does not refer to social or environmental matters which also influence and are no less important than forest management. The detail to be expressed in clauses 3.2.1.1 to 3.2.1.6 is not considered to be useful in the form in which it is required by the guidelines.

It is questionable whether there is any benefit in requiring forest development objectives to be indicated with regard to Forestry Business Classes in advance of a more widely based statement of objectives which the guidelines specify in Section II, Chapter I. The requirement of clauses 3.2.1 and 3.2.2 to state objectives in relation to profitability and sustainability principles for *Construction Wood* and *Fibre Wood* respectively makes little practical sense and the guidelines are not specific in what is expected to be achieved from doing so. Paragraph 3.2 is a technically directed business feasibility assessment of issues

which are expected to influence the sustainability of concession forests but in the view of the consultant it would be preferable to move information and experience on this topic to chapter V, - *Prospects for Forest Products Processing*.

Section I: Chapter IV - Prospects for Harvesting Original Stands

4.1 Knowledge of the forest growing stock is a critically important part of concession business management planning and this needs to be expressed in clear, unequivocal terms. The guidelines specify a requirement that inventories be carried out and that the possible role of lesser-used species be considered. This is endorsed. However, the guidelines do not indicate how information should be presented which will facilitate interpretation. A tabular approach is suggested (refer to Table No.3). Presentation of data in this form could be repeated for each major sub-division or block of a concession.

Table 3: Species, Volume and Size Information

Sub-Division or Block Name/Number:					
Species	Diameter Class: 20cm to 59cm		Diameter Class: over 60cm +		Totals
	Vol/ha	No./ha	Vol/ha	No./ha	
White Meranti					
Bangkirai					
Keruing					
Others 1					
Others 2					
Totals:					

The comment that *Especially "extended HPH" must anticipate proper silvicultural treatments* ... seems out of place in this paragraph; it would be more appropriate in chapter III, - *Forest Management Prospects*.

4.2 This paragraph mixes three separate issues none of which are clearly related to the title *Area and Standing Stock Volume*. Guidance offered in the paragraph is not precise and does not appear to contribute in a meaningful way towards effective concession planning. The assurance needed that forest resources are able to be managed sustainably can more effectively be provided in paragraph 4.1. It is suggested that paragraph 4.2 be deleted from the guidelines.

4.3 The information to be provided appears to be a duplication of that already requested in paragraph 2.7. Identification of roading issues need only be expressed once. It is doubtful whether a requirement to show costs and the calculations of optimum roading density adds anything meaningful to the plan. It is suggested that this requirement be dropped. A consideration of costs would be more useful in the context of an economics and business feasibility assessment of concession management. Refer to *SECTION II*, Chapter II.

4.4 A requirement to briefly list the *logging and trucking equipment* to be used is endorsed. In respect of tractor types it would be helpful to require concession planners to indicate why specific machines are to be used and to also require an evaluation of whether alternatives (such as lower powered crawler machines or wheeled tractors) might enable harvesting to be achieved with less physical damage to residual trees and other vegetation and less damage to soils.

4.5 This paragraph is of questionable value at this point in the guidelines and could be dropped. Evaluation of *costs and income* would be more logically considered in the context of an economic and financial feasibility analysis.

Section I: Chapter V - Prospects for Forest Products Processing

The most helpful feature of Chapter V is clause 1 (a), a requirement to indicate the type, location and processing capacity of industrial facilities. This may simply be a summary statement of installed industrial capacity.

Clauses 1.(b) and 2 are concerned with **plans** for wood processing. Although important, these elements are wrongly placed at this point in the plan format; it would be more appropriate for **planning** requirements to be positioned in *SECTION II* - where all other plans are outlined.

What is missing in this chapter of the guidelines is a requirement for concession planners to set out an assessment of the industrial advantages, or benefits, together with the marketing strengths from processing different species which are available from the forest types found on a concession. Questions which might be asked could include:

- What are the **preferred species** now and later in the 20 year planning term?
- How **long will the preferred species be available?**

- What are the **comparative industrial and marketing advantages** of different tree species in the concession?

- What changes might be needed in **industrial processing capacity and type** during the 20 year planning term in order to accommodate changes in industrial processing technology, markets and changes in forest composition and structure?

- How can the **benefits** from industrial processing and marketing of forest products derived from the concession **be optimized?** What marketing research is desirable?

From a sustainable wood planning viewpoint it would be helpful to require concession planners to set out a critical assessment of the prospects for achieving sustainable forest management and community development which, in turn, will influence the sustainability of businesses based on concession wood supplies. Factors to be considered which might influence the management of forest resources, either positively or negatively, are the wood harvest level over the last 5 years, an assessment of site and forest productivity for the 20 year planning period, critical protection issues (including foreseeable losses of forest from shifting cultivation and conversion of forest land to other land uses), expected industrial wood requirements, social development issues and environmental constraints.

The chapter seems to be wrongly placed at this point in the guidelines being positioned between management and protection chapters. It would be logical to link it with *Prospects for Development of Fancy Wood* and placed following chapters concerned with forest management, including protection.

Section I: Chapter VI - Prospects for Forest Protection

This is an overwhelmingly important feature of the long term planning guidelines. Guidance indicated presently is endorsed but given the importance of the topic it is very brief indeed (only two sentences). Discussions with officials and PT.SBK staff have consistently stressed the close linkages between effective forest protection, especially shifting cultivation and settlement, and social and community development issues. The consultant can confirm that these linkages are equally as strong in several other countries of SE Asia where natural forest conservation policies are being implemented. Flexibility is needed to accommodate the interests of local communities, in particular, a recognition of their historical, ancestral interests and customs in regard to land and forest use.

Guidance would be strengthened if concession planners were to be asked to provide information in response to the following points:

- Describe **facts concerning the causes and extent of forest losses** and degradation,

- Evaluate this information by asking questions along these lines:

  * What are the **reasons for forest degradation and losses?**

  * **Analyze the losses** in terms of lost future wood production from natural forests and the opportunity costs of this loss.

  * What **realistic action** is desirable which would make a **meaningful contribution towards lessening forest degradation and losses?**

  * What **roles** should the concessionaire, local communities and the Ministry of Forestry have in implementing forest protection action?

  * What **resources** are required to implement more effective forest protection?

  * What are the **long term benefits** for forest and industrial sustainability in wood supply and economic terms?

Guidelines should indicate what relationships, within the context of a concession for which a plan is being prepared, that the *Bina Desa* program might have in achieving improved forest protection.

This chapter is wrongly placed in its present position. It would be more helpful and logical for it to be placed immediately following the forest management chapter. The reason for doing so is to emphasize that protection of forests is an integral part of forest management and that without a wholehearted commitment towards forest protection sustainability of forest benefits is unlikely to be achieved.

Section I: Chapter VII - Prospects for Development of Fancy Wood

Although the theme expressed in the guidelines for development of "fancy woods" is endorsed it is too brief and needs to be expanded. Concession planners could be asked to evaluate the prospects of utilizing "fancy woods" in terms of the following questions:

- What **species** are present in concession forests having **development potential for high quality, top market, luxury, wood processing?**

- What is the extent of the **resources** (volumes, areas and location)?

- What are the **issues which are expected to influence sustainable management** of nominated tree species?

- What are the **comparative advantages** of using such species?

- Where are the **markets** and what are the **marketing and processing problems** which might be encountered?

- Is **processing and market development** expected to be economically viable?

This chapter appears to be wrongly placed in its present position. Since it is directly related to both wood processing and marketing and, in fact, is a part of wood processing considerations it would be more appropriate for the chapter to become a paragraph of Chapter V, - *Prospects for Forest Products Processing*.

Section I: Chapter VIII - Prospects for Developing Non-Wood Forest Products

The requirement that concessionaires should conduct an inventory of nonwood forest products and consider the interests of villagers living nearby on how they benefit from nonwood products is endorsed. Although the volumes and values of nonwood products are likely to be less, probably very much less, than those of wood it is essential in terms of balanced management that non-wood products be considered positively and in a planned manner. Planning guidelines need to reflect this requirement.

Two matters having planning significance are missing in the present guidelines. These are:

- What are the relationships between the demand for nonwood products by local communities and the loss or degradation of forests for a specific concession for which a long term plan is being prepared? Put in another way, - can improved forest protection be expected from a planned consideration of nonwood values and community-forest relationships?

- Guidance provided presently does not indicate how concession planners should "give attention" to the prospects of developing non-wood products by local communities. This needs to be expanded by asking planners to consider the following questions:

  * What are the **traditional forest products used by local communities** and their importance now and in the forseeable future in terms of employment and income generation?

* What are the **non-market qualities of specific trees** and other plants, eg. for food, medicinal purposes, religious or spiritual purposes?

There is a degree of overlap between the requirements of this chapter and Chap.II, section 2.8 (Socioeconomic and Cultural Issues). Given the increasing importance of social, community and cultural issues in the sustainable management of forests it is suggested that Chapter II, paragraph 2.8 and Chapter VIII be brought together and consolidated as a new chapter to be called *Sustainable Community Development*.

(b) Summary of Issues Discussed in Section I

SECTION I of the guidelines provides a firm basis for the documentation of facts which can be evaluated and will contribute to the determination of clear and coherent plans. Particularly helpful paragraphs are those on **Forest Composition and Structure, Forest Protection, Social and Community Issues, Prospects for Forest Management** and **Prospects for Forest Products Processing.** All could be strengthened by asking planners to examine and evaluate the managerial implications of each topic.

SECTION I tends to mix the documentation of basic information with the presentation of plans, eg. parts of an evaluation of the prospects for forest products processing and infrastructure and physical development planning. Basic information and plans/proposals need to be separated into *SECTION I* and *SECTION II* respectively.

Five parts of *SECTION I*, chapter I, - *Introduction* (all eight paragraphs), *Prospects for Development of Business Classes* (3.2), *Area and Standing Stock Guidelines* (4.2), *Infrastructure and Road Construction* (4.3) and *Costs and Income* (4.5) are of questionable value and it is suggested that these pieces be deleted. Paragraph 2.11 - *Sustainability and Business Principles* - would be more helpful if it was redeveloped as a separate chapter termed *Environmental Impacts Assessment*. Chapter 7 - *Prospects for Development of "Fancy" Woods* - could be amalgamated with chapter V (*Prospects for Forest Products Processing*) in order to unify these similar themes.

A feature of considerable planning significance which is absent from *SECTION I* is a requirement to identify and evaluate the *Major Management Issues* which are expected to influence the management of concession forests during the 20 year planning period of the RKPH. Major management issues are those which will or can confidently be expected to influence the direction and nature of decisions and which will have a direct bearing upon achievement of forest development goals. These might include **forest protection issues,** including maintenance of forest area, **community development issues,**

mapping, including aerial photography and satellite imagery, the **harvest level, or allowable cut** and research work needed to improve the precision and accuracy of yield forecasts, **marketing** and **market development issues** of processed forest products, including market research, **industry development,** control of **logging,** issues concerning **plantation establishment and silviculture** and **institutional issues,** including training. The reason for identifying and evaluating the *Major Management Issues* is to sharply focus the minds of planners and decision makers upon those key issues or characteristics which will clearly affect achievement of management goals. Having done so it will reinforce the value of a long term plan as an instrument for helping to implement action on priority issues.

Also absent from *SECTION I* but providing an important factual basis for resources planning is a requirement for an economic evaluation of costs and expected returns from different elements of management and wood processing. The guidelines place this in *SECTION II*. Economic analyses would be more appropriate in *SECTION I* because the results of economic analyses comprise information used in the formulation of plans set out later.

SECTION I would be further strengthened if the environmental impacts topic was to be elevated to chapter level and concession planners and officials requested to take account of the environmental and social consequences of any new proposals and to make modifications to proposals where necessary.

Table 4 summarizes the extent to which each chapter and paragraph conform to the following criteria: (a) Necessary and Endorsed, (b) Unnecessary, (c) Requires Strengthening, (d) Requires Amalgamation with Other Paragraphs.

Table 4: SECTION I - Summary of Changes

RKPH Management Planning Guideline Chapters - SECTION I:	Col. 1	Col. 2	Col. 3
Chapter 1: Introduction - all 8 paragraphs	X		
Chapter 2: Main Data 2.1 - Location , Area	✔	++	+
2.2 - Topographical Data	✔	++	+
2.3 - Soils and Geology	✔	++	+
2.4 - Climate	✔		
2.5 - Hydrology	✔	++	+
2.6 - Forest Conditions	✔	++	
2.7 - Accessibility	✔	++	+
2.8 - Socioeconomy and Community Culture	✔✔	++	+
2.9 - History of Forest Management	✔	++	
2.10 - Local Forest Development Conditions	✔	++	+
2.11 - Sustainability and Business Principles	X	++	+
Chapter 3: Forest Management Prospects 3.1 - Silviculture Systems	✔✔	++	
3.2 - Prospects for Development of Forestry Business Classes	X		
Chapter 4: Prospects for Harvesting 4.1 - Standing Forest Stock and Composition	✔	++	+
4.2 - Area and Standing Stock Guidelines	X		
4.3 - Infrastructure and Road Construction	X		
4.4 - Equipment	✔	++	
4.5 - Costs and Income	X		
Chapter 5: Prospects for Forest Products Processing	✔	++	+
Chapter 6: Prospects for Forest Protection	✔✔	++	+
Chapter 7: Prospects for Development of "Fancy Wood"	X	++	+
Chapter 8: Prospects for Developing Nonwood Forest Products	✔	++	+

Key: Column 1:
✔ = Chapter or Paragraph(s) is **necessary** and **endorsed.**
✔✔ = very **firmly endorsed.**
X = Chapter or Paragraph(s) is **unnecessary.**

Column 2:
++ = Chapter/Paragraph requires **strengthening.**

Column 3:
+ = Chapter or Paragraph(s) requires **amalgamation with other paragraphs.**

New chapters in *SECTION I* are suggested for the following topics:

- *Environmental Impacts*
- *Critical Management Issues*
- *Economic and Financial Analyses*

(c) SECTION II - Presentation of Plans

Section II: Chapter I - Concession Management - Utilization Planning

This is a short chapter which appears to require the definition of "company" objectives, development of a business production class (or classes), silvicultural systems which a concessionaire proposes to use, cutting cycles and a "conformity" or wood flow adjustment period.

Other than requiring concessionaires to respond to the listed topics the guidelines provide no other advice. There is repetition in respect of three topics, namely, "business class" (with chap.3.2.1), "silvicultural systems" (with chap.3.1) and "conformity class" (with chap.3.2.1.4). These components are redundant and could be dropped.

There are no convincing reasons why the chapter is required in the plan format because it does not appear to contribute in any meaningful way towards achieving sustainable management of forests or the industrial plants upon which they depend. The chapter has negligible value as an introduction to *SECTION TWO*. An introduction to *SECTION II* is unnecessary.

Section II: Chapter II - Financial and Economic Analysis

A requirement for comprehensive economic and financial analysis of forest and industrial management is an essential element of the guidelines and is firmly endorsed. Support was also expressed by provincial foresters during seminars held in West and Central Kalimantan. Analysis should however be clearly related to and contribute towards the formulation of long term goals of forest and industrial development and to specific objectives.

The chapter is out of place in its present position. It would be logical for chapter II to be linked with the discussion and analysis on the prospects for forest management, harvesting and forest products processing - topics covered in *SECTION ONE:* Chapters III, IV and V. The reason for doing so is, first, to clearly link biological and especially ecological issues with economics, and secondly, because the results of economic analysis are information used in the formulation of specific plans; economic analyses do not comprise plans. This is not the case presently

where economic and financial analysis are separated from silvicultural and other technical considerations.

2.1 The requirement for submission of information on costs for forest development and management is endorsed. It has particular relevance within the context of economic and financial analysis and needs to be considered in relation to product prices for logs, sawn timber, plywood, etc. A missing element of this paragraph is a requirement for RKPH to indicate prices for processed products and for mill input values for logs (by species and size classes). Pricing information needs to be a requirement of the guidelines as it is equally as important as costs for economic and financial analysis. Dates for costs and prices information need to be stated; this is not required presently. Costs and prices for nonwood products are not a requirement of the guidelines. It is suggested that information on nonwood forest products be provided for use in economic analysis.

Refer to **Paragraph 5.4** for discussion on Procedures for Collection of General Information on Economic Projections of a Concession's Forest Products.

2.2 Surprisingly, there is no guidance at all in respect of a requirement to explain the "Financial Income from the Project". The paragraph comprises a title only. That said, the consultant makes the observation that it might be difficult to acquire expectations of direct company income because it is a business sensitive area of any company's operations and it may not be a commercially unrealistic requirement to make of a concessionaire and may not represent the true position of the company for more than a few weeks or, at the most, a few months. Alternative approaches are, first, to require rigorous economic and financial analysis of all aspects of forest management and wood processing including a financial cash flow analysis, and secondly, to require concessionaires to prepare and submit a business plan for company operations as a part of the RKPH. Refer to chapter V (page 53) and para.2.3 (following) for further discussion.

2.3 This is a most important paragraph but it tends to mix two separate issues. One is a requirement for an *economic analysis* of existing, or proposed, operations in the forest and in the processing plant. The second is a *financial analysis* of the operation of the <u>business</u> which ideally should focus on *business financing* and *business viability*. Important considerations would be sources of finance, borrowing and repayment arrangements with creditors, interest, debt, depreciation of assets, asset replacement and taxation, including duties. These issues could be drawn together in a <u>financial cash flow</u> analysis over a specified time period. A financial cash flow takes a pre-interest, pre-tax cash flow and deducts income tax, duties, interest on borrowing,

dividend payments and capital expenditure. This gives a net financial cash flow from which a cumulative funding profile can be assembled.

Given the importance of the topic it is desirable to expand the advice in the guidelines to explain more clearly to both concession planners and officials the need to clearly relate economic and financial analysis to objectives of forest and business management. Sub-paragraphs (a) and (c) both deal with *investment analysis* and, logically, could be brought together.

It would be more helpful to ask for investment levels to be "shown" rather than "calculated" and these could be directly linked to a presentation of cash flow and the proposed use of funds. It would be clearer to avoid asking concession planners to indicate an Internal Rate of Return in this paragraph as this term is used in economic rather than in financial analysis.

Sub-paragraph (b) focuses on economic rather than financial analysis but the guidelines specifications are not complete. Clear guidance for the preparation of an *internal rate of return analysis* (and its relationship with *net present value*) is not provided. [The Internal Rate of Return is the interest rate, or discount rate, at which discounted costs equal discounted revenue, that is, the rate at which the Net Present Value of the projected future cash flow is zero. The Net Present Value (NPV) is the worth of a projected, future cash flow in today's money at a given discount rate]. The guidelines make no requirement for a *Cost of Growing, or Break-even Stumpage Analysis*. This form of economic analysis is frequently used in plantation forestry and examines the "cost of growing" a specific area of forest. It has relevance in regard to HTI and THPB components of wood resources management. The "cost of growing", or "break-even stumpage", is the cost of growing wood per cubic meter at a specified discount rate. Break-even stumpage is the stumpage price required for a forest investment, such as a new project, to break even at a given discount rate. For any specified discount rate the cost of growing is equal to the break-even stumpage.

The guidelines make no requirement that the effects of inflation be considered in analysis. Because it is impossible to predict the long term effect of inflation on costs and prices in forestry, the usual practice is to freeze financial data in present day values. This is equivalent to assuming that, in the long term, inflation will affect costs and prices in the same way and that costs and prices will inflate at the same rate. It is suggested that a requirement to freeze costs and prices to exclude the effect of inflation in economic analysis be expressed in the guidelines.

2.4 The requirements of this paragraph, *Role of the Project in the Economy*, are endorsed and could be linked with economic analyses under paragraph 2.3. The guidelines could also ask that nonwood forest products and community development be considered. It is desirable that draft plans be considered by BAPPEDA in order to strengthen coordination with provincial development planning and to reinforce the role of an RKPH as an instrument in the provincial development planning process.

2.5 ***Sensitivity analysis*** is an essential element of all economic analyses and the requirement is endorsed. It could be linked to or become a part of paragraph 2.3.

Section II: Chapter III - Plan of Actions

3.1 ***Boundary Establishment*** The purpose of this sub-paragraph is supported. Boundary establishment is an essential element of forest management and should, to the greatest possible extent, be defined in terms of natural geographic features.

Amendments to the guidelines are desirable in order to include the following points:

- Proposals for **pillar marking** and how boundaries can be maintained permanently, e.g. planting of rubber, pine, acacia or other tree species, cut lines, roads.
- Presentation of a year-by-year **implementation schedule** against which progress can be measured and reported for progressive definition of concession boundaries.
- It would be desirable for guidelines to specify that concession boundary maps be prepared at a scale which is appropriate to the availability of mapping information.

Responsibility for *Gazettement* of concession boundaries needs to be clear. If this is a concession responsibility then it would seem to be reasonable for a plan of intentions, inc.timing, to be indicated. If however *Gazettement* responsibility lies with Government then a planning requirement on the part of the concessionaire is unreasonable and could be deleted from the guidelines.

3.2 *Forest Management Unit Sub-Division and Infrastructure Development*

This paragraph groups three separate issues, namely;

- objectives,
- definition of management working units,
- infrastructure.

Each are sufficiently distinct topics to be considered separately.

Sub-paragraph 3.2.1 asks concession planners to define management objectives as well as the basis for working units on a concession. These tend to be mixed issues and might well lead to confusion in the minds of concession planners with the result that neither management objectives nor definition of management units will be described in a coherent manner. It is eminently desirable that *management goals and objectives* be clearly defined and presented prominently in a chapter quite separately from other issues. Goals and objectives are fundamentally the basis for planning, budgeting, implementation of Programs, monitoring and control.

With the exception of a need to specify log production levels (the level of cut) there is an **absence of clearly defined long term goal or shorter term objectives** which are regionally linked to regional planning objectives and strategies, to national forest policies expressed in REPELITA V or VI or to the national forestry strategy. This is a prominent shortcoming of the present planning guidelines. Amendments to the guidelines are desirable in order to highlight *Goals* which should be directed towards achieving sustainable development not only of the concession for wood production purposes but, no less importantly, for making a contribution to the implementation of regional development goals. Presentation of *Goals* is so significant that this topic should have separate chapter level. It would be helpful to the development process if *Goals* were to be formulated jointly and by concensus between the concessionaire, Bappeda, Kanwil Kehutanan and Dinas Kehutanan. The guidelines should ask that *Goals* be written in general economic, social and management terms and that they should identify and clearly express the interests of Government as owner of both land and forests and the concessionaire as an agent of Government for a period of 20 or more years. This approach would place a stronger developmental focus upon the management of forest concessions such that they would, more so than at the present, become an instrument of Government for implementing regional developmental goals and policies.

Management objectives, which should be clearly presented in Five-Year Working Plans (RKL), need to be quite specific and express attainable and realistic activity targets, such as annual log production, community development targets, production of plantation crops, rattan and other forest products, roading, silvicultural operations and environmental issues.

The purpose of sub-paragraph 3.2.2 - proposals for definition of managerial sub-divisions - is endorsed. It is desirable that the guidelines be amended to encourage concession planners to follow geographic features, such as rivers, streams, ridges, shorelines or easily recognizable engineering structures such as roads to the greatest possible extent in order to define physically recognizable and managerially realistic compartment boundaries. Sustainable forest resources development and efficient management will depend increasingly upon the use of compartments for defining the application of prescriptions for all operations and inventories, and for monitoring the outcome of prescribed action. Compartments and felling series (a grouping of several compartments) are basic units of inventory, prescription and record. The "notional" compartments - petaks - have the defects of not being easily recognizable on the ground, nor having monitoring, control and record functions.

There would be merit in linking sub-paragraphs 3.1.1 and 3.2.2 into a single paragraph to be called *Boundaries and Forest Management Sub-Division Plan*; it would cover the definition of boundaries and internal sub-divisions. There is no particular need for these topics to be separated as they have the following points in common:

- Definition of boundaries, whether internal or external, involves the same action, skills and resources,
- External and internal boundaries involves the use of comparable maps and mapping technology,
- Similar criteria can be involved for defining external and internal boundaries.

The requirements of sub-paragraphs 3.2.2.1 (block and compartment sub-divisions) and 3.2.2.2 (description and time schedules) are endorsed.

The requirements of the guidelines for setting out planned investment in infrastructure, especially roading, is endorsed. It is suggested that this topic should be separated from other issues in paragraph 3.2 and that it should stand alone as an *Infrastructure Development Plan*. The plan should cover telephone, fax, radio, barging and, if appropriate, aviation matters as well as roading.

3.3 Forest Inventory Plan:

Three elements of the guidelines for the preparation of a *Forest Inventory Plan* are endorsed. The basis for concession management planning would be broadened if the following additional points were to be added:

- 3.3.1 include a requirement for planning and inventory of biological diversity; it should show how, when and who will undertake the work.

- 3.3.2 Data processing and reporting arrangements should be specified. The guidelines should strongly encourage the application of computer processing of all forest inventory data using "dBase", "FoxBase" or other data processing systems. Institutional arrangements, including staff training in data processing systems, should be described. A specific requirement to use mapping generated from remote sensing imagery could be included in the guidelines. Specific use of GPS (Global Positioning Systems) data is to be encouraged in order to increase the precision and accuracy of mapping.

3.4 Harvesting Plan

Each of the four components of this paragraph are essential in a forest resources management plan and are endorsed. The observation is made that the guidelines only cover harvesting of wood; there is no reference to harvesting of nonwood production.

The use of compartments and felling series (groups of compartments or petaks) is not evident, nor specified in the guidelines, for prescription, monitoring and recording of harvesting operations.

Given the fundamental importance of determining the level of harvest (Annual Allowable Cut) it is suggested that this element be separated from logistical and operational harvesting planning issues and placed in a "stand alone" paragraph, or chapter, which could be described as a *Wood Yield Plan*. The guidelines need amendment in order to explain the procedures which <u>must be considered by concession planners</u> (irrespective of whether these have already been issued by the Ministry of Forestry in separate instructions) for determination of the harvest level. Guidelines should require that the derivation of the proposed cut should be clear, logical and based upon productive land and conversion land only. It is not realistic for a 20 year plan to be specific about the level of cut on an annual basis; this is a function of the RKL. It is the general level of wood output and long term trends which are important in a long term plan. The composition and average harvest level for each 5 year period should be shown.

Recent growth modelling research for mixed tropical forests is leading to more exacting and reliable methods for approaching the determination of the harvest levels for forest being managed under

polycyclic silvicultural systems [19]. A copy of Alders' 1992 paper is annexed to this report. This work has considerable significance for Indonesia. Hard data from regular remeasurements of permanent plots is essential. Greater reliability will be needed in yield forecasting during the 20 year period for which long term management plans are to be prepared as forest resources decline, wood values increase and a wider range of species are used industrially. Although this topic is of a research nature it is mentioned here to place emphasis upon the relationship for sustainable forest management planning between data derived from a network of permanent plots, growth modelling and yield determination.

The guidelines should require that a *Harvesting Plan* indicate the location and direction of harvesting during each 5 year working plan period. Specifications need to be tabulated and indicated on maps (1:100,000 or less). Particulars of location of cutting for each year should be included in a 5 year RKT, not in the RKPH. A harvesting plan should indicate:

- how harvesting will be undertaken (concession logging crews or contract operations),
- the frequency of monitoring and reporting of yields and responsibilities for doing so.

Harvesting arrangements for non-wood products need to be specified in the guidelines. Flexibility will be needed as circumstances can be expected to vary in different localities. The involvement of local communities together with monitoring arrangements need to be indicated.

3.5 Planting Plan

Sub-paragraph 1. (physical site conditions) is unnecessary as this information has been provided in Section I: Chapter II: paragraphs 2.1, 2.2, 2.3, 2.4.

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19 (a) Simple Methods for Calculating Minimum Diameter and Sustainable Yield in Mixed Tropical Forest. Alder, Denis. in **Wise Use of Tropical Forests: Proceedings of the Oxford Conference on Tropical Forests.** Oxford Forestry Inst. Univ.Oxford, UK. 1992

(b) Growth Models for Tropical Mixed Forest: their design and construction. Vanclay,J. Oxford University Press, 1992.

(c) Design & Implementation of a State-Of-The-Art Inventory Reporting and Yield Forecasting System. Vanclay, J. in **Proceedings of an International Conference / Workshop on Global Natural Resource Monitoring and Assessments for the 21st Century.** Australia, 1989.

Specific requirements set out in sub-paragraphs 2. to 9. are endorsed with the following comments. The guidelines should require a long term plan to tabulate the following:

- compartments/petaks and areas, in 5 year groups, where new planting, enrichment and replanting are proposed,
- species, spacing and transplant stock specifications, including how transplants will be handled between nurseries and the planting area.
- location and capacity of nurseries,

Details of transplant stock requirements (numbers of each species, inc. rattan), can be shown in each successive RKL. The final paragraph concerning a need for coordination and the preparation of a planting map is especially important; it is an element of good planning.

It might be helpful if the paragraph was given a wider title to emphasize the importance of nursery management and transplanting as an integral part of the TPTI. A suggested title is *Nursery and Planting Plan*.

3.6 Regeneration and Tending / Maintenance Plan

The first sentence is endorsed as an introductory statement of the need for high quality in forest management. The guidance offered presently is endorsed it is general rather than specific of the essential steps needed to achieve high standards of silvicultural practice. Amendments are suggested in order to place planning and operational emphasis upon the component steps of the TPTI, THPB and of other silvicultural systems for implementing management goals. Preparation of the plan should recognize and relate to silvicultural requirements evaluated in Section I: chapter 3.1 - Silvicultural Systems.

Guidelines could require concession planners to document, using compartments and/or petak numbers, the location and general timing of specific tending operations. An example is shown in Table No.5. This form of prescription table (generated and managed by computer) will also simplify monitoring and reporting of achievements. It may be expanded and modified to accommodate the needs of specific concessions; the aim is to have a standard procedure linking prescriptions and monitoring. Separate tables would be needed for each five year planning period. Detailed implementation schedules need not be included in the RKPH but will be necessary in the RKL.

Table 5: Prescriptions and Monitoring Table for Tending Operations (example only)

PRESCRIPTIONS		MONITORING / REPORTING
OPERATION	1st, 2nd, 3rd, 4th, 5 Year Planning Periods	1st, 2nd, 3rd, 4th, 5 Year Periods
Et + 1	(compts or petaks)	(compts or petaks)
Et + 3		
Et + 4		
Et + 9		
Et + 14		
Et + 19		
other steps		

3.7 *Forest Products Processing Plan*
linked to

3.8 *Forest Utilization Plan*
linked to

3.9 *Marketing Plan*

In endorsing the general requirements of each of these three paragraphs the consultant makes the observation that issues of resources processing and marketing are very closely linked - in industrial, economic and in business development terms - and it would make good sense to link them together into a single planning chapter. It could be termed a *Forest Products Processing and Marketing Plan*. To separate each component is to try to erect unrealistic, artificial barriers between them and this unlikely to contribute towards the formulation of a practical planning document. Nothing is to be gained by trying to separate industrial and market planning matters. There is no reference in the guidelines of a need to undertake market research. The need for a "marketing time schedule" is a relatively meaningless and unrealistic requirement because of the inevitability that, over the 20 year period of a plan, there will be changes in the location, type, volume and value of markets. The guidelines need not require a year-by-year wood production statements for each of the 20 years of a RKPH as reliable annual forecasting is impractical. The aim should be to provide indicative levels of production only. It could be helpful however for a plan to indicate the location and type of short term markets. Annual details should be shown in the RKL.

Essential elements of this component of the planning guidelines could be :

- *Existing and proposed types, capacity and location of industrial processing facilities,*

- *Implementation plan for construction and commissioning of new facilities* and re-equipment of existing processing plants,

- A *processing plan* (incorporating species inputs and volumes), product types and expected production,
- *Marketing and market research plan.*

- Proposed arrangements for increasing the efficiency of wood use (such as new machinery, innovative processing, new markets) and also plans for overcoming constraints on achieving improved processing efficiency.

The plan should be consistent with the harvest level from concession forests and should have cognizance of the economic and financial assessment documented earlier in the plan.

3.10 Protection Plan

This is an essential component of the planning guidelines; the broad intention of the paragraph is endorsed. It is suggested that the paragraph be placed following paragraph 3.6 in order to link it more directly, and closely, with forest operations. It also needs to be placed close to paragraph 3.11 - Rationalization of Shifting Cultivation Issues - because of the linkages between forest protection and community dependency upon forests for food supplies, housing, fuelwood and for other social needs.

Three issues not referred to but which seem to be needed to reinforce the effectiveness of the guidelines are as follows:

- A requirement that a protection plan should specifically prescribe that ad hoc (or unplanned) relogging of forest less than 35 years after the first cut is prohibited.

- A requirement that clear and realistic prescriptions for riparian and watershed protection be written into all RKPH.

- A requirement for monitoring and reporting which will enable progress in implementing protection arrangements to be measured.

Although the general intention of sub-paragraph 3.10.1 is endorsed it is suggested that it could be more effectively described as a strategic forest protection plan covering each of the main causes of forest degradation and loss. It should indicate practical

proposals on how the forest protection goal is expected to be achieved and would include institutional issues (organization, definition of responsibilities, training), resources requirements (including funding) and research needs.

Practical steps for implementing protection work (para.3.10.2) could be indicated in the context of a forest protection strategy and in greater detail in the RKL. It would also be helpful for facts and experience on control methods to be set out in Section I: chapter VI.

Reference to a need for Environmental Assessments is helpful. The guidelines could be amended to firmly indicate the procedures which are to be followed for making environmental assessments and also to require that independently conducted re-assessments be made at the end of each of each 5 year period planning period. This forms the basis for environmental impact monitoring of forest concession management and will provide opportunities for amending practices in the light of experience, new knowledge and changes in Government policies and in company budgets.

3.11 Plan for Rationalization of Shifting Cultivation

The general intention of this paragraph is endorsed although the meaning and effectiveness of sub-para.3.11.1 - land utilization according to agroforestry techniques - is questionable. Inevitably the circumstances which influence planning arrangements for community dependency on forest land will differ between concessions and a flexible approach is suggested. It is noted that the guidelines do not refer to the *Bina Desa* program; amendment is desirable in order to emphasize the importance of these activities.

It is suggested that planning requirements are somewhat wider than setting out a rational basis for accommodating shifting cultivation. Achievement of long term sustainability of forest resources is inevitably going to involve a development partnership between the concessionaire, Government and forest communities. In order to emphasize this partnership it is suggested that this paragraph be given chapter level status and renamed as a *Forest Communities Settlement and Development Plan*. Essential elements of the guidelines, which can include themes expressed in sub-paras.3.11.3 to 3.11.5, would be:

- Proposals for dialogue with forest communities aimed at encouraging an understanding and acceptance of activities leading towards settlement and at the same time determining local preferences which can help guide the development process.

- Clear and realistic plans for more intensive agriculture, irrigation, housing, education, health services. This would provide scope for extending the present *Bina Desa* program requirements.

- Implementation schedules and monitoring arrangements,
- Budgets, organization, staff training and responsibilities.

Section II: Chapter IV - Organization and Manpower Planning

The broad intention of this chapter is endorsed. It is an essential component of the plan in that it should provide a clear and convincing statement to Government that a concessionaire has the institutional and operational capability of effectively running the concession in a manner leading towards implementation of development goals. No less importantly, it should show how the concessionaire will be able to maintain employment of the work force in industrial and forest management activities.

There are close linkages with chapter 5 of the guidelines - Expenditure and Income Planning. Both chapters are concerned with the effective operation of a concession as a business and in this regard there is merit in bringing these chapters together as a new chapter on *Corporate and Business Planning*. Refer to the following chapter for further discussion on this topic.

The primary features of this element of the plan are:

- a company organization chart for all sets of activities,
- numbers of staff classified in terms of education, skills training, experience descriptions and location.
- numbers and location of operative workers, both men and women.
- employment of people living in local communities.
- staff and worker training proposals. This is a critically important developmental step in institutional strengthening of concessionaires.

It is questionable whether the present requirement to provide job descriptions for each person is necessary, or is even realistic. Job descriptions will inevitably change from time to time, especially as organization arrangements are amended to reflect increased efficiency in company operations, changes in education, experience and skills and new technology and marketing requirements.

5.1 *Construction Wood Forest Production Business Class* linked with,

5.2 *Pulpwood Forest Production Business Class* linked with,

5.3 *Total Project*

These paragraphs can be considered as a group. Although features of the RKPH guidelines concerning expenditure and income planning are helpful this chapter would have greater value and be more meaningful if its scope was widened to encompass *Corporate and Business Planning*. Expenditure and income considerations alone are too narrow a focus for judging the effectiveness of business management and the commercial viability of a company. Increasing there is a need for strategic and corporate planning, especially where a business is pursuing long term goals such as wood processing and maintaining employment based upon sustainable management of forest resources.

Important elements of these paragraphs are:

- schedules of projected activities and estimated costs,
- sources of finance and borrowing conditions,
- income projections,
- total budget cash flow forecast.

Basically the need is for the guidelines to require a concessionaire to clearly demonstrate that a concession business is financially sound and that it has the managerial capability of being commercially viable. Amendments to the guidelines could be along the following lines. Introduce requirements for all concessionaires, as a part of the RKPH:

- to prepare a *Corporate Plan* showing a mission statement, business goals, specific business objectives, organization structure, a review of strengths, weaknesses, threats and opportunities (SWOT analysis) and monitoring arrangements. Human resources development issues referred to in Section II, chapter IV, should also be brought into a corporate plan.
- to provide a medium term *Business Plan* showing markets and market prospects (volumes and values), sources of business funding and conditions, debt/equity ratio, expenditure

control proposals, a general forecast of company income and an assets statement.

In order to emphasize the importance of this and the previous chapter it is suggested that business management aspects of a concession be brought together as a new chapter entitled *Corporate and Business Management Planning*.

Section II: Chapter VI - Research and Development Plan

Although the general intention of this chapter is endorsed there are three features which appear to be missing from the guidelines. These are:

- there is no requirement to show how objectives and priorities for a concessionaires investment in research and development will be determined,
- there is no requirement to explain how research and development activities will be implemented, or achieved,
- there is no requirement that each research topic, or specific piece of study will need to be conducted under a coherent and realistic work plan embracing definition of objectives, methodology, activities, analysis and reporting.

It is important that research and development issues be viewed, and planned, as being a part of the overall management process and not, as is so often the case, as one or more separate activities. The only basis for initiating and conducting any research at all is that it is a mechanism which can be applied to solve problems which are viewed as being critical barriers, or constraints, in working to achieve sustainable development goals.

In practical terms research work should focus upon topics which are constraints in achieving concession management objectives. The selection of topics, and priorities, should be determined by senior company management staff in consultation with managers who have first hand contact with the problems. Research always involves the expenditure of funds and in this regard it is no less important as an investment being made by a concessionaire than is the purchase of mechanical equipment, construction of roads or other capital expenditure proposals. Research and development should not be limited to technical forestry topics; market and economics research, including work study, is just as important.

The guidelines need not require the presentation of a detailed schedule of activities for each proposed topic of study; it would be more appropriate for details to be shown in each five-year RKL. However it will be helpful for the guidelines to require

concessionaires to outline the company's general approach towards R & D and to indicate the general character of topics where studies are proposed, at least in the medium term. Guidelines should also require concessionaires to show:

- how research and development work will be achieved, such as by using the company's own staff or through contract arrangements with consultants, universities or other groups,
- how priorities will be determined, and
- what mechanism is proposed to set and review priorities?

In order to emphasize the desirability of closely associating R & D with other elements of management it is suggested that this chapter be relocated so that it becomes a part of, or at least is near, chapter III - Plan of Actions.

(d) Summary of Issues Discussed in Section II

SECTION II of the guidelines provide a broad basis for the formation of distinct action plans and proposals aimed at achieving sustainable development and management of natural forests on a forest concession. *SECTION II* mixes the presentation of plans with basic and derived information in several chapters, eg. economic analyses, and does not provide sufficiently clearly for monitoring and reporting of progress in plan implementation. There is no reference to or requirement for shorter term plans, - RKL and RKT - to be coordinated with a RKPH. The need for coordination is high to ensure that shorter term plans are consistent with the underpinning developmental role of a 20 year RKPH. The purpose of *SECTION II* is the presentation of practical plans providing a coherent and achievable basis for resources management, wood processing, marketing and rural community development over a 20 year time frame.

Positive though the present guideline requirements are they could be strengthened, or reinforced, in respect of the following points:

- it is desirable that a new **land use planning** component be included in Section II. The aim should be to set out a strategy, methodology and an implementation schedule for rational, ecologically realistic allocation of land which will accommodate wood production, soil, water and biodiversity conservation priorities. It should also accommodate the interests of rural forest dwelling communities and any other major uses of land within the concession.

- it is proposed that a new planning component which will underline the desirability of **public and community relations** activities be introduced. An important aspect of this should be the formulation of a strategy and activities for promoting wide community awareness of concession development activities.

- there is a need for stronger application of **implementation schedules** for setting out, at least in broad terms, the timing of activities comprising planned Programs. Not unrelated is the need for planning guidelines to show the broad requirements for **monitoring and reporting of achievements for each key element of the management process.** Key points should include forest areas harvested, volumes cut, areas where enrichment and other silvicultural operations are applied, community development activities and measurable protection activities.

- plans for **concession boundary definition** and the **definition of internal sub-divisions** (compartments or petaks) could be brought together into a single paragraph which could be termed a *Boundaries and Forest Management Sub-Division Plan*.

- it is critically important from the viewpoint of clearly demonstrating the **level of wood harvest** that the determination and prescription of a *Wood Yield Plan* be separated from logistical and operational harvest planning issues and placed in a "stand alone" chapter.

- in order to emphasize the importance of **nursery management and transplanting** as an integral part of the TPTI it is suggested that these themes be brought together into a *Nursery and Planting Plan*.

- in view of the close linkages between **wood resources processing and marketing**, in industrial, economic and in business development terms, it would make good sense to bring these themes together into a single planning chapter termed a *Forest Products Processing and Marketing Plan*. There is a need to specify a requirement for market research.

- achievement of long term sustainability of forest resources can be expected to involve a **development partnership between the concessionaire, Government and forest communities.** This partnership can be emphasized in planning terms by bringing community development and shifting cultivation issues together in a new chapter termed *Forest Communities Settlement and Development Plan*.

- in order to emphasize the importance of business management in long term concession development it is desirable that **commercial and corporate management issues** be brought together into a new chapter entitled *Corporate and Business Management Planning*. It should include requirements to prepare:

  * a *Corporate Plan* showing a mission statement, business goals, specific business objectives, organization structure, SWOT analysis and monitoring arrangements,

  * a medium term *Business Plan* showing markets and market prospects (volumes and values), sources of business funding and conditions, debt/equity ratio and expenditure control proposals.

New chapters in *SECTION II* are suggested for the following topics:

- *Land Use Planning*
- *Public and Community Relations Plan*
- *Boundaries and Forest Management Sub-division Plan*
- *Wood Yield Plan*
- *Nursery and Planting Plan*
- *Forest Products Processing and Marketing Plan*
- *Forest Communities Settlement and Development Plan*
- *Corporate and Business Management Planning*

Table 6 summarizes the extent to which each chapter and paragraph conform to the following criteria: (a) Necessary and Endorsed, (b) Unnecessary,
(c) Requires Strengthening, (d) Requires Amalgamation with Other Paragraphs.

Table 6: SECTION II - Summary of Changes

RKPH Management Planning Guideline Chapters - SECTION II	Col. 1	Col. 2	Col. 3
Chapter 1: Concession Forest Utilization / Management Planning	X		
Chapter 2: Financial and Economic Feasibility Analysis 2.1 - Project Costs	✔✔	++	+
2.2 - Financial Income from the Project	X		
2.3 - Financial Analysis	✔	++	+
2.4 - Role of the Project in the Economy	✔	++	+
2.5 - Sensitivity Analysis	✔		+
Chapter 3: Plan of Actions 3.1 - Boundary Establishment	✔	++	+
3.2 - Forest Management Unit Sub-Division and Infrastructure	✔	++	+
3.3 - Forest Inventory Plan	✔	++	
3.4 - Harvesting Plan	✔✔	++	
3.5 - Planting Plan	✔	++	
3.6 - Regeneration and Tending Maintenance Plan	✔	++	
3.7, 3.8, 3.9 - Forest Products Processing, Utilization, Marketing	✔	++	+
3.10 - Protection Plan	✔✔	++	
3.11 - Plan for Rationalization of Shifting Cultivation	✔	++	+
Chapter 4: Organization and Manpower Planning	✔	++	+
Chapter 5: Income and Expenditure Plan 5.1, 5.2, 5.3 - Production Business Classes	X		
Chapter 6: Research and Development Plan	✔	++	+

Key: Column 1:

✔ = Chapter/Paragraph is **necessary** and **endorsed.**

✔✔ = very **firmly endorsed.**

X = Chapter/Paragraph is **unnecessary.**

Column 2:

++ = Chapter/Paragraph requires **strengthening.**

Column 3:

+ = Chapter or Paragraph(s) requires **amalgamation with other paragraphs.**

There is a need in both *SECTION I* and *SECTION II* of the guidelines to allow concession planners to exercise a degree of flexibility in the way in which information may be documented - especially with the maps - and in the preparation of proposals. The consultant is of the view that the present guidelines seem to be unnecessarily rigid in this regard, a point having the agreement of provincial forestry officials and PT.SBK staff. As the consultant has mentioned earlier in this report, it is desirable that planning foresters approach the management planning process through questioning and show imagination in the preparation of proposals. These steps can be encouraged if the guidelines do not needlessly constrain planners in assembling practical proposals and which are ecologically and economically realistic.

Although the formulation, approval and implementation of long term plans will comprise an important step forward in working to achieve sustainable management of forests it is likely that they can also be used as a development plan for the specific locality where a concession is found. Having a wider social, environmental and economic base - much wider than technical forestry issues alone - it is suggested that the Ministry of Forestry recognize the regional development role which forest concessions can play within the on-going development within a province. Frequent cooperation with Bappeda will be necessary. The regional developmental role for long term plans could be recognized through a change in the name, for example, *Forest Concession Development and Management Plan*.

5,3 Options for Making Improvements to the Planning Guidelines for Long-Term Forest Concession Management

Building upon the review of the RKPH set out in paragraph 5.2 it is suggested that one option for making improvements to the planning guidelines is through redesign of the plan format. A draft alternative format is set out on the following page. A practical approach towards testing the acceptability of the format for forest concession management planning would be through its application on one or two concessions on a *pilot* basis. This approach would, at the same time, enable the detail of amended planning guidelines to be developed and tested. This suggestion has the general endorsement of one planning forester in the Alas Kusuma Group with whom it was discussed at a seminar in West Kalimantan.

An alternative planning format:

DRAFT FORMAT FOR FOREST DEVELOPMENT PLANS

Executive Summary

A concise report on the main features of a plan.

PART I GOALS

Goals

- *Goals set out broad targets and incorporate the policy intentions of Government.*
  Broad intentions for community, technical and business development for 20 or more years ahead.

Management Objectives

- *Objectives are specific, for a five-year period, and are a first step in implementing strategies for achieving goals.* Objectives should be written for each major management activity, eg. inventory, harvest level, protection arrangements, silviculture, community development, research.

PART II INFORMATION

Title, Authority and Term
Name of the management plan; concessionaire; term (years).

Geography, Land Use and Forest Composition
Definition of locality; area; availability of mapping and mapping limitations; physical and climatic features; area summary of primary existing land uses; forest composition and structure.

Community Resources
Definition of community size, structure, ethnic origin, populations and growth rate, household numbers, working people and dependents; agricultural areas and types of land; schools and other community facilities.

Forest Resources
Definition of forest (wood), environmental, biodiversity and other resources which will clearly influence management of a concession for a 20 year period; economic analysis of forest resources management.

Forest Protection
Factual information on all forest protection issues.

Wood Based Industries
Summary of types of industries, volume and value of production and employment in each industry; economic and financial analysis of forest industry development.

Economic and Financial Analysis
Costs, prices, IRR, NPV, Breakeven Stumpage Analyses, Sensitivity Analyses, Role of the concession in the economy.

5.4 Procedures for Collection of General Information on Economic Projections of a Concession's Forest Products

An essential first step in computing economic projections of forest products is the acquisition of reliable data for both costs and prices. The RKPH guidelines require the presentation of costs (Section II, Chapter 2.1) but only by implication is price data requested (Section II, Chapter 2.2 and 2.3). Although these steps are firmly endorsed the presentation of information in a draft RKPH, as required in the existing guidelines, only provides a very narrow "time slot", through which the Ministry of Forestry is able to study a concessionaires economic projections of its forest management and wood processing operations. Capturing economic data over a much broader "window" of time is desirable in order to that more comprehensive economic policy studies on natural forest management can be made.

An examination of a draft long-term plan for one West Kalimantan forest concession reveals that a range of economic data are collected and used in the derivation and presentation of Internal Rate of Return and Net Discounted Revenue statements. Computation of IRR and NPV analyses are conducted for the purpose of completing the RKPH but the consultant is unsure whether these techniques are used regularly and often as planning tools for guiding investment decision-making in industrial, forest and land management. Regular and frequent computation of IRR and NDR is to be encouraged and can be undertaken easily and rapidly with small desktop computers and commonly available spreadsheet software.

As a step forward in strengthening the Ministry's position in becoming better informed on the economics of concession management it would be helpful for **information on costs and prices to be provided regularly by concessionaires and, at the least, on an annual basis.** Provision of data annually could be made a condition of the approval of the annual logging plan (RKT). The basic cost and price data required is that corresponding to each separate step of the TPTI, THPB or of other silvicultural systems for which implementation proposals are being made as a part of a RKPH. Other data, especially on overheads, is also necessary. The general form of a table which might be used to capture this data is illustrated in Annexures No. 6(a) and (b). The tables are general models only; amendments to meet local data collection requirements can easily be made.

The use of PC's and spreadsheet software enables powerful and sensitive economic analysis of alternative management options, both natural forests and plantations. But reliable basic data is required to make such studies. Although the consultant has expressed these comments, it needs to be recognized that many companies might regard the provision of cost and especially prices data to Government as an unjustified intrusion into a company's business affairs, especially if a company considers that it might

be placed at a competitive disadvantage through the disclosure of commercially sensitive information.

With time and as a wide range of data are collected and studied for concessions, the Ministry would progressively become better informed and more confident in its ability to make assessments of the economic strengths and weaknesses of concession management. The Ministry would also be able to evaluate planned management activities in respect of a range of different variables, including the types of forests being harvested and managed, topography, volumes being cut, prices, operational costs, effects of distance and regional effects. Progressive accumulation of a body of data would provide substantial material for macroeconomic studies within the forestry sector.

5.5 Procedures which might be Applied to Collect Information on the Potential Harvest of Non-Wood Forest Products on the PT.SBK Concession

From the viewpoint of a forest planner the first set of questions to ask in approaching the topic of what procedures might be applied to collect information on the potential harvest of nonwood forest products are these:

- What are the nonwood products being considered? It is expected that the planning issues concerning each will be quite specific.
- What is the nature of dependency upon specific nonwood products by local communities, the concessionaire and others?
- What are the yields, harvesting and replacement costs of the each non-wood product?
- How can harvests of each product be deduced?
- What are the prices of each commodity? Can the prices be determined easily?

The steps which can be planned for, and followed, are as follows:

1. Survey all significant nonwood resources to determine (a) what exists now, and (b) what the social and economic benefits of specific non-wood products are. This phase will involve planning and conducting an inventory of nonwood resources of sufficient accuracy and precision to enable yield forecast and cultural decision-making to be taken.

   Nonwood inventories could be linked to forest inventories for wood resources as an additional dimension of the inventory. Products having a well established or traditional values to

local communities could form the basis of inventories. Flexibility is needed in survey design, depending upon the character of non-wood product to be surveyed. This "mixed" wood/nonwood approach has been followed with considerable success in the Republic of Vanuatu [20].

2. Evaluate data in terms of who benefits from nonwood forest products? What is the potential for management of specific products ? Can specific crops - medicinal plants, food plants, other plants - be grown technically and is it economically feasible to do so?

An extension of this theme, after nonwood forest products inventories have been made, would be to encourage the active participation of villagers in the decision-making process on how and when nonwood products might be harvested, who should do this and what support should be provided by the concessionaire. Of particular importance would be arrangements for marketing of nonwood products. Sustainable management would, as with wood, be the long term goal. These are features which might be considered in revision of the long term concession planning guidelines. A participatory process involving local communities and concessionaire planners has the benefit of it being an environmental awareness raising "tool" and could lead to improved forest protection.

5.6 Guidance for Planning Forest Fire Mitigation Programs

Central to achieving sustainable production of wood, rattan, other forest products, for conserving biological diversity of forest ecosystems and for preserving the environmental benefits of forests is effective protection from loss or damage from wildfire. Long recognized as a major cause of forest loss in many countries, wildfire has also led to significant damage or losses in Indonesia. Excluding an unusually large fire in East Kalimantan in 1983, the six-year, 1983-88 average national rate of damage or loss caused by fire was 22,480 ha. The average Provincial rate of damage over the same period was estimated to be 1,340 ha[21].

Against this background it is desirable to now ask: - What practical contribution can the planning process make to reducing forest degradation and area losses caused by wildfires and how can this be achieved?

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20 Pacific Islands Forests and Trees - Vanuatu; Traditional Uses of Forests, Suva, Fiji, 1993

21 Forest Management for Sustainable Production and Management in Indonesia. Armitage, Ian and Muh.Kuswanda. DG of Forest Utilization, Ministry of Forestry, Jakarta and FAO. Field Doc.No.I-2, Forestry Studies Project No.UTF/INS/065/INS, 1989.

The first point is to recognize that **forest protection - from fires or other damaging agencies - is an integral part of forest management and needs to be considered in management plans, and operationally, as a coordinated set of activities** specifically aimed at protecting the integrity of forests. So often forest protection is set apart from management; in the view of the consultant, forest protection is a component of the overall management process just as much as is inventory, harvesting, silviculture or other activities. Integration of fire protection activities into an overall plan for the management of a forest concession enables priorities eg. public relations, expenditure on training and equipment, assessment of fire risk, to be determined in relation to other managerial issues. Refer also to Chapter 4.1 for discussion on some relationships between management activities, including protection, and management objectives.

From a managerial outlook the second point is to clearly **recognize that forest fires are almost always caused by people and that fire is an important land use "tool" to farmers for clearing vegetation and inducing new plant growth for grazing.** The practice is entrenched culturally in the minds of people forming local forest dependant communities and it is unlikely that they are easily going to be persuaded to not light fires on alang-alang, in forests or on other types of vegetation. Emphasis will need to be placed upon well planned and effectively implemented public relations activities.

Responsibilities for planning and implementing forest fire mitigation Programs need to be shared between the Ministry of Forestry, concessionaires and by the affected local communities; all have a vital role to play. Developing good public relations will be important. The focus of assistance, public awareness and education, needs to be placed upon the men, women and children comprising rural communities living in and near forest concessions. Rural communities are a vital resource and it is desirable that they be utilized fully to help "contain" rural fires.

Steps which may be considered, and which can be planned for in an RKPH, are along these lines.

1. Institutional: Require concession companies to nominate a group within its organization, comprising representatives of both forest protection and community development (Bina Desa), who will have responsibility for the development and implementation of public awareness Programs in respect of fire.

2. Communication: Commence a dialogue with local communities explaining the desirability of encouraging cooperation for promoting an awareness of the need to progressively contain the use of fire in forests. Extend the dialogue to schools with the aim of securing the support of schools to include public awareness activities into school curricula.

3. Implementation: Design a series of posters, leaflets, notices, newspaper articles, stickers and comics for distribution and use within and near local communities. The use of radio and TV should be considered. There is a need for a consistent implementation of these activities; once started they should be continued and viewed as being part a permanent part of protection arrangements for concession forests.

Some of these activities may already be applied by some concessionaires. A realistic way of commencing the process of developing and implementing a public awareness fire protection program would be to apply this approach on a pilot scale on one, or at the most, two separate concessions. This would enable first hand experience to be gained by all concerned thereby enabling improvements to be developed for wider use later.

ANNEX NO. 1: TERMS OF REFERENCE
FOREST MANAGEMENT PLANNING SPECIALIST

Tasks

1. Based on field inputs, review and provide recommendations to improve the following three forest utilization plans:

a. The RKPH (Rencana Karya Pengusahaan Hutan), long-term planning for forest utilization, working with the Kanwil and the Dinas in West Kalimantan and the concessionaire (Pt.SBK). The consultant will:

   i) review the existing guidelines for formulating an indicative plan for long-term forest utilization;

   ii) review how the plan can be revised to more realistically reflect general forest information in different forest areas;

   iii) identify procedures to collect general information on economic projections of the concession's forest products as well as identify the potential harvest for non-timber forest products;

   iv) provide guidance for planning forest fire mitigation programmes;

   v) identify what procedures should be used by the Ministry of Forestry to more easily review the plan;

   vi) prepare options for improving the guidelines for formulating a long-term plan if the existing plan requires improvement.

b. The RKL (Rencana Karya Lima Tahun, or 5 year plan). The advisor will review the MoF guidance for the plan, including:

   - identification of the plan's strengths and weaknesses relative to field implementation;
   - degree of accuracy in implementation of the plan;
   - how to monitor progress indicating what benchmarks should be used and volume counting system of harvested logs;

- recommendations for improvement of these plans to enable MoFr to conduct better performance evaluations of the concession holder.

The consultant will ensure that the plan provides clear direction to subsequent logging operational plans of the concessionaire.

c. The RKT (Rencana Karya Tahunan, or 1 year logging plan). The advisor will review the existing guidelines for formulating the RKT, and provide technical recommendations for improvements.

2. The advisor will work closely with NRMP advisors and GOI officials, and coordinate plans, approach, and outputs with the Natural Production Forest Management Implementation specialist.

Outputs

1. A mid-term report to be completed roughly halfway through the consultancy on work completed and changes needed in the RKPH, RKL and RKT submitted through the NRMP Chief of Party (COP) to MoFr and USAID.

2. Completed field visits to Pt.SBK to check the RKPH, RKL and RKT in the field.

3. Brief monthly reports on work carried out to the NRMP COP, the Kanwil in West Kalimantan and the NRM Project Implementation Unit in the Directorate General of Forest Utilization.

4. A final report submitted to GOI and USAID by the end of the consultancy detailing findings and recommendations as outlined under Tasks above.

5. Presentations to USAID and relevant GOI officials before submission of the mid-term and final reports.

Reporting

The consultant will report to the NRMP Chief of Party working closely with the MoFr (Kanwil and Dinas) in Pontianak and Palangkaraya. The consultant will also work closely with NRM/ARD Forestry Advisor (MoFr), the NRM/ARD Agroforestry Advisor in Pontianak and Bukit Baka. He will also liaise closely with NRM Project Implementation Unit in the DG of Forest Utilization (MoF).

Location

Jakarta with frequent travel to Pontianak and Bukit Baka as well as other areas as required.

ANNEX NO.2:

NATURAL PRODUCTION FOREST MANAGEMENT

Working Timetable

for a Short-term Consultancy between August 1993 and October 1993

Consultant Ian Armitage

The consultancy has a total length of 6 months divided into two phases:

Phase I: 2.5 months (August to mid-October, 1993)

Phase II: 3.5 months (April to mid-July, 1994).

Phase I - 1993

Weeks		Activities
August		
1.	(4 - 8)	Arrival, define working schedule; commence study of background documents;
2.	(9 - 15)	Continue reviewing documentation, inc.existing guidelines with a focus on RKPH.
3.	(16 - 22)	Continue studies; calls on Min.Forestry officials and PT.SBK (Jakarta) staff, UKODA, CIFOR and other relevant projects;
4.	(23 - 30)	Continue reviewing guidelines and management plans for PT.SBK.

September

5(a).	(1 - 3)	To West Kalimantan for discussions with Kanwil, Dinas, Bappeda and PT.SBK.
(b).	(4 - 5)	Continue studies of guidelines in Jakarta; monthly report for August;
6(a).	(6 - 8)	Visit Palangkaraya, Central Kalimantan; meetings with Kanwil, Dinas and Bappeda.
(b).	(9 - 12)	Return to Jakarta; field studies in Jakarta continue;
7.		To Pontianak (13th); field studies in West Kalimantan with PT.SBK, Dinas, Kanwil and NRMP (between 15th and 21st Sept); return to Jakarta on 21st;
8(a).	(20 - 21)	Field studies in West Kalimantan with PT.SBK, Dinas, Kanwil and NRMP continue; return to Jakarta on 21st;
(b).	(22 - 26)	Data analysis and reporting; discussions with Project officials and NRMP advisers; commence working with Adviser A.W.Klaasen;

October

9.	(27 - 3)	Data analysis and reporting continues; monthly report for September;
10.	(4 - 10)	Continue reporting in Jakarta; visit Kanwil, Dinas and Bappeda Offices and PT.SBK staff in Pontianak on 7 and 8 October to discuss interim findings and, where necessary, to check information;
11.	(11 - 15)	Interim reporting continues in Jakarta; visit Kanwil, Dinas and Bappeda Offices and PT.SBK staff in Palangkarya on 12 and 13 October to discuss interim findings and, where necessary, to check information.
		Presentation of findings/interim recommendations at a Min.Forestry/NRMP seminar on 14th Oct; interim report left with Min.Forestry for study until consultant returns in 1994; departure (16th).

ANNEX NO. 3

DECREE OF

DIRECTOR GENERAL OF FOREST UTILIZATION
No. : 131/KPTS/IV-RPH/90

Concerning

Guidelines for Formulating, Evaluating and Approving of an Overall Working Plan in Forest Utilization

DIRECTOR GENERAL OF FOREST UTILIZATION

Considering :

a. that based on Decree of Minister of Forestry No.274/Kpts-II/1989, the forest concessionaires are required to make an overall working plan of forest utilization;

b. that the implementation of the Minister's Decree no.274/Kpts-II/1989 is further regulated through the Director General of Forest Utilization's Decree;

c. that in relation with the above considerations, it is necessary to establish a guideline for the formulation, evaluation and approval of the overall working plan for forest utilization that is stipulated through Decree of Director General of Forest Utilization.

Referring to :

1. Basic Forestry Law No.5, Year 1967,
2. Government Regulation No.21, Year 1970 Jo. Government Regulation No.18, Year 1975,
3. Government Regulation No.33, Year 1970,
4. President's Decree No.15, Year 1984 Jo. President's Decree No.47, Year 1988,
5. Minister of Forestry's Decree No.245/Kpts-II/1989,
6. Minister of Forestry's Decree No.274/Kpts-II/1989,
7. Minister of Forestry's Decree No.493/Kpts-II/1989.

DECREED

Stipulating :

Decree of Director General of Forest Utilization concerning Guideline for formulation, evaluation and approval of the overall working plan for forest utilization covering the whole period of concessionaire.

Chapter 1

General Rules

Article 1

In this decree the official terms used are:

1. Overall Working Plan for the whole period of Forest Utilization - and subsequently will be called RKPH - is a plan describing guidelines and general direction of plans of actions, which also state the company's philosophy to achieve its determined goal and objectives, and presenting a data base, prospects, analysis and activity plans on delineation and its gazetting; forest land use and infrastructure and roading development, forest inventory, harvesting, planting, tending, forest produce marketing, forest protection, community development of the people living in the forest its surroundings; it is a main and base plan that should be utilized in formulating shorter period working plans.

2. The Forest Manager (pengelola hutan) is a forest concessionaire's holder or institution/designated company legally appointed to manage forests based on the existing regulations.

Chapter II

Formulation

Article 2

Principally the RKPH is formulated based on :

a. Aerial Photography at a scale of 1:20.000 and the interpretation map to obtain complete and accurate data and information of forest vegetation coverage and its stratification, regional topography, taxation of the potential standing stocks and other information.

b. Forest inventory and cruising according to specific rules that cannot use or utilized aerial photography.

Article 3

RKPH covers :

1. Strategic goals and objectives which are elaborated in general such as how to determine the enterprise's class, species and volume to be produced and also in determining the silvicultural treatment that will be implemented according to the site and time schedule.

2. Yield regulation integrated with the forest regeneration which is based on the enterprise's class and silvicultural system. The regulation is determined as an implementation of sustained yield production, sustainability of efforts and environmental balance (aspect of sustainability).

3. Forest management regulation that covers aspects of forest planning, management unit designation, forest venture class and the infrastructure and roading development (forest management aspects).

4. Organizational and management arrangements adopted by the concessionaires, to obtain effectiveness and efficiency in implementing and controlling operational activities.

5. Financial and economic projections in order to evaluate rentability, investment needs and working capital requirements (economical aspects).

6. Efforts to conserve the genetic resources and environment as well as community development programs in and around the forest area (aspects of environmental balance).

Article 4

Guidelines for formulation and preparation of the RKPH are attached in the Appendix of this Decree.

Article 5

1. RKPH should be formulated and prepared by the forest manager or the forest concession holder.

2. In its preparation the formulation of the RKPH may be assisted by forestry management consulting firms that have been approved beforehand by the Director General of Forest Utilization.

3. Cost of RKPH is borne by the concession holder or by any other institutions/company which is designated to manage the forest.

Chapter III

Procedure

Article 6

1. The proposed RKPH shall be prepared in 7 copies to be submitted to:
   a. Director General of Forest Utilization: three copies
   b. Head of Forestry Regional Office: two copies
   c. Head of Provincial Forest Service: two copies.

2. Based on the proposed RKPH, Forestry Regional Office will submit information regarding the regional development planning relevant with the specific RKPH Proposal to the Director General of Forest Utilization.

Article 7

Criteria and evaluation procedures of RKPPH Proposal are regulated separately.

Article 8

1. On behalf of the Minister of Forestry, the Director General for Forest Utilization will give approval to an RKPH.

2. The approved RKPH will be submitted to:
   a. Directorate General of Forest Utilization: 2 copies
   b. Directorate General of Reforestation and Land Rehabilitation: 1 copy
   c. Directorate General of Inventory and Forest Land Use: 1 copy
   d. Directorate General of Forest Protection and Nature Preservation: 1 copy
   e. Agency for Forestry Research and Development: 1 copy
   f. Forestry Regional Office: 1 copy
   g. Provincial Forest Service: 1 copy

Chapter IV

Sanctions

Article 9

Whenever the submission of RKPH proposal and its complete requirements (include the revised RKPH) is not fulfilled properly based on stipulations of this Decree the concessionaires will be sanctioned according to the Regulation and the existing laws.

Chapter V

Regulation in Transition

Article 10

1. The Previous RKPH, or Twenty Year Plan, already approved prior to the issuance of this Decree, shall be adjusted by the proper regulation mentioned in this Decree.

2. For the concession holder who have obtain their HPH's Decree after 1989, their URKPH (RKPH Proposal) shall be submitted two years after their Decree has been issued.

3. For the HPH holders who obtain a license before June 3, 1989, the RKPH proposal shall be submitted two years after the issuance of Ministry of Forestry Decree No.274, 1989.

4. For the HPH holders which will end their first 20 year tenure as of June 3, 1989, then the RKPH shall be submitted two years after its license extension has been approved by the Ministry of Forestry.

Chapter VI

Closure

Article 11

1. Particular things that have not been regulated as yet in this Decree, will be arranged later.

2. With the issuance of this Decree, the Decree of the Director General of Forest Utilization No.108/Kpts-Prog/1987 dated February 14, 1987 is no longer valid.

3. This act is effective as of the date of issue.

Issued in : J A K A R T A
Date : 20 June 1990

DIRECTOR GENERAL FOR
FOREST UTILIZATION

D J A M A L U D I N
NIP. : 080011012

carbon copy to :
1. Minister of Forestry
2. Echelon I Officers within the Ministry of Forestry
3. Echelon II Officer within the Directorate General of Forest Utilization
4. Head of Regional Offices throughout Indonesia
5. Head of Provincial Office Service throughout Indonesia

b. Book Spine

On the book spine put the title as follows :

Company name .....
Overall working plan for the whole period of forest utilization.
Time Period: 19...../19.....

c. Approval sheet/page

Company name .....

OVERALL WORKING PLAN FOR THE WHOLE PERIOD OF FOREST UTILIZATION

No. of HPH's Decree :
Date :
Total Area :
Province :
Time Period : 19...../19.....

Evaluated :
On (date) :
In (place) :

Jakarta, ...
Written by :

Director General for Forest Utilization
on behalf.

.....

Director of Concession Planning

NIP.:

Main Director

Agreed and Approved

in : J A K A R T A

Date : .....

on behalf of MINISTER OF FORESTRY

DIRECTOR GENERAL FOR FOREST UTILIZATION

NIP. :

d. Foreword

FOREWORD

Explanation .

Please briefly explain the objectives of this plan and the benefits to be expected from its implementation in terms of objectives and targets that have been determined by the company. Provide explanations that the existing RKD (twenty year/long term working plan), and RKL (five-year working plan) are only logging plans, while the RKPH is a comprehensive forest management plan that also includes plans for genetic resources/biodiversity conservation and social development. Explain the sources of information that have been used together with relevant acknowledgements.

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SECTION ONE

CHAPTER I INTRODUCTION

The chapter is to contain a short description on:

1.1 Objectives of Management and Utilization of Production Forest

a. The objectives of forest management and utilization of the production forests are, among others, to produce: construction timber, wood fiber, wood for energy and or its combinations as well as other non timber forest products in a business-like manner where the forest resources and its environments are still maintained and in a sustainable manner.

b. Volume and detailed description of the sizes of main products being targeted.

c. Total volumes and specifications of other possible products that could be utilized as intermediate products, by-products or as temporary products.

1.2 Species Selection

According the above objectives, this part should describe:

a. The existing species or other species that are being planned to be utilized,

b. Other species which are going to be utilized for interplanting, edgecrops, supplementary planting, fire-break planting and temporary crops.

1.3 The Legal Status of Forest Concession Areas

Describe the legal status of the concession areas in relation with those steps already taken up in its designation and gazettment in preparation to be developed into a comprehensive forest production management unit.

1.4 Management Unit Working Division and Road Construction

Management unit working divisions are necessary to regulate and manage the production sustainability, while the road and infrastructure development is geared towards efficient forest utilization.

Therefore this part of the plan should contain descriptions on:

a. Basic assumptions in division of areas into areal divisions, blocks and compartments.

b. Basis for setting up main roads, branch roads, landings, logyard, base camp and other forest infrastructural facilities.

1.5 Forest Business Class

Contains the basis for establishment of the specific forestry business class.

1.6 Silviculture Systems

This section will describe systems and techniques of silviculture that are going to be implemented on every forestry business class or the kind of products to be produced. It should contain the reasons for choosing a particular system and silvicultural techniques.

1.7 Tree Increment and Cutting Rotation

Existing data on growth increments and cutting rotation that will be used as a basis for planning forest management.

a. Usage of similar values of increment and rotation in other sites with equal conditions.
b. Estimation by using the equation formula "soil woodland relationship".
c. Research conducted in the company's forest concession using permanent plots.

1.8 Allowable Cut Calculation and Cutting Regulation

The allowable cut as a manifestation of the sustained yield principle should be properly regulated and controlled in line with the tree increment in the forest stand in that specific area. This section should provide a description of allowable cut methods of calculation/estimation by combining the area and volume methods, and also the basis for cutting regulation and block location by considering the limitation on total area allowed for harvesting in a certain duration/time frame.

CHAPTER II MAIN DATA

This chapter presents a description of field data from the area allocated as a production forest management unit, as well as data of the surrounding areas, to be utilized as the basic materials in analyzing technical alternatives in developing the production management unit in a phased way. The efforts will be assisted by obtaining aerial photos having a scale of 1:20,000 and a vegetation map having a scale of 1:25,000 that will later be followed by field checking and/or ground inventory with a low intensity of 1 to 5% or according to the existing regulation.

2.1 Location, Area and Site Conditions

To show the position and width of area of the forest concession then the following data need to be presented:

1. Geographical Situation,
2. Location, according to both Government and forest administrations,
3. Location based on watershed management,
4. Total areas of forest concession,
5. Effective area suitable for sustainable timber production,

The above data should be accompanied by a concession map with a scale of 1:25,000.

2.2 Topography

The topographical information required about a concession is:

1. Land Unit Description (including Christian and Stewart Classification, 1968),
2. Class and Slope Directions
3. Elevation above sea level (maximum, minimum and average)

The foregoing information should be accompanied by a contour map at a scale of 1:25,000 and slope data descriptions.

2.3 Soil, Land and Geology

Information on soil, land and geology are as follows:

1. Geological history and parental rock formation,
2. Geological information,
3. Mining deposits and materials available for road construction,
4. Unstable areas due to erosion and land slides,
5. Soil types, including its description (Soil Taxonomy, 1975; Global Soil Map Legend, 1976; National Soil Classification System, 1978,
6. Evaluation of Land Suitability (FAO, 1976),

The above information should be presented in the form of a map having the following scales:

a. Geology map 1:250,000,
b. Soil map 1:20,000,
c. Land Suitability map 1:20,000.

2.4 Climate

Climate information presented is to consist of:

1. Monthly rain intensity and mean distribution,
2. Monthly rainy days,
3. Precipitation type,
4. Monthly water balance for several relevant water sources,
5. Mean monthly temperature (maximum, minimum and average),

6. Wind (direction, velocity and possible of extreme wind),
7. Monthly relative humidity,
8. Climatic classification based on Koppen (accompanied by a climate suitability map on the largest available scale).

2.5 Hydrology

This part is to describe:

1. Boundaries of water catchment areas,
2. Main rivers and drainage patterns,
3. Location of springs, wells,
4. Utilization of water bodies,
5. Discharges (level, flow and water quality),
6. Depth and rate of flow of ground water,

The above information should be accompanied by a hydrology map of at a scale of 1:20,000.

2.6 Forest Conditions

This part shall present information as follows:

1. Type, form and distribution of vegetative cover,
2. Potential and distribution of dominant species as well as rare species,
3. Usage and benefits of vegetation for the local people,
4. Condition and stages of forest area planning and roading and infrastructure development in order to determine the extent of logged over areas and virgin forest.

The foregoing information must be accompanied by a vegetation map having a scale of 1:25,000 and a concession working map on a scale of 1:10,000 or 1:20,000 showing roading networks based on updated forest engineering activities.

2.7 Accessibility

Information required are:

1. Infrastructure and means of transportation for land, water and air transport,
2. Concession location in relation to harbors, ports, and industrial centers,
3. Mode, capacity and frequency of transportation,
4. Infrastructure and physical development plan,
5. Transportation costs/fares,
6. Types and systems of telecommunication.

2.8 Socio-economy and Community Culture

This section should contain the following information:

1. Population, density and distribution of population in the areas (districts) surrounding the HPH. Please also describe population information based on ages, sex, education and livelihood/occupation,

2. The local community culture in the vicinity of the concession, especially on customs which are related to forest products harvesting and its utilization,

3. Regional economic development and its development plan (agriculture, forestry, industry, transmigration, etc.),

4. Social forestry economic projects (social forestry, agroforestry, etc.) located in surrounding districts,

2.9 History of Forest Management

To support the land evaluation in the context of forest management, this section should provide information on:

1. Changes in forest areas,
2. Forest conditions,
3. The development of forest management and forestry practices,
4. Previous natural calamities or disasters.

2.10 Local Forest Development Conditions

1. Describe the feasibility for forest utilization from technical forestry viewpoints,
2. Technical aspects to be considered are:
    - total area,
    - topography and geography,
    - soil,
    - forest conditions,
    - infrastructure and physical facilities,
    - climate,
    - silvicultural systems,
    - capability/intensity of management

2.11 Sustainability and Business Principles

This section describes risks of environmental impacts due to forest management and utilization practices. By indicating the potential environmental impacts forest management activities should be able to pinpoint the critical areas and formulate definite actions to anticipate and tackle the problem areas. Data can be taken from AMDAL/SEL (environmental impact assessments which have been conducted by the concessionaires).

CHAPTER III FOREST MANAGEMENT PROSPECTS

3.1 Silviculture System

This section is to contain descriptions of silvicultural systems to be applied and both the positive and negative impacts of each system.

3.1.1 Indonesian Selective Cutting and Planting System (TPTI),
3.1.2 Clear Cutting with Planting System (THPB),
3.1.3 Clear Cutting with Natural Regeneration System (THPA),
3.1.4 Other systems adopted by MoFr.

3.2 Prospects for the Development of Forestry Business Classes (based on production)

3.2.1 Construction Wood

This section should describe objectives of forest development by referring to profitability and sustainability principles, as well as to forest management options which are suitable for the specific conditions of concession forests.

3.2.1.1 Tree Species Selection

Describe tree species to be harvested and tree species to be planted or to be maintained, stating the emphasis and priority should be clearly geared towards those dominant and native species.

3.2.1.2 Tree Improvement System

Describe tree improvement system to be applied in conformity to the species selected.

3.2.1.3 Seed Sources

Explain the source and origin of the selected species to be planted.

3.2.1.4 Conformity Period

Briefly explain works to do during the period and how long does the period lasts.

3.2.1.5 Equipment

Please specify all equipment to be used for operation.

3.2.1.6 Manpower

Briefly mention the origins, skill level, education and number of manpower requirements.

3.2.2 Fiber Wood

(similar with the above with additional description on methods of planting selected)

CHAPTER IV PROSPECTS OF HARVESTING ORIGINAL STANDS

4.1 Standing Forest Stock and Composition

In this section the HPH must carry out inventory work (a requirement of established or new HPH) to provide accurate data for planning harvesting activities after the stands have matured. The concession should give attention to effective utilization of lesser-used species in order to increase timber production per unit area. By using aerial photographs (scale 1:20,000), vegetation map, contour map, the sampling intensity of stand inventory will be further decided between 1 to 10% depending on the current existing regulations.

Especially extended HPH that have been renewed must anticipate proper silvicultural treatments to achieve better stand composition after the conformity period.

4.2 Area and Standing Stock Volume

This section should provide assurance/clarification to enable decisions to be made on part of the concession area or blocks to be harvested during the whole tenure, as well as topographic features and the existing stand composition.

4.3 Infrastructure and Road Construction

This part should provide a brief description among other things on:

- Road intensity,
- Costs and calculation of optimal road intensity.

4.4 Equipment

Provide a brief description on equipment capabilities, and number and type of equipment needed.

4.5 Cost and Income

This part should present calculations for harvesting and production costing, and the income from sale of timber and other forest products.

CHAPTER V PROSPECTS FOR FOREST PRODUCTS PROCESSING

This chapter will describe forest products processing (mechanical and chemical processing) and its prospects, at present and in the future, specifically as follows:

1. Concessions which have own industries must explain and fully describe:
   a. Type, location and capacity of the processing industry,
   b. Forest products processing plan (time schedule, input and output).

2. Concessions which plan to build or expand their own industries must describe the development plan of the industry (type, location, capacity, investment and time schedule). It should be noted that new primary industries, especially plymills and sawmills are only allowed in Irian Jaya.

CHAPTER VI PROSPECTS OF FOREST PROTECTION

This chapter is to describe the common hazards likely to occur in concession forests (forest fires, shifting cultivation, etc.) and their negative impacts toward sustainable forest management and the environment. In addition, this chapter should also provide explanations and describe efforts to avoid or minimize such dangers, including agroforestry programs in the surrounding villages, etc.

CHAPTER VII PROSPECTS FOR DEVELOPMENT OF FANCY WOOD

This chapter is to provide a brief description about the prospects for development and cultivation of fancy wood and luxury woods to provide better economic prospects in the future.

CHAPTER VIII PROSPECTS FOR DEVELOPING NON TIMBER FOREST PRODUCTS

Concessionaires should conduct an inventory of non timber forest products growing in concession areas and give attention on the prospects of developing such products by the local villagers living nearby. The main non timber forest products are rattan, damar/rosin, gum, etc., while others are wood bark, fruits, animals and their product derivatives.

SECTION TWO

CHAPTER I CONCESSION FOREST MANAGEMENT PLANNING

This chapter describes the company objectives, development of business production class, the selected silvicultural systems, rotation for each production class, estimates of production volumes and the conformity period (jangka benah).

CHAPTER II FINANCIAL AND ECONOMIC FEASIBILITY ANALYSIS

2.1 Project Costs

Contain investment costs and operational costs for the establishment of the intended business production class.

2.2 Financial Income of the Project

2.3 Financial Analysis

The required financial analyses are to be as follows:

a. Investment Analysis
   - To calculate the possibility of investment that will be required and the possibility of returns on investment. IRR calculations may be used.

b. Cost - Benefit Analysis
   - To calculate possible income against the cost of expenditure. May use the B/C ratio or NPV.

c. Cash Flow Analysis
   - To calculate possible sources of funds and its usage. To estimate the company's liquidity.

2.4 Role of the Project in the Economy

Economic analyses must be presented which are related to forest utilization impacts in the locality.

a. Increased community income,
b. The interrelated impacts on regional development.

2.5 Sensitivity Analysis

With possible changes in concession area, pricing, interest rates and the rotation.

CHAPTER III PLAN OF ACTIONS

3.1 Boundary Establishment and its Gazettment Plan

This sub-section should describe the boundary establishment plan and or the realization of the concession boundary, in the form of its own boundary, natural boundary or common boundary with other concessions.

3.1.1 Boundary Establishment and Forest Gazettement

This part will contain:

a. Working area and its forest management division plan on a Physical Infrastructure Plan Map at a scale of 1:20,000,

b. Methods used,

c. The detailed volume (amount) and kinds of activities according to its time frame and locations (boundary tracing, measuring and mapping of boundaries) which are presented in a boundary plan.

3.2 Forest Management Unit Division and Infrastructure Development

3.2.1 Basis and Objective

This section shall describe the meaning and basis as well as objectives of the working area management planning unit and the division of the management unit.

3.2.2 Division into sub-management unit and infrastructure and road construction.

The division into management units shall cover the following aspects:

3.2.2.1 Planning for block and compartment divisions based on field evaluation activities, land suitability and harvesting plan activities,

3.2.2.2 Description, time schedule and implementation of working area divisions (field checks, boundary works for management blocks, boundary measurement and mapping) which are incorporated into a Plan of Working Area Division, accompanied by a Working Map having a scale of 1:20,000.

3.2.3 The infrastructure and roading development should cover:

1. Road trace plan on a Forest Road Network Map of scale 1:10,000.

2. Plan for landings, base camps, and other forest buildings and construction.

3. Time schedule for implementation plan of the above two items, including details on place/site, type and volume of activities which are presented in a Table of Forest Opening Activities Plan.

3.3 Forest Inventory Plan

This section shall present the following forest inventory information:

3.3.1 Topics for which inventories are required (including flora, fauna and non-timber forest products).

3.3.2 Methods of inventory used, with or without support of aerial photos, especially where it is not possible to be obtain aerial photographs.

3.3.3 Time schedule for forest inventory activities (List of Forest Inventory Activities).

3.4 Harvesting Plan

A logging or harvesting plan shall cover the following:

1. AAC,

2. Type and total units of equipments needed,

3. Cutting Regulation based on area and time frames (List of Harvesting Plan),

4. Transportation Plan (kinds of transport used). Each plan shall be accompanied by relevant reasons / justification.

3.5 Planting Plan

This section shall describe:

1. Physical site condition in terms of edaphic factors (soil suitability data mapped on a scale of 1:20,000) and climatic data (climate suitability data) that will determine and influence the success of planting work,

2. Seeds and seedling supplies which are suitable for the local specific physical conditions based on main data already described in Chapter II of Section I,

3. Field preparation,

4. Nursery work, incl. lining out,

5. The establishment of connecting roads, inspection roads, waterchannels and cuttings,

6. Seedling transportation,

7. Planting techniques and methods,

8. Early maintenance and enrichment/replacement activities,

9. Time schedules and sites for activities 2 to 8 above (List of Planting Activities),

This Planting Plan shall conform to the harvesting plan in order to coordinate and provide a proper balance between harvesting and planting, and shall be accompanied by a Planting Plan Map at a scale of 1:20,000.

3.6 Regeneration and Tending / Maintenance Plan

Regeneration and tending works are essential and are required in order to obtain high quality standing stocks which could produce maximum harvests.

This section shall describe:

1. Regeneration and tending activities to be carried out (liberation, pruning and thinning),

2. Detail of the types of activities and the volume of regeneration and tending works according to the time schedule and location, presented in the form of a List of Forest Regeneration and Tending Plan.

3.7 Forest Product Processing Plan

3.7.1 Type, location and capacity of industries/processing facilities,

3.7.2 Processing Plan (time, input and output),

3.7.3 Efficiency improvement plan,

3.8 Forest Products Utilization Plan

This part shall describe the production of forest products and will cover:

3.8.1 Species and volumes that will be processed annually by industries,

3.8.2 Species and total volume that are going to be sold to open market or other parties annually.

3.9 Marketing Plan

This part shall describe the marketing time schedule of timber or processed forest products that are specified by destinations, marketing system and volumes.

3.10 Forest Protection Plan

To protect forests from all kinds of potential hazards and disturbances. This section shall cover:

3.10.1 A Standing Stock and Forest Security Plan in regard to the main potential risks facing the standing forest stock (illegal cutting, illegal forest clearing, forest fires, etc.).

3.10.2 Applicable control methods.

3.10.3 Technical Control Plan.

3.10.4 Fauna, flora and biodiversity protection.

3.10.5 Detailed time frame/schedules and locations for protection of standing forest stock in the form of a Forest Protection Activity Plan List. For concessions already having an EIA, then plans for the main impacts that have been approved by EIA Commission of the Ministry of Forestry may be used.

3.11 Plan for Rationalization of Shifting Cultivation Practices

For optimal land use and for improving the standard of life of communities who live in forests and their surroundings, this part shall present:

3.11.1 Land utilization in production forests according to agroforestry techniques.

3.11.2 Implementation Plan for agroforestry based on time frame scheduling and locations.

3.11.3 Coordination systems/schemes/working relationships between land users with the supervising and public services agencies and concession holders.

3.11.4 Agroforestry with a Village Development Scheme for reducing the extent of and for rationalization of shifting cultivation.

3.11.5 Improving the participation and cooperation with other social projects in nearby localities.

CHAPTER IV ORGANIZATION AND MANPOWER PLANNING

4.1 Organization of Forest Management

This section is to provide a description on:

1. Organizational chart and job description for each personnel involved.
2. The standard manpower requirement according to each activity (planning, forest management, harvesting, processing, marketing, protection and forest security).
3. Total number and qualifications of manpower (staff and workers) needed to fill the range of positions and work requirements.

4.2 Origin of Manpower

This subsection should contain a description on the supply of manpower.

4.3 Skilled Upgrading and Training of Indonesian Workers

Please describe efforts and activities to improve employee skills, in the form of capability improvement, skills and welfare. The forgoing description needs to be accompanied by List of Employees, and details of total numbers, qualifications and time frame of its supply.

CHAPTER V INCOME AND EXPENDITURE PLAN

5.1 Construction Wood Forest Production Business Class

5.1.1 Expenditure Planning

The following description should be provided:

1. Detailed expenditure for each type of activity (including investment, operations and unit costing).

2. Scheduling of the needs of all types of activities included in a Plan for Forestry Management Costing for the forest concession area.

3. Scheduling for all activities, included in a List of Costing for the Forest Management of HPH.

4. Investment source and its conditions.

5.1.2 Income Prospects

This subsection should contain:

1. An income plan detailed by each line of income.

2. Scheduling to achieve the targets in the form of Lists of Income Planning/Prospects.

5.2. Pulpwood Forest Production Business

5.2.1 Expenditure Planning

The following description should be provided:

1. Detailed expenditure for each type of activity (including investment, operations and unit costing).

2. Scheduling of the needs of all types of activities included in a Plan for Forestry Management Costing for the forest concession area.

3. Scheduling for all activities, included in a List of Costing for the Forest Management of HPH.

4. Investment source and its conditions.

5.2.2 Income Prospects

This subsection should contain:

1. An income plan detailed by each line of income.

2. Scheduling to achieve the targets in the form of Lists of Income Planning/Prospects.

5.3 Total Project

Present the total budget cash flow for each forestry production class.

CHAPTER VI RESEARCH AND DEVELOPMENT PLAN

Efforts to improve sustainable forest management needs to be supported by research and development efforts.

Therefore this section should contain:

1. Types of Research to be conducted to support the establishment of Production Forest Management Units that will be developed in a phased way in the concession area.

2. Preparation of infrastructure and equipment and building facilities which are needed to support the research program.

3. Time scheduling for each research and development activity based on priorities, is to be included in the R & D Activity Plan.

Decreed in : Jakarta
On : 20 June 1990

DIRECTOR GENERAL OF FOREST UTILIZATION

signed

DJAMALUDIN

ANNEX NO.5

MINISTER OF FORESTRY
REPUBLIC OF INDONESIA

FORESTRY MINISTERIAL DECREE

Number 252/Kpts-II/93

ON

CRITERIA AND INDICATORS FOR THE SUSTAINABLE MANAGEMENT OF THE NATURAL PRODUCTION FOREST

THE MINISTER OF FORESTRY:

Considers:

a. That the natural production forest in Indonesia as a source of natural wealth, is a gift of God which must be utilized for the utmost welfare of the people and must be managed in a sustain-able manner;

b. That to implement the sustainable management of this natural production forest, criteria and indicator of the said management must be enacted;

c. Therefore with regard to the above, it is deem-ed necessary to enact a Forestry Ministerial Decree on Criteria and Indicator for the Sustainable Management of the Natural Production Forest.

Referring:
a. Law Number 5 Year 1967;
b. Law Number 5 Year 1990;
c. Law Number 4 Year 1982;
d. Government Regulation Number 21 Year 1970 jo Government Regulation Number 18 Year 1975;
e. Government Regulation Number 33 Year 1970;
f. Government Regulation Number 28 Year 1985;
g. Government Regulation Number 29 Year 1986;
h. Presidential Decree Number 15 Year 1984 jo Presidential Decree Number 25 Year 1990;
i. Presidential Decree Number 96/M Year 1993;
j. Forestry Ministerial Decree Number 116/Kpts-II/1989 jo Forestry Ministerial Decree Number 368/Kpts-II/1990;

D E C R E E S:

Enacts: **DECREE OF THE MINISTER OF FORESTRY ON CRITERIA AND INDICATORS ON THE SUSTAINABLE MANAGEMENT OF THE NATURAL PRODUCTION FORESTS OF INDONESIA**

Section 1

(1) The management of the natural production forests of Indonesia must be done in a sustainable manner.

(2) The management of the natural production forests is sustainable if it fulfills the criteria and indicators expressed in Section 2 and Section 3.

(3) Criteria and indicators as meant in Sub-section (2) holds true for the management of the natural production forest in Indonesia and is national in nature.

Section 2

(1) Criteria for the sustainable management of the natural production forest covers:

a. Aspects of forest resource;
b. Aspects of sustainable production;
c. Aspects of conservation;
d. Aspects of social economics;
e. Aspects of institutions.

(2) Indicators of each aspect as meant in Sub-section (1) are as mentioned in Section 3.

Section 3

(1) Indicators for forest resource aspects consist of:
a. Forest area has been gazetted and/or decreed as a forest area (Kawasan Hutan);
b. Forest has been inventorized;
c. Biodiversity within the forest area is ensured to be represented;

(2) Indicators for sustainable production aspects consist of:
a. History of forest management is well recorded;
b. Felling rotation and etat is commensurate with forest potential;
c. Silvicultural system is compatible with forest type;
d. Target regulation and product utilization have been determined compatible with variation of the forest resource.

(3) Indicators for conservation aspects consist of:
a. A conservation area has been decreed within the natural production forest area;
b. The management of a conservation area within the natural production forest;
c. Environmental Impact Assessment (EIA) is done according to existing regulations;
d. Forest protection is done intensively and continually.

(4) Indicators for social economic aspects consist of:

a. Absorption of manpower;
b. Work opportunity;
c. Enhancement of welfare within as well as in the vicinity of forests;
d. Increase of national income.

(5) Indicators for institutional aspects consist of:

a. A national forest policy have been enacted by law and regulation;
b. An organization has been set up to ensure the implementation of a national forest policy in the Central as well as Regional levels;
c. Forestry Plans have been formulated covering long, medium and short term periods in the national as well as regional levels;
d. The establishment of a control institution as needed;
e. The execution of research to support all aspects mentioned in Sub-sections (1), (2), (3), (4), and (5).

Section 4

Criteria and indicators for the sustainable management of the natural production forest as meant in Section 2 and Section 3 applies also to every forest utilization units.

Section 5

Technical rules on the implementation of this Decree will be regulated by the Director General of Forest Utilization, Director General of Inventory and Forest Land Use, Director General of Forest Protection and Nature Conservation , and the Head of the Agency for Forest Research and Development, by itself or together, in accordance with their respective field of duties.

Section 6

This Decree comes into force at the date of enactment.

Enacted in: Jakarta
On date : 29 April 1993

MINISTER OF FORESTRY,

signed

DJAMALUDIN SURYOHADIKUSUMO

ANNEX NO. 6 (a)

GENERAL FORM OF TABLES FOR COLLECTION OF ECONOMIC DATA

A. YIELDS and REVENUE

FOREST CONCESSION MANAGEMENT PLANNING: ECONOMIC DATA COLLECTION			
COMPANY NAME: ..... No. HPH DECREE: ..... PROVINCE: ..... DATE: ..... TIME PERIOD COVERED IN THIS REPORT: ..../..../19.... ..../..../19....			
LOG REVENUE	Locality A	Locality B	Locality C
YIELDS - Species A Et"a" (m3/ha)			
YIELDS - Species B Et"a" (m3/ha)			
YIELDS - Other Species Et"a" (m3/ha)			
YIELDS - Species A Et"b" (m3/ha)			
YIELDS - Species B Et"b" (m3/ha)			
YIELDS - Other Species Et"b" (m3/ha)			
UNIT PRICES: Species A (Rp./m3 x1000)			
UNIT PRICES: Species B (Rp./m3 x1000)			
UNIT PRICES: Other Species (Rp./m3 x1000)			

Note: (a) Yields: Et"a" = 1st cut; Et"b" = 2nd cut,
(b) UNIT PRICES (at log transfer yard or log pond), Rupiah per cubic metre (x1,000)

ANNEX NO. 6 (b)

GENERAL FORM OF TABLES FOR COLLECTION OF ECONOMIC DATA

B. COSTS

FOREST CONCESSION MANAGEMENT PLANNING: ECONOMIC DATA COLLECTION			
COMPANY NAME: ..... No. HPH DECREE: ..... PROVINCE: ..... DATE: ..... TIME PERIOD COVERED IN THIS REPORT: ..../..../19.... ..../..../19....			
MANAGEMENT COSTS, EXCLUDING HARVESTING	Locality A	Locality B	Locality C
Planning (Et"a" -3)			
Stand Inventory (Et"a" -2)			
Infrastructure Establishment (Et"a" -1)			
Liberation cutting (Et"a" +1)			
Residual Stand Inventory (Et"a" +1)			
Seedling Production (Et"a" +2)			
Replanting / Enrichment (Et"a" +2)			
Tending, 1st Phase (Et"a" +3)			
Tending, Liberation (Et"a" +4)			
Thinning (Et"a" +9)			
Thinning (Et"a" +14)			
Thinning (Et"a" +19)			
Growth and Other Forest Management Studies			
Planning (Et"b"-3)			
Stand Inventory (Et"b"-2)			
Infrastructure Maintenance (Et"b"-1)			
Forest Protection (annual)			
Forestry Overheads (annual)			
HARVESTING COSTS			
Cutting/hauling; unit cost/m3			
Trucking to log yard / log pond; unit cost/m3			
Harvesting overheads; unit cost/m3			

Note: Yields: Et"a" = 1st cut; Et"b" = 2nd cut.

ANNEX NO. 7

Paper: Simple Methods for Calculating Minimum Diameter and Sustainable Yield in Mixed Tropical Timber. Alder, Denis. in **Wise Use of Tropical Forests: Proceedings of the Oxford Conference on Tropical Forests.** Oxford Forestry Inst. Univ.Oxford, UK. 1992.Simple Methods for Calculating Minimum Diameter and Sustainable Yield in Mixed Tropical Timber.

NRM/ARD CONSULTANCY REPORTS

NO.	TITLE	AUTHOR
1.	Procurement Plan For Research Equipment at Bukit Baka and Equipment Installation at Samarinda Forestry Research Station	Roy Voss
2.	Agroforestry in Bukit Baka/ Bukit Raya	W.G. Granert
3.	Pengukuran dan Pemetaan Topografi Sebagian Daerah Taman Nasional Bukit Baka/Bukit Raya	Sahri Denny, cs
4.	Applied Research Recommendations for Production Forest Management An Economic and Ecological Review of the Indonesian Selective Cutting and Replanting System (TPTI)	Lisa Curran & Monica Kusneti
5.	Balancing Forest and Marine Conservation with Local Livelihoods in Kalimantan and North Sulawesi	Jill M. Belsky
6.	Proposal to the GOI and USAID for the Development of Comprehensive Environmental and Natural Resources Accounts (CENRA) for Economic Planning and Management	Henry Peskin & Joy Hecht
7.	Bukit Baka Mini–Hydraulic System Implementation Plan	Michael Johnson
8.	Final Report: Bukit Baka – Bukit Raya 1992	Roy Voss
	Station Protocol: Bukit Baka – Bukit Raya 1992	Roy Voss
	Research Protocol: Bukit Baka – Bukit Raya 1992	Roy Voss

NO.	TITLE	AUTHOR
9.	Environmental Education and Awareness in Bukit Baka (vol.1)	Nancy Bergau
	Environmental Education and Awareness in Bukit Baka Guide to Environment and Fire Campaign (vol.2)	Nancy Bergau
10.	Recommendations for Controlled Timber Harvesting in the SBK Forest Concession	John Hendrison
11.	Cruiser Identifications at SBK and Local Uses of Trees by Local People	Jim Jarvie
12.	Community Water Supply Feasibility Study for Bukit Baka–Bukit Raya, Kalimantan	Rick McGowan & Alfonso Rieuwpassa
13.	Report on NRM Library Consultancy September – December 1992	Dachlan Cartwright
14.	Livelihoods Strategies and Marine Resource Among Residents of Bunaken National Park, North Sulawesi: Recommendations for Local Involvement in Park Management	Jill M. Belsky
15.	A Competitive Awards Scheme for Applied Forest Management and Nature Conservation	Peter R. Burbridge
16.	Design of a Management Information System for the Natural Resources Management Project	Joy Hecht
17.	Environmental Education and Awareness Strategy for Bukit Baka – Bukit Raya National Park (volume 1)	Nancy Bergau
	NGO Training for a Local Environmental Education and Awareness Strategy (volume 2)	Nancy Bergau
18.	Water Supply and Sanitation (WS&S) Program in Bukit Baka – Bukit Raya, Kalimantan Program Status Report	Rick McGowan

NO.	TITLE	AUTHOR
19.	The Role of NGOs in Supporting the NRM Project in Bukit Baka – Bukit Raya National Park	Marcel de Brune
20.	Integration of Provincial Regional Development Planning into the Bukit Baka – Bukit Raya National National Park Management Plan	E. Edwards McKinnon
21.	Communications, Information, and Education Strategy for Bunaken National Park	Nancy Bergau
22.	Report on the Preparation of a Design for a Study of the Natural Resource Impacts of Marine Sector Policy During the Second Long–Term Development Plan Period	Andrea S. Katz
23.	Management Information System for the Natural Resources Management Project Report on the Second Mission to Jakarta July – August 1993 (Volume 1)	Joy Hecht
	Management Information System for the Natural resources Management Project User Manual and Technical Documentation (Volume 2)	Joy Hecht
24	Water Supply and Sanitation Program in Bukit Baka – Bukit Raya, Kalimantan Status Report No. 2	Jonathan Hodgkin
25.	Report on Communities Living Within Reach of The Bukit Raya National Park in Kalimantan Tengah	Michael Heppell
26.	Effective Protection and Natural Resource Management in Indonesia	Janis Togashi
27.	Biological Conservation in the Sustainable Management of Production Forest	Jim Jarvie
28.	Economic Issues Associated with the TPTI Management System	Steven E. Dennison