

LAND MANAGEMENT IN THE PROVINCE OF SOUTH SUMATRA, INDONESIA. FANNING THE FLAMES: THE INSTITUTIONAL CAUSES OF VEGETATION FIRES

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**FOREST FIRE PREVENTION AND CONTROL PROJECT
KANWIL KEHUTANAN DAN PERKEBUNAN, PALEMBANG**



**EUROPEAN UNION
MINISTRY OF FORESTRY AND ESTATE CROPS**



Cover and illustrations: Ferdinand Lubis

The cover shows details of a local fan made from *daun lontar* – the leaves of the palm, *Barassus* sp. Three of the pictures (pages 45, 53, and 63) used to illustrate the report show large decorative fans after the Bali style but made in Jambi. Miniature embroidered fans (page 55) are presented to wedding guests by the bride and groom as part of a Palembang tradition. The remainder of the fans (pages 1, 3, 19, and 31) are ‘working fans’ used to cool people or to draught cooking fires into life. An oil palm appears on the recently issued Rp 1 000 coin (page 18), a choice that emphasises the importance of the crop to the national economy.

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This is one of a series of reports prepared during 1999 and 2000 by the Forest Fire Prevention and Control Project. Together they cover the field-level prevention, detection and control of vegetation fires in Sumatra. Titles are:

Vegetation fires in Indonesia: operating procedures for the NOAA-GIS station in Palembang, Sumatra. I.P. Anderson, I.D. Imanda and Muhndandar. (January 1999)

Vegetation fires in Indonesia: the interpretation of NOAA-derived hot-spot data. I.P. Anderson, I.D. Imanda and Muhndandar. (March 1999).

Vegetation fires in Sumatra, Indonesia: the presentation and distribution of NOAA-derived data. I.P. Anderson, I.D. Imanda and Muhndandar. (January 1999)

Vegetation fires in Indonesia: the fire history of the Sumatra provinces 1996-1998 as a predictor of future areas at risk. I.P. Anderson, M.R. Bowen, I.D. Imanda and Muhndandar. (May 1999).

Vegetation fires in Sumatra, Indonesia: a first look at vegetation indices and fire danger in relation to fire occurrence. I.P. Anderson, I.D. Imanda and Muhndandar. (May 1999).

The training of forest firefighters in Indonesia. M.V.J. Nicolas and G.S. Beebe (Joint publication with GTZ). (April 1999).

Fire management in the logging concessions and plantation forests of Indonesia. M.V.J. Nicolas and G.S. Beebe (Joint publication with GTZ). (April 1999).

A field-level approach to coastal peat and coal-seam fires in South Sumatra province, Indonesia. M.V.J. Nicolas and M.R. Bowen. (April 1999).

Environmental education - with special reference to fire prevention - in primary schools in the province of South Sumatra, Indonesia. With, 'Desa Ilalang', a story for children in Bahasa Indonesia. M. Idris, S. Porte, J.M. Bompard, F. Agustono (illustrator) and staff of FFPCP and Kanwil Kehutanan dan Perkebunan, Palembang, in collaboration with Kanwil Departemen Pendidikan dan Kebudayaan Tk I, South Sumatra. (July 1999).

The sustainable development of tree crops and the prevention of vegetation fires in South Sumatra Province, Indonesia. Jungle rubber. A. Gouyon. (August 1999).

Land management in the province of South Sumatra. Fanning the flames: the institutional causes of vegetation fires. J.M Bompard and P. Guizol. (September 1999).

Anthropogenic fires in Indonesia: a view from Sumatra. M.R. Bowen, J.M. Bompard, I.P. Anderson, P. Guizol and A. Gouyon. Reprint from 'Forest Fires and Regional Haze in Southeast Asia. Editors, M. Radojevic and P. Eaton. Nova Science, New York, USA. (June 2000)

FFPCP will publish a report on the 1999 vegetation fires which will also contain additional information on the themes developed in earlier NOAA reports.

Copies of these reports are available in English and Bahasa Indonesia, and can be obtained from;

The Project Leader, FFPCP, PO Box 1229, Palembang 30000, Indonesia.

Fax number: +62 711 417 137

or

The Counsellor (Development), Representation of the European Commission, PO. Box 6465
JKPDS, Jakarta 10220, Indonesia.

Fax number: +62 21 570 6075

Summaries of the reports, together with a daily overview map of the locations of vegetation fires in Sumatra, can be found on the Project homepage: <http://www.mdp.co.id/ffpcp.htm>.

FOREWORD

Head of Representation of the European Commission in Indonesia

Tropical rain forests cover less than six percent of the surface of the earth, but contain more than 50 percent of the world's biodiversity. Indonesia's forests are considered to be one of the biodiversity centres of the world. However, these vital areas are under threat from over-exploitation, encroachment and destruction because of fire.

The seriousness of the threat to Indonesia's forests has prompted the European Commission to reorient its development co-operation with Indonesia to focus on the sustainable management of forest resources. Based on the Agreed Minutes of a meeting between the Government of Indonesia and the Commission, which were signed in May 1993, the Commission supports a range of projects in the field of conservation and sustainable forest management. The funds for this support have been donated in the form of grants.

The importance of the fire issue cannot be over-emphasised. Estimates have set the economic loss caused by the haze that blanketed the region in 1997 at around Euro 1.4 billion. The loss of wildlife habitat, which will take decades to regenerate or the soil erosion, which is the inevitable result of heavy burning, is too great to be expressed in financial terms.

Because fire prevention and control is such an important issue, the Commission has been willing to support the Forest Fire Prevention and Control Project, which started in April 1995, with a grant of Euro 4.05 million. The long-term objective of the project is to, *"Furnish support, guidance and technical capability at provincial level for the rational and sustainable management of Indonesia's forest resources."* Its immediate purposes are to evaluate the occurrences of fire and its means of control, to ensure that a NOAA-based fire early warning system will be operational in South Sumatra, and that a forest fire protection, prevention and control system will be operational in five Districts within the province.

In co-operation with local government, representatives of the Ministry of Forestry and Estate Crops and the private sector, FFPCP set out to implement a series of activities that would support the achievement of these purposes. The results of these activities are now made available in a series of technical reports of which this is one. We believe that these professional publications will be of considerable value to those concerned in the forestry, agriculture and land-use planning sectors.

Klauspeter Schmallenbach

Head of the Provincial Forestry and Estate Crops Office, South Sumatra

Vegetation fires have undoubtedly become a more urgent focus of concern to the regional office of the Ministry of Forestry and Estate Crops in South Sumatra after the widespread smoke haze pollution of 1997. As part of our commitment to sustainable forest management, considerable efforts have been made to prevent fires happening again on such a scale. We hope that in the new spirit of reform the people of South Sumatra will play a greater role in protecting and managing the forests and their resources.

I warmly welcome the FFPCP series of reports on their work from 1995 to 1999. These reports examine in detail the underlying causes of vegetation fires in the province, and this understanding allows us to suggest how numbers may be reduced. The reports also set out methods of prevention, NOAA satellite detection, and control of fires. These are based on methods that have been shown to work under field conditions and when fully introduced will bring practical benefits to us all.

I also hope that the work will serve as a reminder that we need to keep improving our capability to deal with future fires. While good progress has been made, much work still remains to be done before damaging vegetation fires are a thing of the past.

Ir. Engkos Kosasih

RINGKASAN

Tujuan

Kebijaksanaan dan peraturan mengenai manajemen lahan di tingkat Nasional dan Propinsi, serta bagaimana aturan tersebut diimplementasikan di lapangan, sangat mempengaruhi kelakuan dan tindak tanduk individu dan kelompok terkait dalam pemanfaatan lahan dan sumber daya alam.

Faktor institusi secara langsung dan tidak langsung mempengaruhi besarnya kerusakan yang diakibatkan oleh kebakaran vegetasi di Sumatera Selatan, pada tahun 1997 maupun sekarang dan di masa mendatang. Faktor tersebut dipelajari dalam proyek FFPCP ini untuk memberikan jalan keluar guna melaksanakan sebuah sistem integrasi pencegahan kebakaran vegetasi.

Studi lapangan telah dilakukan di tiga daerah konsentrasi kebakaran vegetasi terbesar di Sumatera Selatan pada tahun 1997 untuk meneliti bagaimana faktor-faktor institusi dapat mempengaruhi resiko, penyebab, jumlah, dan kerugian akibat kebakaran vegetasi tersebut.



Latar Belakang

Sumatera Selatan adalah Propinsi terluas ke-5 di Indonesia (104 000 km²). Kerusakan penurunan kualitas hutan mulai terjadi di lahan kering pada awal pertukaran abad dan kemudian menyebar ke lahan basah di pesisir (30 000 km²) pada pertengahan tahun 70-an. Pengembangan hutan tanaman industri dan perkebunan kelapa sawit yang cepat sejak tahun 80-an telah menyebabkan transformasi besar-besaran dalam penggunaan lahan sehingga menimbulkan perjuangan petani untuk mempertahankan lahan mereka dan kesenjangan sosial.

Kebakaran vegetasi di sekitar Palembang selama musim kemarau yang panjang memang telah dicatat selama lebih dari seratus tahun yang lalu, tetapi faktor kekeringan dan penggunaan lahan yang tidak bertanggung jawab telah banyak menyebabkan persoalan kebakaran vegetasi dalam 20 tahun terakhir ini.

Diperkirakan 786 000 ha telah terbakar pada tahun 1997 dan membuat Propinsi Sumatera Selatan menjadi Propinsi terparah di Pulau Sumatera. Kebakaran memusnahkan 40 000 ha perkebunan karet rakyat dan secara resmi 11 000 ha mungkin lebih hutan tanaman industri, tetapi kebakaran terbesar terjadi di hutan rawa dan hutan gambut yang telah habis dieksploitasi.

Kabut asap yang telah terjadi di Palembang adalah 10 kali melebihi ambang batas normal dan polusi tersebut melampaui Singapura dan Malaysia. Pembukaan lahan baru oleh petani atau pengusaha perkebunan besar adalah penyebab utama kebakaran vegetasi di lahan kering dan polusi yang dihasilkan tidak terlalu serius atau dapat dikatakan dalam tingkat lokal saja. Tetapi asap yang dihasilkan oleh kebakaran vegetasi di lahan basah pada waktu yang lama akan menyebabkan masalah polusi internasional. Kebakaran besar di lahan basah biasanya muncul setelah terjadi kemarau selama tiga bulan atau lebih, dimana lahan basah termasuk lahan gambut menjadi kering dan rentan akan bahaya kebakaran.

Kebakaran yang besar akan terjadi lagi di masa datang. Mengidentifikasi siapa yang membakar adalah bukan masalah utama: tetapi yang penting adalah bagaimana supaya kebakaran tersebut tidak lepas kendali. Terjadinya atau tidaknya kebakaran vegetasi besar tergantung dari bagaimana lahan telah dipergunakan, bukan karena api yang dipergunakan sebagai alat atau senjata.

Pendekatan masalah ‘manajemen kebakaran’ yang terbatas pada pendekatan birokratis secara ‘top-down’ (dari atas ke bawah, dari Jakarta atau Palembang sampai ke lapangan), dan yang difokuskan pada penghapusan kebakaran vegetasi, akan gagal pula mencegah dan mengatasi kebakaran-kebakaran pada tahun el-nino mendatang seperti pada tahun 1997.

Tampa adanya perubahan dalam tata guna lahan, daerah yang rawan akan kebakaran vegetasi akan terus bertambah luas, dan jumlah kerugian akibat kebakaran serta biaya manajemen kebakaran akan bertambah di tahun-tahun mendatang.

Penyebab Institusional Kebakaran Vegetasi di Sumatera Selatan

Tidak cukupnya hak penduduk lokal dalam penggunaan lahan dan sumber alam

- Penduduk lokal tidak diikutkan dalam proses pengambilan keputusan yang mempengaruhi tata guna lahan dan juga dalam pembagian hasil yang diperoleh dari eksploitasi hutan.

Hukum kehutanan yang mengatur akses ke lahan kawasan hutan dan penggunaan sumber daya hutan mengenyampingkan hak penduduk lokal yang telah diberikan oleh hukum adat dengan sistem marga yang merupakan azas sosial dan organisasi administratif di daerah pedesaan secara resmi sampai tahun 1983. Hal ini mengakibatkan situasi yang kurang kondusif untuk penduduk lokal mencegah kebakaran yang terjadi di luar ladang mereka. Pada pertikaian tanah yang berlarut-larut, kemungkinan hanya api yang dapat dijadikan sebagai senjata.

Penduduk lokal secara sistematis tetap berada di posisi yang lemah dalam hubungannya dengan aparat pemerintahan dan pemilik modal. Sejak penghapusan hukum *marga* yang lebih demokratis, intitusi pemerintahan di tingkat desa tidak lagi mewakili aspirasi masyarakat.

Tidak cukupnya kebijaksanaan tata guna lahan

- Formulasi kebijaksanaan tata guna lahan dan hutan telah dan terus berlanjut didominasi oleh pemerintah pusat dan presiden, dengan sedikit memperhatikan pemerintahan di tingkat Propinsi, Kabupaten, dan lebih lagi penduduk lokal.
- Tumpang tindih dari berbagai struktur administratif di Jakarta dan di dalam Propinsi, menciptakan banyak kekuasaan administratif, mengarahkan permasalahan menjadi lebih kompleks dan menciptakan berbagai prosedur yang tak jelas. Dalam masalah kebakaran vegetasi ini, tidak jelas institusi mana yang mempunyai tanggung jawab.
- Kelemahan perencanaan tata guna lahan pada tingkat Propinsi dan Kabupaten adalah kekurangan terbesar dalam setiap rencana pencegahan kebakaran vegetasi. Resiko kebakaran tidak pernah diperhitungkan dalam perencanaan lahan.
- Kurangnya koordinasi di antara dan di dalam aparat perencanaan tata guna lahan dalam penentuan keputusan alokasi lahan yang berlawanan dengan klasifikasi lahan sesungguhnya dan perencanaan tata guna lahan di Propinsi. Hasil dari hal yang membingungkan ini adalah pertentangan dan dalam beberapa kasus berakhir dengan pembakaran.
- Prosedur mengalokasikan lahan untuk perkebunan dan melepaskan kawasan hutan untuk dikonversi, kurang—dihargai karena proses ini tidak transparan dan kurang terkontrol, dan ada kekurangan dalam penetapan hukum.

Kebijaksanaan kehutanan, yang dipengaruhi oleh pengusaha yang berkepentingan, sering mengenyampingkan kepentingan lingkungan dan sosial. Kurangnya transparansi dalam proses pengambilan keputusan, lebih lanjut akan mengakibatkan kolusi antara pejabat dan kepentingan pengusaha.

- Dengan alasan untuk proses pengembangan yang cepat sebagai prioritas utama, pemerintahan di tingkat Propinsi mendukung pengusaha yang sebenarnya mendahulukan kepentingan jangka pendek tanpa memperhatikan akibat jangka panjang yang akan terjadi.
- Kebakaran vegetasi sering-sering adalah sebagai akibat kebijaksanaan yang bertujuan untuk membuka hutan dan konversi lahan hutan.
 - Penebangan hutan yang berlebihan dimungkinkan oleh kebijaksanaan kehutanan yang khusus dan penegakan peraturan yang lemah. Kurang kontrol atau tidak adanya kontrol, terutama di daerah lahan basah, adalah sangat lumrah sehingga pengusaha yang tidak bertanggung jawab mempersiapkan kondisi kebakaran vegetasi yang luas.
 - Insentif disediakan bagi pengusaha konsesi hutan untuk mengembangkan hutan tanaman industri (HPHTI) dalam skala besar, sementara resiko bahaya kebakaran vegetasi pada tahun pertama tidak diperhitungkan secara masak.

- Program transmigrasi di lahan kering melibatkan pembukaan lahan dalam skala besar yang akan menciptakan lahan alang-alang (*Imperata cylindrica*). Drainasi yang dibuat di areal transmigrasi pasang surut menjadikan hutan rawa yang berdekadatan menjadi lebih kering dan rawan kebakaran di tahun-tahun el nino. Perencanaan yang tidak matang mengakibatkan lahan tersebut menjadi tempat yang tidak berguna dan yang kemudian akan ditelantarkan, dan pada akhirnya terbakar contoh: Sugihan di OKI).
- Secara lokal resiko kebakaran bertambah akibat kegagalan pelayanan instansi kehutanan dalam mewujudkan tujuan program penghijauan dan penghutanan kembali yang ditujukan kepada petani lokal. Tidak jarang petani membakar lahanya atau membiarkan api masuk lahanya.
- Sistem fiskal adalah merupakan insentif bagi pemerintahan lokal untuk memberikan izin pengkonversian lahan hutan menjadi perkebunan.

Kecendrungan yang terjadi

Perubahan yang disebabkan oleh krisis ekonomi dan perombakan kebijaksanaan untuk mempromosikan sistem desentralisasi, akan menimbulkan pengaruh bagi tata guna lahan secara umumnya. Dalam jangka pendek resiko kebakaran akan bertambah karena penebangan hutan yang tak terkontrol dan tekanan untuk mengubah hutan menjadi lahan perkebunan.

Dalam jangka panjang perombakan kebijaksanaan, apabila sukses, sepertinya akan membantu pencegahan kebakaran vegetasi. Tetapi, resiko sesungguhnya adalah kebijaksanaan baru yang dianjurkan ini akan tetap sebagai “kebijaksanaan di atas kertas” jika tidak didukung dalam perubahan pelaksanaan dan tingkah laku di lapangan.

Penetapan keputusan dengan sistem disentralisasi dengan sendirinya tidak akan menjamin tata guna lahan yang lebih efektif. Biar pun demikian perubahan tanggung jawab yang lebih besar bagi pemerintahan di tingkat Propinsi dan Kabupaten, dapat membawa perubahan positif jika diikuti dengan proses transparansi dan rasa bertanggungjawab yang lebih jelas.

Hal-hal tambahan

- Resiko kebakaran vegetasi yang pada saat sekarang ini sedang bertambah, dapat dikurangi apabila kebijaksanaan tata guna lahan dan proses pengambilan keputusan di titik-beratkan bagi kepentingan masyarakat. Hal ini harus menjadi prioritas bagi program pengembangan yang terkait dengan pencegahan kebakaran vegetasi. Resiko jangka panjang kebakaran vegetasi harus diikut-sertakan dalam pengambilan keputusan mengenai tata guna lahan dari saat perencanaan sampai tahap implementasi di lapangan, merupakan masalah yang kritis.
- Pengelolaan bekas areal HPH yang sekarang sangat rawan kebakaran, merupakan masalah utama di Sumatera Selatan. Tidak mustahil bekas areal HPH ini, termasuk yang telah terbakar di tahun-tahun sebelumnya, akan terbakar lain di musim kemarau yang akan datang, dan mengakibatkan polusi asap yang melampau negara tetangga.

- Hutan rawa di Kabupaten Musi Banyuasin dan Ogan Komering Ilir memiliki resiko kebakaran terbesar dan paling perlu diperhatikan dari sudut pandang lingkungan dan pencegahan kemungkinan polusi kabut asap.
- Program rehabilitasi bagi daerah lahan basah (atau kering) yang telah terbakar, tidak merupakan jawaban jangka pendek mau pun jangka panjang, bagi penduduk lokal yang dirugikan oleh kebakaran vegetasi. Hal ini sangat penting dalam hubungannya dengan perombakan dan tuntutan atas lahan dan sumber daya alam.
- Perencanaan kehutanan perlu diintegrasikan dengan kerangka perencanaan tingkat propinsi yang dibawah oleh BAPPEDA.

Rekomendasi

Desain proyek pencegahan kebakaran vegetasi harus mengingat persepsi dan kepentingan semua pihak yang terkait, terutama penduduk lokal. Terdapat resiko tidak konsistennya antara yang direncanakan dalam proyek dan kenyataan yang terjadi bila ternyata proyek tersebut terlalu dipengaruhi oleh pandangan internasional atau nasional. Pandangan di tingkat desa mengenai tata guna sumber daya alam dapat bervariasi dari satu tempat dengan tempat lainnya, tetapi pada dasarnya menuntut ‘pemanfaatan yang bijaksana’: sehingga mereka dapat membentuk basis yang mendahulukan kepentingan penduduk lokal sama baiknya dalam pencapaian tujuan pencegahan kebakaran vegetasi di tingkat Nasional dan internasional.

Pada tingkat Nasional, kerangka hukum dan peraturan memerlukan revisi untuk keberhasilan mencapai tujuan yang diharapkan dalam perbaikan tata guna lahan yang diintegrasikan dengan pencegahan bahaya kebakaran.

Pada tingkat Propinsi dan lokal di Sumatera Selatan, integrasi dari pencegahan kebakaran dan tata guna lahan membutuhkan:

- Bantuan dan dukungan kepada organisasi masyarakat di tingkat desa supaya mereka bisa mampu dan diakui sebagai ‘partner’ dalam pengambilan keputusan mengenai tata guna lahan dan pencegahan resiko kebakaran (seperti partisipasi dalam perencanaan dan pemetaan tata guna lahan, dalam pengidentifikasian prioritas pencegahan bahaya kebakaran di tingkat desa, dan menyangkut juga kesempatan untuk mendapatkan kredit).
- Sokongan untuk memajukan proses-proses penengah dalam pencapaian persetujuan antara penduduk setempat dengan pihak kepentingan lain, seperti konsesi mengenai batas wilayah, dll.
- Memperkuat kapasitas instansi-instansi yang merupakan kunci dalam perencanaan tata guna lahan di tingkat Propinsi dan Kabupaten.

BAPPEDA tingkat I dan BAPPEDA tingkat II membutuhkan asistensi untuk dibantu dalam mengikut-sertakan resiko kebakaran lahan dalam perencanaan: khususnya di Kabupaten OKI dan MUBA yang memiliki resiko paling tinggi.

Organisasi penyuluhan lapangan kehutanan perlu didukung (antara lain melalui pelatihan) untuk bekerja dalam kerjasama yang lebih erat dengan aktifitas pengembangan pedesaan yang dilakukan oleh Departemen Perkebunan dan Pertanian.

Pada lahan rawa adalah perlu dikurangnya resiko terjadinya kebakaran gambut yang berhubungan dengan penanaman padi sistem sonor di tahun el nino.

Rencana pencegahan kebakaran perlu dibuat sebagai prioritas segera untuk lahan rawa di pesisir. Hal ini seharusnya memberikan berbagai jalan keluar untuk melindungi hutan rawa (gambut dan bukan gambut) yang masih ada tersisah dalam kondisi baik di bagian selatan Sumatera.

SUMMARY

Objectives

A top-down bureaucratic approach to fire management that focuses on fire suppression will fail in the field during the next el Niño year as it did in 1997. Fire-prone areas continue to expand, and the costs of fire damage and fire management are bound to increase over the years.

National and provincial land management policies and laws, and the way these policies and rules are implemented at field level, shape the attitudes and the behaviour of individuals, communities, private companies and government agencies as to how they regard and manage land and natural resources.

The institutional factors that directly or indirectly contributed to the severity of the 1997 fires in South Sumatra – and that continue to influence both fire numbers and severity today – were examined to suggest ways to promote an effective system of integrated fire prevention within the province.



Fieldwork was carried out in the three regions that had the greatest concentration of fires occurred in 1997 to assess how institutional factors impact on fire risk, fire causes, fire numbers and fire severity.

Background

South Sumatra (104 000 km²) is the fifth largest province in Indonesia. Forest recession and degradation started in dryland areas at the turn of the century and spread to the coastal wetlands (30 000 km²) in the seventies. The rapid development of forest plantations and oil palm estates since the eighties has caused a major transformation in land-use that has resulted in local 'struggles for land' and social upheaval.

Vegetation fires during ENSO-related prolonged dry seasons have been recorded around Palembang for almost a hundred years but more frequent droughts and the irresponsible use of land and natural resources have greatly exacerbated the fire problems over the last twenty years.

An estimated 786 000 ha burnt in 1997 making South Sumatra the most severely affected province in the island. The fires destroyed 40 000 ha of smallholder rubber plantations and officially 11 000 ha – probably more - of pulpwood and timber plantations. However the largest fires occurred in degraded logged-over swamp forest, including those on peat.

Smoke haze in Palembang was ten times the norm and the pollution drifted to Singapore and Malaysia. The clearing of agriculture land by both smallholders and plantation companies is the main cause of fires on dryland. The pollution they cause is minimal or only of local concern. It is the haze produced by long duration fires on wetlands that causes international anxiety. These fires are set for a number of reasons: prime amongst which are clearance for wood plantations and oil palm estates. In drought years sizeable areas are also burnt to prepare areas for the cultivation of *sonor* rice. Many of these escape control and become wildfires after droughts of three or more months when wetlands, including peat swamps, are parched and fire prone.

Major fires will happen again in the near future. Identifying who sets the fires is not the main issue: preventing them running out of control is. Whether or not they become wildfires depends on how the land has been managed, not on whether the fires were started as a tool or as a weapon.

Institutional causes of fires in South Sumatra

Inadequate rights of local population to land and natural resources

- Local communities are excluded from both the decision-making processes that affect land management as well as from the advantages gained from forest exploitation.
- Forestry laws that grant access to Forest Lands and to the use of forest resources, ignore pre-existing local rights given by customary (*adat*) laws under the *marga* system. As the *marga* system has been the basis of social and administrative organisation in rural areas. The marginalised local communities, understandably, feel little commitment to prevent fires outside their own farms. In long-standing land conflicts, fire may be the only weapon of the weak.
- Local communities have until now been systematically kept in a weak position in their relationship with officials and large landholders. Since the abolishment of the *marga* system, which was comparatively democratic, the governmental institutions at the village level rarely represent the aspirations of the people.

Inadequate land management policy

- The formulation of land and forest management policy has been, and continues to be, dominated by the central government and the President, with little consultation with provincial and district authorities, and even less with local people.
- The overlapping of various administrative structures in Jakarta and within the Province creates a legion of administrative territories, and leads to complex and unclear procedures and lack of accountability. In the case of fire, no one feels responsible.
- Deficient land-use planning at the provincial and district levels is a major limitation to any sound fire management plan. Fire risk is not taken into account when zoning or allocating land.

- Lack of coordination between and within land management agencies results in land allocation decisions that run contrary to official land classification and/or provincial land-use planning. The resultant confusion leads to conflicts that, in some cases, end in arson.
 - Procedures to allocate land for plantations and to release Forest Lands to non-forest uses are not respected as there is a lack of transparency, control and law enforcement.
 - Forestry policy, whose formulation was influenced by powerful business associations, over-rode environmental and social concerns. The lack of transparency in decision-making processes further allowed collusion between officials and business interests.
 - With rapid development as the overall priority, provincial government officials often side with private business: short-term business interests prevail over long term-concerns for sustainable development.
 - The fires are, to a large extent, the unforeseen result of deliberate policies that favour deforestation and forest conversion.
- Specific forestry policies and lenient enforcement of regulations allow severe over-cutting. The absence of control in the swamp areas is notorious and irresponsible logging conditions prepare the forest for major fires.
- Incentives were provided to forest concessionaires to encourage large-scale industrial timber and pulp plantations (HPHTI) of fast-growing species, while the high fire risks during the first years of plantation establishment were insufficiently taken into account.
 - Transmigration programmes in dryland areas involved large-scale mechanical land clearance that favoured the establishment of *alang-alang* (*Imperata cylindrica*) grasslands. Drainage to reclaim swamps in tidal transmigration sites contributed to making adjacent swamp-forests more prone to dry-out and burn in ENSO years. Poor planning led to the development of unsuitable sites that were later abandoned, and eventually burned (e.g. Sugihan in OKI).
 - Locally, fire risks were also increased due to the failure of Forestry Services to take into account the land use objectives of local communities in regreening or reforestation programmes which were imposed on farmers, who later burnt or let burn the plantations.
 - The fiscal system is an incentive for local government to allow the conversion of Forest Lands to agriculture.

Trends

Changes that have resulted from the 1998 economic crisis and the 1999 reform of policy to promote decentralised control will have a profound influence on land management in general.

In the short-term fire risks will increase owing to unrestrained unauthorised logging, and new pressures to convert and clear forest lands for agriculture.

However the reform of policy, if successful, is likely to enhance fire prevention in the long term. But, there is a real risk that the new policies now being suggested will remain as 'paper policies' unsupported by concrete political and attitudinal change.

Decentralised decision-making is not in itself a guarantee of more effective land management. However devolution of greater responsibilities to provincial and district authorities could bring positive change if accompanied by greater transparency and accountability.

Additional points

- Fire risks that are at the present on the increase, could be reduced if land management policies and decision-making processes are amended to take account of the needs of local people in an equitable way. The priority is to formulate a programme of sustainable development that incorporates fire prevention. The way the long-term risks of fire are taken into account when decisions on land management - from the planning to field implementation steps – are made will determine success or failure.
- The future of logged-over forest concessions with their high fire risks, is of major concern in South Sumatra. It is likely that these forests, including those already burned, will be swept by fire in the next prolonged drought. Thereafter recurrent fires will continue to contribute in some measure to transboundary haze.
- Forests in the swamp of Musi Banyuasin and Ogan Komering Ilir Districts are at the greatest fire risk. They are of the highest concern from an ecological viewpoint and from preventing further dense smoke haze.
- Rehabilitation programmes for burned areas in the swamps (or dryland) that do not answer the short and long-term needs of local communities are doomed to be destroyed by fire. This is particularly so in the new context of reform which has prompted a revival of claims on land and natural resources.
- The provincial offices of the Ministry of Forestry and Estate Crops are, and will remain, key stakeholders, but a multi-sectoral approach to reducing fire damage is clearly needed. The issue can not be addressed and resolved only within the forestry and plantations sectors.
- Forestry planning needs to be integrated into a strengthened provincial planning framework under BAPPEDA.

Recommendations

The design of fire prevention projects must take into account the perceptions and the needs of all the stakeholders, and pay particular regard to the wishes of local communities.

There is a strong risk of inconsistency between the stated objectives of a project and the realities of what is either desirable or feasible if the objectives are over-influenced by

international or national views. Village-level views on the management of natural resources vary from place to place but are generally in line with 'wise use'. The views at district and sub-district level could well form a base to serve local as well as international fire prevention goals.

Laws and the regulatory framework at national level need revision to attain the overall objective of improved land management integrated with fire prevention.

At provincial and local levels in South Sumatra, integration of fire prevention into land management implies:

- provision of support to local communities to allow them to become partners in land management decisions and fire prevention, e.g. through participatory land-use mapping and planning, identification of fire prevention priorities at village level, and through related needs such as access to credit funds;
- support to develop mediation processes aimed at achieving agreements between communities and other land-use stakeholders, e.g. for consensus boundary setting, and;
- strengthening the capacity of the key land management agencies at provincial and district levels.

BAPPEDA I and II require assistance to help them take fire risks into account when carrying out spatial planning; particularly for OKI and MUBA Districts that are most at risk.

Forestry extension services within the Ministry need to be supported (e.g. through training of forestry extension agents in participatory approaches) to work in closer cooperation with rural development activities carried out by the Agriculture and Estate Crops extension services.

In the coastal swamp regions there is a need to reduce the risk of recurrent peat fires associated with *sonor* rice cultivation in ENSO years.

A fire management plan needs to be produced as a matter of urgency for the coastal swamp region. This should suggest ways to protect the last remnants of peat and non-peat swamp forests in good condition that remain in southern Sumatra.

TABLE OF CONTENTS

Acknowledgements	iv
Foreword	vi
Ringkasan	xiii
Summary	xvii
Table of Contents	
1. INTRODUCTION	1
Background	1
Objectives and Methods	4
2. LESSONS FROM FIRES IN THE FIELD	5
A Large <i>Acacia</i> Plantation Established in a Region of Traditional Rubber Cultivation in Muara Enim District	5
Local land rights ignored in land acquisition	5
Fires in and around an <i>Acacia</i> plantation	6
Conversion of Dryland Forest After Logging in Northern Musi Banyuasin District	8
Increased fire risks in logged forest concessions under a continued degradation process	9
Fire in the context of recent and rapid forest conversion	11
Additional notes	12
Over-Exploitation of the Swamps: When Fire Follows Development in Ogan Komering Ilir District	14
Logging	14
<i>Sonor</i> rice cultivation: a major source of fires in drought years	15
Inland fishing	18
Tidal transmigration programmes as an added fire factor	18
The general question of fires in the swamp areas	19
3. THE INSTITUTIONAL CAUSES OF FIRES IN SOUTH SUMATRA	21
Inadequate Land Rights and Resources for Local People	21
People living within areas managed under the Basic Forestry Law	21
People living within areas managed under the Basic Agrarian Law	22
National vs. customary law: conflicts in the land acquisition process	22
Inadequate Land Management Policy	22
Centralism and overlapping of administrative structures	22
Ineffective land-use planning and inter-sectoral coordination mechanisms	24
Flawed procedures in the granting of land to estate plantations	25
Land management policies favour deforestation and forest conversion	26

‘Development at all costs’ orientated policies	27
Links Between Business and the Political Elite Influence Land Management	28
Lack of Counter-Powers from Civil Society	28
Lack of representative institutions at the community level	28
Non-governmental organisations	28
A Time of Change	30
4. RECOMMENDATIONS	33
Land management and fire prevention at the village level	35
Mediation processes for land co-management	35
Land management at the provincial and district levels	35
The coastal swamp regions of OKI and MUBA Districts	37
5. REFERENCES	39
6. ABBREVIATIONS AND ACRONYMS	43
ANNEXES	
ANNEX I NATIONAL AND REGIONAL LAND MANAGEMENT INSTITUTIONS	45
The Ministry of State for National Development Planning	45
The National Development Planning Board, BAPPENAS	45
The Regional Development Planning Board, BAPPEDA	45
The National Land Agency, BPN	46
The Ministry of Forestry and Estate Crops, MoFEC	46
The Ministry of State for the Environment, BAPEDAL	47
The Ministry of Transmigration and Forest Squatters Resettlement	47
The Ministry of Agriculture	47
Institutions at provincial level	48
Deconcentration and decentralization: two overlapping systems	48
ANNEX II LEGISLATION	52
AII. 1. Forms of Laws and Regulations in the Forestry Sector	52
Laws and Regulations Issued at National Level	52
Regulations Issued at Provincial Level	53
AII. 2. The Forestry Laws	53
The 1967 Basic Forestry Law	53
The New Basic Forestry Law 1999	55
Conclusions	56
AII. 3. The 1960 Basic Agrarian Law	57
Land rights	57

AII. 4. Supplementary Regulations and Decrees Related to Vegetation Fires	58
ANNEX III LAND MANAGEMENT PROCEDURES	62
AIII. 1. The National Planning Process	62
Planning processes based on time span	62
The <i>Repelita</i> planning process in the forestry sector	62
AIII. 2. Provincial Spatial Planning and Mapping in South Sumatra Province	63
A III. 3. Land Registration	65
Land Acquisition by Expropriation	65
Land Consolidation	65
Conclusions	67
A III. 4. Trends in Forest Policy	64
Impacts of the Economic Crisis, International Agencies and Political Turmoil on Forestry Policy	64
The Legal Framework for HPH and HPHTI: The Present Situation and Trends	64
A III. 5. Strengthen the Legal Framework or Political Reform?	70
ANNEX IV TABULATED DATA FROM THE CASE STUDIES	71
Table A. IV. 1. Area, population, smallholder rubber and areas burnt in 1997 in three sub-districts within Muara Enim District	71
Table A. IV. 2. The ‘Sonor sub-districts’ of control and eastern OKI District	72
Table A. IV. 3. The relative importance of the sonor rice harvest in OKI and other ‘sonor regencies’ as a percentage of overall rice production	72
ANNEX V LAND USE IN SOUTH SUMATRA	73
A V.1. Table: RTRWP Land classification, land allocation and principle agricultural land use in South Sumatra province	73
A V. 2. Table listing registered Estates Crops	75
A V. 3. Table listing registered Logging concessions (HPH) in South Sumatra province as of May 1999	78
A V. 4. Table listing registered Forest Plantation Concessions (HPHTI) in South Sumatra province as of May 1999	79
A V. 5. Table listing registered Transmigration Sites in South Sumatra province as of May 1999	80

A V. 6. Map showing administrative boundaries within South Sumatra province	81
An.V.7. Map of South Sumatra province showing Protection Forests and Nature Reserves	82
An.V.8. Map of South Sumatra provnce showing the distribution of fires between 1 July and 31 October 1997 in relation to wetlands, transmigration Sites, Logging Concessions and Forest Plantation	83

1. INTRODUCTION

Background

South Sumatra with an area of 104 000 km² is the fifth largest province in Indonesia (Map 1); of this, the coastal wetlands cover some 30 000 km² (Map 2). The dryland forests of the province have been continually felled and degraded since the beginning of the century and deforestation of the wetlands started in the seventies when concessions were granted to private companies. And from the late eighties the establishment of forest plantations and the rapid development of palm oil estates have resulted in major changes in land use as well as social changes whose impact is not yet fully appreciated. South Sumatra is also the leading province for the production of smallholder coffee and rubber. Very little land is unclaimed.



Vegetation fires during ENSO-related prolonged dry seasons are not new to South Sumatra and were recorded over the last hundred years in the region around Palembang. Prolonged droughts are thus a regular feature of the southern part of the east-coast plains of Sumatra¹ and vegetation types show evidence of recurrent fire events (Laumonier, 1997)².

Droughts and the irresponsible use of lands and natural resources have increasingly exacerbated the fires since the eighties. The province experienced extremely severe droughts in 1982, 1991, 1994 and in 1997 when fires swept across large tracts of previously untouched coastal swamp and peat swamp forests.

The fires directly affect the economy and the people. EUFREG (1998) estimated – almost certainly conservatively - that 786 000 ha burnt in 1997 making South Sumatra the most severely affected province on the island. The fires destroyed an estimated 40 000 ha of smallholder rubber plantations (Gouyon, 1999) and the pulpwood and timber plantations officially lost 11 000 ha. Local air transport was affected by smoke haze and the pollution index in Palembang was 10 times higher than the norm. The smoke haze drifted as far as Singapore and Malaysia.

Smoke haze is produced during agricultural land clearing by both smallholders and plantation companies but is in relatively small quantities and only of local concern. But the

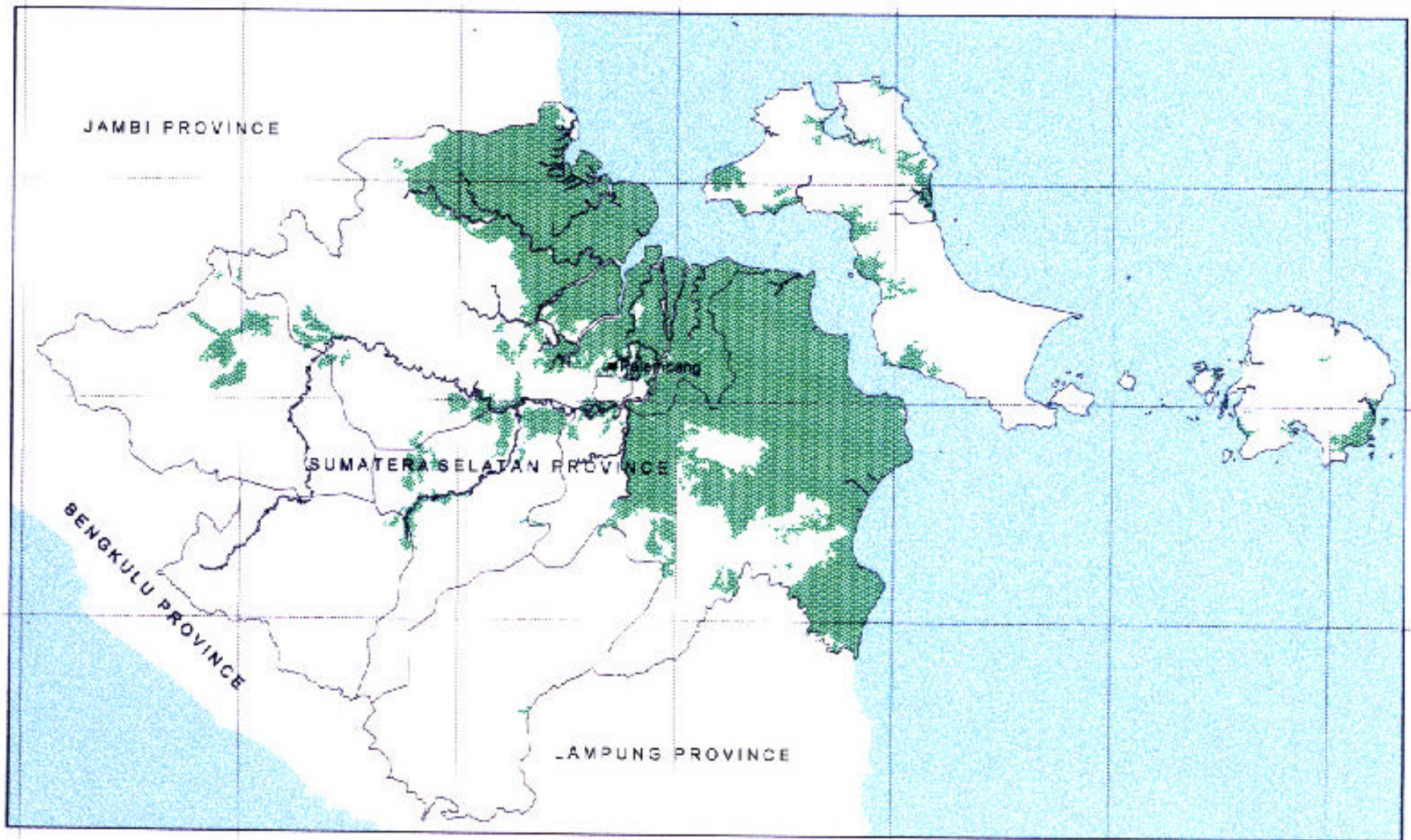
¹ Data from the Palembang - Kenten meteorological station from 1951 to 1998, indicate that notable dry seasons (i.e. at least three consecutive dry months < 100 mm) were recorded in 1958, 1961, 1963, 1967, 1972, 1976, 1977, 1982, 1987, 1991, 1993, 1994, and 1997.

² In wetlands, the extensive swamp grassland dominated by *gelam* (*Melaleuca cajuputi*) that covers nearly 5000 km² in the region of Palembang, is characteristic of a regular fire regime over a long period. In dryland parts of the province, the increasing areas of scrub vegetation dominated by *Schima wallichii*, a characteristic species of fire-degraded secondary vegetation, are indicative of an expanding process of degradation that results from deforestation coupled with recurrent fires.

Map 1. The provinces of Sumatra and their capital cities. Scale 1 : 1,000,000



Map 2. South Sumatra province showing the areas of coastal and inland wetlands. The coastal wetlands continue northwards into Jambi province and southward into Lampung but are not shown on the map. Scale 1 : 2,000,000



smoke haze produced by fires on wetlands is of international importance. These fires occur only during droughts of three or more months when wetlands, including peat swamps, are parched and fire prone. Major fires will happen again in the near future.

Objectives and Methods

The aim of the work reported here was to understand the institutional and social causes that underlie vegetation fires in South Sumatra Province. Land and natural resource policies and their implementation influence the behaviour of individuals and groups and help shape the decision-making processes as to how the land is actually managed. We hypothesised that fire risks may be increased by conflicts over land-use rights and the rights to natural resources, as well as by poor land-use management. We examined this hypothesis in the field (Chapter 2) and then tried to understand the mechanism of the decision-making process that emanated in Jakarta and ended in the village (Chapter 3). Analysis of the latter has enabled us to put forward recommendations to prevent fires and to suggest actions for future donor support (Chapter 4).

Field work was carried out in the three regions (Maps An.V.2 and An.V.6) where the greatest concentration of fires occurred in South Sumatra in 1997 (EUFREG, 1998; Anderson *et al.*, 1999; Legg and Laumonier, 1999). These were:

- around an extensive HTI pulpwood plantation in the Pendopo area, Muara Enim District, lying in the central peneplain that is largely occupied by smallholder rubber plantations,
- in degraded logged-over dryland forest within former HPH logging concessions in Musi Banyuasin District (MUBA) to the north-east of the province close to the Jambi border, and
- in degraded swamp forest in the coastal Tulung Selapan Sub-District of Ogan Komering Ilir District (OKI), where extremely severe fires took place within HPH logging concessions from the end of August to November 1997.

2. LESSONS FROM FIRES IN THE FIELD

A Large *Acacia* Plantation Established in a Region of Traditional Rubber Cultivation in Muara Enim District

A forestry plantation concession (HPHTI or HTI) of 296 400 ha was granted in the late eighties to PT. Musi Hutan Persada (PT. MHP), a joint venture between Barito Pacific Timber group and the state-owned PT. Inhutani II. *Acacia mangium* was established on land formerly covered by, (1) secondary forest mixed with traditional jungle rubber³, (2) zones of *alang-alang*, or (3) degraded logged-over forest. From 1991 to 1998, 194 364 ha were planted. This is one of the largest HTI plantations in Indonesia and production will support the PT. Tanjung Enim Lestari (PT. TEL) pulpmill built near Muara Enim and scheduled to be operational early in 2000⁴.

Most of the concession lies on land classified as 'Production Forest' and the land thus belongs to the state. The decision on where to locate the company was based on the assumption that most land in the area was still 'empty' or 'available'. However, particularly in the Pendopo block, large areas were occupied or claimed by traditional rubber smallholders, a land-use not represented on any large-scale official map.

Local land rights ignored in land acquisition

The company delegated responsibility for land acquisition and land clearing to contractors, often to those from outside the region. As a rule, land clearing preceded negotiations with local people and operations were carried out quickly using bulldozers, sometimes at night, to avoid resistance⁵. In several locations, land clearing proceeded under the protection of the territorial security apparatus. Indemnification⁶ was made on a case by case basis. Amounts paid for planted trees, and occasionally for bushy fallows, varied. In most cases weak farmers received insufficient money or none.



³ Jungle rubber is an agroforestry system practiced by smallholders. The plot is slashed and burnt and tree seedlings are planted at the same time as rice. After one or two years cultivation with food crops, usually dryland paddy, the rubber takes over and grows amid natural regrowth to give a mixed forest often indistinguishable at a distance from normal secondary forest. The trees are tapped for their latex for up to 40 years (see Gouyon et al., 1993).

⁴ The pulp mill has a yearly production capacity of 500 000 tons, requiring over 2 million m³ of wood. PT. TEL is a joint venture with assets from Japan, Barito Group owned by Prayogyo Pangestu, and PT. Citra Lamtorogung owned by ex-President Suharto's daughter.

⁵ Several farmers report that on the morning after their plantations had been destroyed, they searched in vain for the limits of their properties as the familiar trees that marked the boundaries had been pushed into the gullies together with their rubber trees. Villagers handled the bulldozer driver roughly.

⁶ The company stresses that local people have no legal right over land when they are on Forest Lands. Hence they are given only indemnity (*kompensasi*): this is less than compensation (*ganti rugi*) paid by estates that acquire areas outside the Forest Lands.

Many conflicts erupted over land-rights and indemnity amounts. When necessary, local authorities intimidated farmers who refused to release their land and depicted them as a threat to national security. On occasion, land clearing was also the opportunity for well-connected middle-class people to obtain cheap land that is now planted with well-tended clonal rubber trees.

Most of these disputes, which now date back six or eight years, remain unsettled. Company staff members acknowledge that it was a hard task to reach the target of 200 000 ha planted, since they had to face many conflicts. “Until 1996, they took all the land they wanted, pushing us away,” said a resident in Sungai Bahung, an enclave village in the plantation.

Arguing that a part of the granted concession (along its western boundary in MUBA District) had been previously released to transmigration, the company asked in September 1996 for an extension of its area. Some 10 000 ha located in the eastern part of Muara Enim District, so far still classified as ‘Other Lands’, i.e. lying outside ‘Forest Lands’, were granted to the company by decision of the Minister of Forestry and the Governor.

Fires in and around an *Acacia* plantation

Official reports suggest that 8 257 ha and 3 157 ha of *A. mangium* plantation established by PT. MHP were burnt in 1994 and 1997 respectively (see Annex V table 3). According to Saharjo (1996) approximately 20 000 ha were damaged by fire in 1994.

The company considers that a high fire-risk inherent in immature stands and disputes over land are the two major problems they face in managing the plantation. Fire risk is especially high in the Pendopo block which is much fragmented and encompasses numerous enclaves with small settlements (*talang*), smallholder rubber plantations and fallow plots on land that the company could not secure.

An extension worker of the company estimates that in one plantation block 70 percent of the fires can be attributed to arsonists and the rest are wildfires that spread into the plantation despite firebreaks. Such estimates are speculative. However, arson did play an important role locally in the 1994 and 1997 fires. Although they rarely acknowledge the incidence of ‘arson fire’, especially to foreigners working with a government agency, villagers sometimes refer to such fires as fire lit by ‘wild hands’ (*tangan liar*).

Fire also destroyed many smallholder rubber plantations in 1997. The destruction of young clonal rubber, unfortunately often poorly weeded and invaded by *alang-alang* that increased fire risk, was a devastating loss of assets (see Gouyon, 1999). Smallholders say that there were so many fires, sometimes spread over extensive areas, that it was hard to identify their origin. They acknowledge that some fires originated from burning by smallholders themselves to clear land, as well as from land clearing in neighbouring acacia and oil palm plantations. They stress that the vegetation was so dry in 1997 that preventing wildfires was impossible.

Fire In The Acacia Plantation

by E.D., 16 years
Class III.1 SMPN 1 Talang Ubi

One essay in particular among the many written by children who participated in a schools' Fire Awareness Campaign run by FFPCP in 1997, gives a straightforward view of the situation :

“Before becoming the property of the company, this land was owned by the local people. It was then sold to the company. The reason for buying the land was that it had to be planted with acacia trees, which would be very useful for making paper. The price for the land was fixed to Rp. 10 000/meter [sic]. The people agreed with the price, because the land would be used for the benefit of their own country. But some land was not yet paid by the company although it was already planted and harvest time was approaching.”

“When the people were asking about compensation money for the land, the foreman always get angry and the people were afraid to reiterate their demand. There were not only one or two villagers who did not receive compensation for their land, but ten, may be. Finally, one of them set fires in the plantation of the company, and more than one hectare was destroyed. The loss suffered by the company was not small. After the fire, the foreman paid the compensation for the land which was not yet paid and re-planted the land.”

Fire Prevention Under The Customary Law

The 1979 law on Village Administration, enacted in South Sumatra in 1983 by the decision of the local government, abolished the marga system that formed the basis of the social organisation in rural areas which, in turn, managed and controlled common land and forest resources. It also enforced fire prevention rules.

In the old days, firebreaks were made along the boundaries of the plot and the appropriate date for burning was fixed by the village elders. Burning was conducted with the free assistance of other villagers (gotong royong). Fines had to be paid if the fire went out of control and destroyed neighbouring crops.

Nowadays, these regulations are no longer regularly enforced. Even when they are, and concern all the members of a community, they can hardly be applied to outsiders. The weakening of traditional fire prevention systems is, in the main, the result of the weakening of village level institutions and the struggle for land.

In a region like Pendopo where local communities feel themselves as dispossessed tenants, they are not likely to feel any deep commitment to prevent wildfires on the limits of their lands adjacent to large-scale plantations.

Conversion of Dryland Forest After Logging in Northern Musi Banyuasin District

Musi Banyuasin (MUBA) is the largest district (2.6 Mha) in South Sumatra and has 1.5 Mha of Forest Land and an average population density of 45 per km² - varying from 7 to 60 according the sub-district. Transmigration settlements have been developed over 500 000 ha in the tidal and dryland regions and caused a sharp increase in population and the district has undergone major changes in land-use since the eighties.

The last tracts of lowland - under 500 m a.s.l. - forests, albeit over-exploited, in South Sumatra are found in MUBA. They are predominantly swamp forest along the coast from the mouth of the Banyuasin river to the boundary with Jambi (abutting Berbak National Park), and, to a lesser extent, dryland forest along the northern border with Jambi province. Apart from a few protected areas⁷ that include a wide belt of coastal mangrove (the proposed Sembilang National Park), practically all the remaining forested areas were granted to logging concessions (790 000 ha) in the seventies.

Data from EUFREG (1998) and Anderson *et al.* (1999) show that a number of large, long-duration fires occurred in September - October 1997 close to the Jambi border. Long duration fires are typical of extensive burning in coastal peat swamps and in logged dryland forest within forest concessions⁸. These, together with fires in surrounding areas, are considered below, whilst the fires that burnt in the coastal regions are reviewed in the next section.

Field-work was carried out in Bayung Lincir sub-district⁹, one of the most fire affected in the province. A wide variety of vegetation burned in 1997. This included scrub and grassland on abandoned agricultural plots in transmigration areas and in secondary forest. Other fires burnt gardens and smallholder jungle rubber plantations, PT. Pakerin acacia plantations, PT. Inhutani V timber plantations, fragmented degraded forest, logged forest in concessions areas, and Nature Reserves. No reliable data are available on the total area burned but elders in the rare villages that are found within the sub-district said that they were amazed to see the forest burning, a thing they had never witnessed before, even in previous abnormal droughts.

⁷ There are 199 000 ha of Nature Reserves (*Hutan Suaka Alam*) and 153 000 ha of Protection Forest (*Hutan Lindung*) in MUBA. Most of these Nature Reserves on dryland consist of fragmented, degraded forests with a low conservation status. Several forest concessions, as well as transmigration settlements, overlap the Wildlife Nature Reserves of Bentayan (19 300 ha) and Dangku (29 000 ha), which are largely degraded and recently encroached by oil palm plantations. Durand and Pain (1993) noted that 14 percent (342 025 ha) of the total area granted as concessions (2 272 300 ha) were located outside official boundaries.

⁸ EUFREG (1998) showed that in September 1997 long duration fires in Jambi, South Sumatra and Lampung provinces were twice as common in logging concessions as elsewhere.

⁹ Kecamatan Bayung Lincir: 0-25 m a.s.l., 6 700 km², 103 540 inhabitants (1995), 16 inhabitants km⁻²; (Musi Banyuasin dalam angka, 1996)

Increased fire risks in logged forest concessions under a continued degradation process

The few important logging concessions¹⁰ still active in South Sumatra are mainly located in MUBA in the swamp region close to the proposed Sembilang National Park. Supplemented by illegal logging, they are the main source of timber for the province¹¹. A limited amount of timber is still extracted from the previously logged dryland forests.

The parastatal company Inhutani V¹² has managed areas formerly granted to forest concessionaires PT. Wisma Lukita, PT. Niti Remaja and PT. Padeco since 1991. The area of dryland forest under Inhutani management was later increased and now stands at some 235 000 ha with blocks in the sub-districts of Bayung Lincir and Babat Toman in MUBA and Lalan in Muara Enim District¹³. Logging is sub-contracted and timber is extracted either under HPH or IPK licenses¹⁴. A Police Mobile Brigade (Brimob) was charged with preventing illegal logging in the concession up to October 1998. (See box on the next page).

Under this pressure of timber removal, the Inhutani V concession became further degraded and thus increasingly fire-prone during droughts. And it is clear that in 1997 the profound dissatisfaction of the local people towards Inhutani V was not conducive to fire prevention.

In February 1998 - i.e. after the 1997 fires - the logging concession (HPH) became a plantation concession (HPHTI) managed under TTJI (*Tebang dan Tanam Jalur Indonesia*) silviculture using strip clearing (20 - 100 m in width). As noted by NRI-DFID (1998), the system is popular among concessionaires as it allows them to remove a greater volume of timber in the short term. The opening of rectangular widths of up to 100 m cut in the matrix of the residual forest, is highly detrimental to the forest environment which it makes even more fragmented and fire-prone.

¹⁰ Notably PT. Sukses Sumatera Timber, currently co-managed by Inhutani V and PT. Riwayat Musi Corp. In 1999, logging concessions in MUBA amount to about 790 000 ha.

¹¹ The production of logs legally extracted from HPH has dropped from 537 933 m³ in 1992-93 to 204 438 m³ in 1997-98, while logs extracted under IPK license remained around 100 000 m³ (Kanwil Kehutanan Sumsel, 1998).

¹² The various Inhutani have the responsibility to cut the remaining harvestable timber as well as to rehabilitate degraded areas. As a government agent of development, Inhutani are also required to improve the prosperity of people living near the concession and - within the framework of a so-called 'Community Development of Forest Village' Program (PMDH) - to provide limited assistance to surrounding villages. (See Annex 1, Ministry of Forestry and Estate Crops, for further details).

PT. Inhutani V was established in 1991 under the legal status of BUMN (*Badan Usaha Milik Negara*, i.e. a state owned company). It manages forest concessions in the province of South Sumatra, Lampung, Bengkulu and Jambi. Concessions whose license rights have been suspended or cancelled are handed over to the company. In South Sumatra, Inhutani V manages some 900 000 ha including logging concession areas temporarily placed under its responsibility, and 250 000 ha of timber plantation (Annex V.3-4).

¹³ According to the PT. Inhutani management plan (RKPH April 1991 - Maret 2011) quoted by Sudarmanto (1996), nearly 66 percent of the total area of 205 000 ha (Musi Banyuasin and Lalan Hulu blocks) were already more or less heavily degraded in 1991; of the additional area, 30 percent was logged forest and 5 percent 'primary forest'.

¹⁴ e.g. about 60 000 m³ were officially extracted in 1996-97 and 100 000 m³ in 1997-98 from the Batanghari Leko Forest Unit

An Example Of Widespread Illegal Logging And Conflicts Between Local People And Inhutani V

Timber harvesting in the forests on *marga* lands was a traditional activity in the villages of Marga Bayat long before concession rights were granted to logging companies. The harvesting has remained despite conflicts with forest concessionaires. According to Sudarmanto (1996), who carried out socio-economic studies in the area, money from timber extraction (*membalok*) provides 86 percent of the income of 730 households in the villages of Pangkalan Bayat, Muara Bahar and Bayat Ilir¹³ and is the main activity of 55 percent of the people in the latter two villages. Timber is cut according to orders (species and volume) from traders from Lampung and Jakarta, who support the villagers with cash advances - usually 20 percent of the agreed total.

Since 1994 families from Pangkalan Bulian (24 km away) have settled along the logging road at Simpang Empat, 2 km from the Inhutani Kedembo camp. They say that they were forced to become illegal loggers 'to eat' as they have no alternative. They view themselves as the 'coolies' of the illegal logging business, and while they are looking for a livelihood, they are also looking for land. They are well aware that the timber resource will soon, "Within three years", be exhausted and anticipate acute, "Social problems" after that. They would like to be allowed to plant tree-crops in plots they have opened in the forest, but are evicted by the forest administration as they are not legally allowed to settle on state forest land. They face further difficulties in that they lack the capital needed to produce cash crops, such as maize and chilli, on the land.

From time to time, organised groups of illegal loggers arrive from elsewhere in the province (e.g. Betung in the Palembang area) and apparently work for illegal sawmills¹⁴.

Illegal logging is a major discussion point in Bayung Lincir sub-district. Sudarmanto (1996) and reports in local newspapers, suggest that illegal logging could not have reached its present level without the involvement of local officials and those in-charge of the concession. The illegal loggers that we met were tolerated by Inhutani V and worked, "Under the monitoring of the company security staff". A 'fee' of Rp 5000 m³ has to be paid at each gate along the road when they transport the wood and the illegal loggers say that they stop work when they are told that high-ranking forestry officers from Palembang or Jakarta will visit the concession.

Prompted by increased demand from the Lampung and Jakarta-based timber traders and the economic crisis, it seems that illegal logging has speeded-up since 1997 in the Bayung Lincir forest block sited only 50 km off the main Jambi to Palembang road. In October 1998, several hundreds of villagers attacked the Inhutani camp at Kedembo and burned an office¹⁵. According to the illegal loggers themselves, they went in fury (*amok*) when pressure from Brimob members responsible for the security of the concession reached an intolerable level¹⁶. After the incident, Inhutani passed concession security to Kopassus¹⁷ members, whom, according to the company, were asked, "To adopt a softer approach".

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¹³ The population of the three villages was 3 657 in 1994, one-third of Javanese origin.

¹⁶ 116 illegal sawmill units are reported to be active in the province. (Suara Pembaruan, 19 August 1999. *Tak Mudah Mengamankan Hutan Di Sumsel*. [The arduous task of protecting the forest of South Sumatra.] (<http://www.suarapembaruan.com/news/1999/08/190899/lainlain/II01/II01.html>)

¹⁷ Sumatera Ekspres, 21 October 1998. *Base camp Inhutani dibakar masa*. [People burn the Inhutani base camp.].

¹⁸ Following a sharp increase of the fees they had to pay, and the seizure of a motorcycle belonging to one of the illegal loggers by Brimob security guards.

¹⁹ The army's Special Force.

Fire in the context of recent and rapid forest conversion

Pressure to exploit forested lands at the periphery of the province has increased over the last two decades as land has become scarce in the more populated parts. And, as the forest degrades, so it becomes the target for forest- and estate-plantations.

Transmigration

Transmigration settlements were established in the mid-eighties in the sparsely populated dryland zone of MUBA on the edge of production forest and reserves – particularly in Bayung Lincir sub-district and in adjacent areas. These settlements commonly infringe on lands classified as Permanent Forest.

Large-scale mechanical clearance, and later abandonment of agricultural plots on land unsuitable for food crops, promoted the growth of fire-prone *alang-alang*. These grasslands are now regularly burned by hunters to attract deer from the forest to graze the regrowth.

Labour available from the transmigration settlements allowed the development of oil palm and cassava agro-industrial estates. And workers from other small settlements located closed to indigenous villages (*trans swakarsa*), have also provided the manpower needed to establish forest plantations.

Agro-industrial plantations

From 1986 to 1998, 114 938 ha of forest area²⁰ were released to plantation companies - in the main for oil palm – and most in MUBA (45 percent) and MURA (41 percent). The largest single areas were released in 1991 in MUBA to PT. Hindoli (15 500 ha) and PT. Sumber Harapan (12 128 ha), (Dinas Kehutanan Sumatera Selatan, 1998).

Eleven percent (77 000 ha²¹) of Bayung Lincir sub-district was allocated to oil palm plantations from 1994 to 1998. Besides ‘nucleus estate’ plantations, oil palm plantations are also established on transmigrant land under a PIR system²², e.g. the PIR programme developed by PT. Hindoli in Bandar Jaya.

According to transmigrants in Bandar Jaya²¹, some fires originated from land clearing operations, and as there was no protection measures such as fireline clearance, fires went out of control and raged into dry, logged forest adjacent to the area.

²⁰ 83 percent in Convertible Production Forest, 12 percent in Production Forest, and 4 percent in Limited Production Forest.

²¹ 22 000 ha in 1994, 33 000 ha in 1995 and 20 000 ha in 1998 (Dinas Perkebunan, 1999).

²² PIR (*Perkebunan Inti Rakyat*): a ‘package programme’ specifically intended to develop the potential of smallholders.

²¹ Bandar Jaya, D 3: a transmigration unit of 450 predominantly Javanese families settled in 1987, following a PIR ‘plasma’ scheme plantation under the management of PT. Hindoli since 1994.

Forest plantations

Both the timber plantations established by Inhutani V, and the pulpwood plantations of PT. Pakerin were severely burned in 1997 (See also WALHI, 1998b). Official reports show that the fires destroyed 25 percent of the 6 000 ha Inhutani V *sungkai* (*Peronema canescens*) and mahogany (*Swietenia macrophylla*) timber plantations. The thick accumulated leaf litter of deciduous *Peronema canescens* makes plantations particularly fire-prone. Nicolas (1998a) reports a fire in the Bayat Ilir area fought over ten days in early October 1997 with the assistance of 350 firefighters from Malaysia. The fire destroyed 1 000 ha of plantation and 300 ha of surrounding logged forest. PT. Inhutani management staff say that the fires originated outside the concession from agricultural burning by local people and transmigrants.

Thirty-five percent of the 17 250 ha PT. Pakerin *Acacia mangium* plantation was officially reported burned in 1997 (see table Annex V.4). PT. Pakerin, which was listed by MoFEC among culprit companies with fire in their concessions, declared that it did not use fire in land clearance operations, although fires may have originated from adjacent land newly cleared by farmers²². It is clear that fires in the plantation can be linked to a land dispute that had remained unresolved since 1993. (See box on the next page). The fires may have been direct arson or ‘accidentally’ left to spread from agricultural plots near the acacia plantations.

Additional Notes

The situation at the forest-frontier in the dryland areas of northern MUBA underlines how the ingredients that promote fires are intertwined and synergistic. They include:

- irresponsible forest exploitation practices that prepare the physical conditions for large-scale forest fires,
- a profound dissatisfaction of local people towards forest concessionaires who represent a forest administration that ignores or denies their rights over land and forest resources,
- inadequate land-use planning and land allocation process, and
- a lack of consideration of fire-risk, or the belief that fire is not a problem, in the planning and implementation stages of large-scale transmigration, agro-industrial and forest plantations projects.

With the exception of small areas surrounding the few ancient villages, the Lalan River region was still heavily forested some twenty years ago and the process of forest conversion is recent. Fires are largely associated with the conversion of forest to forest plantations or estates crops. But, experience shows that tree plantations are as susceptible to fire as logged forest. Fires may become recurrent events.

²² Sumatera Ekspres, 3 September 1998, *PT Pakerin bantah bakar hutan*. [PT Pakerin argues it did not burn the forest.]

A Land Dispute Caused By Inconsistencies In The Land Allocation Process

A 200 000 ha plantation concession (HPHTI) granted in 1992 to PT. Pakerin²³ is located in the forest divisions (CDK/KPH) of Musi Ilir and Sungei Lalan to the south-west of Kedembo Inhutani V. The company acknowledges that it faced difficulties in developing the *Acacia mangium* plantation as its allocated area overlapped that of other companies and part of the land was claimed by local people²⁴.

The head of the village of Pagar Desa²⁵ reports that in 1993 the company cleared the land without taking account of local claims, and considering solely the limits of the concession granted by the Ministry of Forestry. Some jungle rubber plantations were cleared and durian and 'bee trees' owned by the villagers in the surrounding forest were cut. No significant fires were reported.

After violence against company workers in 1995, the company stopped clearing village land in Pagar Desa. At the time of the interview in March 1999, 39 Pagar Desa villagers were claiming back 232 ha and similar situations were reported in other villages surrounding the plantation²⁶. The bulk of PT. Pakerin's acacia plantation was destroyed by fire in 1997.

In 1998 in the spirit of 'reformasi', an inventory team appointed by the governor approved the villagers' claims. And in April 1999 it was officially recognised that 833 ha belonging to 189 villagers²⁷ had been planted to acacia by the company. As shown on the map issued by the Ministry of Forestry and attached to the Ministerial decision that allocated land to PT. Pakerin for HTI plantations, part of the concession included lands lying outside Forest Lands. The status of these lands had remained unchanged, since they had never been modified by the governor. Stressing the fact that the plantation had encroached outside Forest Estate, the regent of MUBA questioned whether responsibility lay with the company or with the officials who had decided to allocate the concession²⁸.

Compensation was finally settled in April 1999 when villagers received Rp 400 000 ha⁻¹ for lost trees planted on Forest Lands and Rp 1 million ha⁻¹ for land lying outside Forest Lands with the land to be returned to the villagers after the first plantation cycle²⁹.

2324 25 26 27 28 29 30 31

²³ Surat Keputusan Menteri Kehutanan Republik Indonesia No. 642/Kpts-II/23 Juni 1992.

²⁶ From 1993 to 1996, only 16 600 ha could be planted out of the 31 130 ha planned in the 1993 - 1996 annual plan works (PT. Pakerin, 1997).

²⁷ Pagar Desa, also called Puring, is located on the Lalan River. The village has 120 families, mostly local people belonging to the *Marga* Bayat.

²⁸ Early in 1994 seven villagers who had openly pulled up *Acacia* trees, were jailed. Among them was Mr. H.A.K. (83 years) who was sentenced to 9 months 4 days imprisonment. (Sriwijaya Pos, 1 May 1999. *Pakerin bayar ganti rugi tanah rakyat*. [Pakerin pays compensation amounts for lands owned by local people.]

²⁹ From five villages (Pagar Desa, Bayat Ilir, Pangkalan Bayat, Simpang Bayat and Telang)

³⁰ Sumatera Ekspres, 16 April 1999. *Kasus lahan di Muba mulai menemukan titik terang*. [The beginning of a solution for land conflicts in MUBA.].

³¹ Sumatera Ekspres, 1 May 1999. *PT. Pakerin bayar ganti rugi kepada warga*. [PT. Pakerin pays compensation to local people.]

Over-Exploitation of the Swamps: When Fire Follows the Chainsaw in Ogan Komering Ilir District

The coastal swamp region of OKI³⁰ is one of the least densely populated areas and is the 'wild frontier' of the province³¹. Indigenous settlements are sparse, mainly along rivers and coastal areas, although there are also small villages on dryland on the southern edge of the swamp. The area is difficult to access and to control. It has been well-known locally as a centre of widespread illegal logging activities for 25 years.

This coastal region formerly covered by swamp forest and peat swamp forest, was the setting of the most severe fires in South Sumatra in 1997. They burned from early September until late October 1997 and affected several hundred thousand hectares³². And, as pointed out by Stolle *et al.* (1998), 59 percent of the hot spots detected in Sumatra between mid-September 1997 and the end of June 1998 were recorded in wetland areas.

A thick smoke haze, rich in particulates, is produced when peat swamps catch fire. In 1997 the South Sumatra peat fires, together with those in Riau and Jambi, were responsible for the largest part of the cross-boundary haze that hit Singapore and Malaysia. Conservative estimates suggest that 60 percent of both particulate matter and carbon dioxide originated from peat fires³³.

Three main activities in the studied area are directly related to the incidence of fires in the eastern corner of OKI; logging (either legal or illegal), *sonor* rice cultivation during prolonged droughts, and fishing.

Logging

Since the late seventies the greatest part of the coastal swamps classified as Permanent Production Forest (some 500 000 ha), has been granted to seven logging companies. PT. SBA Wood holds the largest concession of 134 200 ha, that is largely peat swamp forest and was previously exploited by PT. Inwihco from 1980 to 1991.

The fire history in the PT. SBA area shows that fire follows logging. The 1994 fires affected blocks logged from 1992 to 1994 and areas previously burnt in 1991. The 1997 fires were especially severe in a large area logged from 1994 to 1997³⁴.

Satellite imagery (Map 3) confirms that numerous and persistent fires were recorded in the concession from October until the first rains of mid-November 1997 (Anderson *et al.*, 1999)³⁵. Many of the fires continued to smoulder underground in the peat until

³⁰ The study was conducted in the sub-district of Tulung Selapan, Ogan Komering Ilir District.

³¹ Mean population density in the seven central and east sub-districts of OKI is 19 km⁻²

³² The total area burnt in South Sumatra in 1997 is estimated to be 786 000 ha (EUFREG, 1998).

³³ ADB (1999)

³⁴ Field visit and interviews with company staff.

³⁵ A night time NOAA image is chosen to illustrate the point as such images allow long-lasting and thus potentially more serious to be distinguished from the multitude of transient fires that are detected on daytime - particularly late afternoon - images. These one-day-only fires are frequently associated with the controlled burning of relatively small areas.

extinguished by the rising watertable in February 1998. Most of the fires were seemingly accidental although some might have been indirectly or directly linked to logging activities and land clearing operations in a location drained for the establishment of an HPHTI plantation³⁶.

Further fires appeared in the PT. SBA area in June 1999 and remained continuously present and to worsen up to mid-September when the on-set of the rains finally controlled the burn. Around 14 000 ha were burned³⁷.

Illegal logging is socially acceptable in the coastal swamp and has followed local rules since the seventies. Tulung Selapan is a small town that controls access to a large part of the area. Illegal logging and gambling are 'official' and lucrative sources of income within the town. Until 1982, the head of the *marga (pasirah)* controlled the trade. Loggers paid a fee and were given the right to dig a small canal (*parit*) from the Riding River to float-out timber from a 600 m band on both sides of the canal. The concession area was extended by lengthening the canal. Even today informal rights of wood exploitation are still associated to a right on a canal. Illegal loggers may possess official letters of canal ownership; these papers are viewed at local level as a right to harvest forest resources.

According to PT. SBA at least 115 illegal sawmills operated along the three rivers in the region of Riding at the time their license was allocated in 1991. These illegal loggers burnt a company security post in 1992, attesting that the arrival of the company was 'unwelcome'. According to local people an agreement was reached between the company and the illegal loggers: the latter had to give to the former two logs of every twelve logs floated on the company controlled canal.

The duty to protect concession is devolved to the concessionaire and in 1993-94, HPH concessionaires were required to enforce protection against illegal loggers³⁸. PT. SBA called for the assistance of the army administrative unit to crackdown on illegal sawmills operating along the east coast of OKI³⁹.

As the local resource is almost exhausted, many illegal loggers have moved into swamp forest in the north of MUBA, or have exported their 'know-how' to Jambi and other provinces.

³⁶ Nicolas (1998a)

³⁷ I.P. Anderson (pers com)

³⁸ In compliance with the decree SK Menhut 523/Kpts II/1993 of the Ministry of Forestry

³⁹ 150 sawmill units were seized in 83 illegal mills, each unit with a capacity of 15 to 20 m³ per day. Apparently this was not enough to stop illegal loggers. In 1996, 63 000 m³ of wood were seized in 42 sawmills around Lebong Hitam, Kuala Duabelas and Lumpur rivers (Sriwijaya Pos, 18 June 1996. (*Danrem tinjau kayu sitaan, juga ditemukan 42 sawmill liar.*)

Sonor rice cultivation: a major source of fires in drought years

The technique

Sonor is a local form of swamp-rice cultivation practised only after a three month dry period when the herbaceous vegetation along swamp rivers is exceptionally exposed and dry enough to be burnt (end September - October). *Sonor* involves the direct sowing of traditional long straw varieties that are adapted to growth in a rising watertable. Coarse minimal land clearing is carried out after burning (1 manday ha⁻¹) and the seeds are sown after the first rains (November). They germinate and grow untended until the harvest. The harvest, often using boats, takes place immediately the crop ripens and requires the help of labour from adjacent regions.

Sonor has traditionally been practiced by local people settled within the swamp and along the coast and has now been adopted by transmigrants settled in the lower Musi delta (e.g. Sugihan) who were first employed by local people to harvest the crop.

The sonor rice cultivation regions in South Sumatra

Sonor is practiced in four regencies: OKI, MUBA and to a limited extent in OKU and Muara Enim. It is particularly important in central and eastern OKI where it is found notably along the Sugihan river and its tributaries in the north, and along the Lumpur and Mesuji rivers and their tributaries in the east⁴⁰. These are the least populated areas with a mean population density in the seven central and eastern districts of 19 km⁻² (Table A IV.2).

The importance of sonor to the local economy

The growing of *sonor* rice is a speculative activity but one that is attractive to locals and settled migrants as well as to outsiders that include city dwellers. It requires little labour and is compared to a gambling game by local people. In successful '*sonor* years' yields are estimated at 2 t.ha⁻¹ or 100 to 200 times the weight of planted seeds. Nevertheless, yields are unpredictable. Rats eat the seeds if there is a dry period after the first rains and the harvest is lost if an excessively high water level submerges the fruiting spikes. The roles of the various stakeholders are shown in Table 2.

Prolonged dry seasons are a time of scarcity in the household economy and many farmers can not afford to buy the 15 to 30 kg of seed required⁴¹. Some villagers sell their possessions - a radio or motorcycle - to buy seeds but most make arrangements with wealthy people, 'the backers'. The backers who live in Tulung Selapan or Palembang, provide seeds or money in exchange for half of the harvest.

In successful years (1991-92, 1994-95 and 1997-98) *sonor* rice contributes at least 20 percent of total production in OKI District, and from 7 to 10 percent of that of South Sumatra province as a whole (see Table A.IV.3). This welcome supplement is all the more important as dryland-rice yields poorly in drought years. The figures for harvested areas

⁴⁰ *Sonor* rice is also cultivated in neighbouring Lampung province which has similar swamp areas. The major fires in 1997 in the Mesuji and Tulang Bawang sub-district were caused by *sonor*. [Suyanto, S. (1999). Field report Mesuji-Tulang Bawang-Lampung, 27 September - 2 October 1999. ICRAF]

⁴¹ In 1997 in Simpang Tiga, kec. Tulung Selapan, a 1.6 kg tin of local rice seed varieties, such as padi *sawah kemang*, *kanyut*, and *sibur*, sold for Rp 12 000 and new IR varieties for Rp 9 000 to 10 000.

given in Tables A.IV.3 are based on surveys by agriculture extension workers and must be considered as no more than ‘best estimates’.

Table 2: Stakeholders in *sonor* activities in OKI

Stakeholders	Area of origin	Mode of access to land	Activities / Role
<i>Sonor</i> farmers Local settlers Outsiders : - villagers - city dwellers	local villages and transmigration settlements in <i>sonor</i> districts (see below) - adjacent districts and regencies - mainly Palembang	traditional land permit needed from local formal/informal leaders who control <i>sonor</i> area	- land preparation (often with intentional burning) - planting - harvesting as above, or only harvesting
Sponsors of <i>sonor</i> activity	mainly resident of Tulung Selapan and Palembang		- lending money for buying seeds - organising groups of people willing to chance <i>sonor</i>
Informal and formal leaders	local villagers in <i>sonor</i> districts		land allocation
Government agencies			organisation of transport of rice harvest (e.g. BIMAS)

Sonor and wildfires

If some 75 000 ha were harvested in 1998, then it can be extrapolated that at least 150 000 ha of swamp were burnt in 1997. For each hectare sown with rice, an estimated double (some sources claim three to five times) the area is burnt to clear land that then proved unsuitable and/ or fires that escaped control (Ramon and Wall, 1998).

Unchecked fires sweep large areas in the fire-prone swamp herbaceous communities, in the *Melaleuca* savanna and in adjacent degraded peat swamp forest until stopped by a river, wetter area or heavy rainfall. NOAA images for September - October 1997 show the progression of fire from riversides (including the River Sugihan) eastwards in the direction of degraded peat swamp forest (Anderson *et al.*, 1999). Damage is always severe and the total area of coastal wetlands burnt in 1997 is estimated to be some 500 000 ha (Nicolas and Bowen, 1999).

Steps to limit the risk of major fires linked to sonor activities in peat areas

Calls for a total ban on long-established *sonor* cultivation are completely unrealistic, but ways to start to reduce the impact and gain some control over the activities are feasible:

- Create awareness of the concept of ‘source-fires’ and gain the involvement and support of provincial and local government, agriculture agencies and informal and formal leaders and local communities who play a role in organising and/or sponsoring

sonor activities.

- Identify key agencies (Dinas Pertanian, BIMAS⁴², BAPPEDA at district level⁴³ and other groups such as the network of agriculture extension agents) to monitor and coordinate *sonor* activities.
- Map the location of fires that may be linked to *sonor* activities (1997 NOAA data, and data from the next ENSO years in conjunction with field checking).
- Identify areas where *sonor* can be practiced with a limited risk of fires escaping, and those adjacent to deep peat where it should be prohibited.
- Establish a network of informal leaders who are involved in *sonor* activities, and
- Support initiatives to develop alternative rice cultivation methods.

Inland fishing

Inland fishing, both subsistence and commercial, is part of the traditional life style of people settled in the swamp region and in OKI involves ten times more families than sea fishing (BPS, 1997). It is a seasonal occupation that peaks in the dry season when water levels are lower in the flooded plains and fish accumulate in the deepest pools. The fishermen establish camps close to these deep pools often in remote parts of the forest. There camps are a potential source of fires. The fishermen also take advantage of the dry season to clear-burn the vegetation to facilitate access to fishing grounds.

Tidal transmigration programmes as an added fire factor

Several large transmigration sites are located along the western edge of the swamps as part of the tidal areas programme that began around 1970. The optimistically named Cinta Manis [Sweet Love] scheme of 4 000 ha and the Upang Delta (15 000 ha) settlement were later expanded to the east of the delta as far as the Saleh and Sugihan rivers. Two much larger schemes, Air Sugihan Kiri (935 000 ha) and Air Sugihan Kanan (45 000 ha)⁴⁴ were created abutting forest concessions (Charras and Pain, 1993).

An area of 50 000 ha to the south of the two Air Sugihan sites was already logged and transected by drainage canals in 1983 when it was transferred into Padang Sugihan Wildlife Reserve. Elephant herds are now driven here from the more densely populated regions of South Sumatra but the reserve has suffered heavily from fires during the last decade. There are currently 40 animals on the Reserve.

The reclamation of these tidal swamps necessitated the removal of the natural forest and the digging of an impressive network of large and small drainage and irrigation canals. These have caused a general reduction in the dry season watertable over a large region.

The major difficulties inherent in tidal transmigration programmes and in the reclamation of peat swamps (Soepraptohardjo and Driessen, 1976; Danielsen and Verheugt, 1990; Levang, 1995) have resulted in the partial abandonment of the settlements. Many of the transmigrants have to rely on seasonal off-farm employment, in the timber industry or on the oil palm plantations. Some, as noted earlier, practice *sonor* in *el Niño* years.

⁴² Discussion with the Secretary of BIMAS (Agriculture Credit and Marketing Service), which is directly responsible to the governor and is involved in organising the transport of harvested *sonor* rice, may be able to play a role in coordinating efforts to control *sonor* activities.

⁴³ BAPPEDA Tk. II OKI has recently produced a first tentative map of *sonor* areas based on information provided by agriculture extension workers.

⁴⁴ See Numbers 9 and 10 on the map (Annex V.2)

Dry season fires for agricultural clearing readily escape control and enter poorly tended plantations and surrounding grasslands. On occasion, sub-surface peat fires start to the amazement of transmigrants: several stressed that, 'Here, it's the soil that burns'.

The general question of fires in the swamp areas

Logging, whether legal or illegal, of swamp forests is obviously unsustainable and has, quite literally, prepared the ground for future major fires. However history shows that the zone also burnt when it was still forested, and it is therefore imperative that fire-risk is integrated into the management plans for those very few areas that remain unlogged (mainly in the lower part of the Lalan River in MUBA), as well as into plans for the logged forests and for the management of areas previously affected by fires. The areas that have been burnt are sizeable and most of the trees are dead and scattered in a weedy vegetation of aquatic ferns and sedges. The whole zone is very liable to be swept by fire during the next prolonged drought. Periodic fires will also continue during the dry season in non-drought years as they did in 1999. Regular smoke haze - some of it transboundary - will thus also continue.

The zone is mainly classified as Production Forest and its management is thus the responsibility of MoFEC and Inhutani V. The area is large and access is difficult; its use therefore can not be controlled by the few forest guards with limited means that are presently assigned to the task.

Several options are envisaged for the future of the region. The rehabilitation of burned swamp forest with local species sounds an attractive option and is widely advocated by logging concessionaires and the forestry offices despite the known technical difficulties⁴⁵. The extremely high risk of recurrent fires destroying the newly planted area are consistently underestimated despite past experience. This sounds as if the re-planting *per se* is more important than the future safe productivity of the plantation.

A second option is to convert parts of the zone into forestry plantations. This is currently being tried in PT. SBA Wood under a 40 000 ha HPHTI licence granted in February 1998. The company initially planned to establish swamp pulai (*Alstonia pneumatophora*) and jelutung (*Dyera polyphylla*) to be harvested after 15 years⁴⁶. However following an agreement with a major pulp company, this was changed to *Acacia mangium* and/or *Acacia crassicarpa*. Although *A. mangium* can grow on a variety of soils, including acidic or saline with impeded drainage, it does not tolerate waterlogging. A network of orthogonal canals is therefore being dug to drain the 5 000 ha to be planted in 1999 - 2000.

The venture looks hazardous. The performance of *Acacia* on a partly burned peat is uncertain⁴⁷ and canals will not offer effective protection to the young plantation against the

⁴⁵ Planting seedlings in a partly inundated zone is difficult and weeding requirements are high (three times in the first year, twice in each of the two subsequent years). Also, severe fires burn the slightly raised hummocks that are a feature of peatland areas, down to a flat common watertable. They thus eliminate the very areas that promote regeneration. (Rieley, pers comm.)

⁴⁶ According to the company, the nursery that contained two million seedlings of *swamp pulai* was destroyed by fire in 1997.

⁴⁷ A plantation is reported to have been successfully established in a drained peat swamp area in Jambi by PT. Wira Karya Sakti (Sinar Mas Group).

wildfires that are likely to occur in adjacent areas. Indeed they may further lower the watertable in non-drought years and add to difficulties.

A third option is to plant the area to oil palm. It is ironic that this choice that has been so widely criticised elsewhere for its use of fire to clear land, may prove the best option for a 'haze free' future. PT. Lonsum contemplated plantations in parts of the zone before the economic crisis and trials are doing well. Careful water management is essential for successful growth of the palms and, as part of this regime, water levels need to be kept high during periods of drought; a necessity that may also limit the spread of wildfires. The mature plantations themselves are a low fire risk. While infrastructure costs are high, oil palm will remain an attractive option at a time when available land is becoming scarce elsewhere in the province.⁴⁸



Whatever options are chosen, the preservation of the swamps looks far from assured as it is impossible to turn the clock back and to re-isolate these formerly sparsely used zones.

⁴⁸ A fuller discussion of conversion of land to oil palm is given by Bowen , Anderson and Bompard. (in press).

3. THE INSTITUTIONAL CAUSES OF FIRES IN SOUTH SUMATRA

Identifying who sets the fires is not the main issue. Used as tool or weapon, fires will happen during the coming ENSO years. How many will become wildfires depends on how the land has been, and is, managed.

Land management involves a long-term decision-making process and is the result of a complex system of relationships between stakeholders and their use of land and natural resources. An outline description of the roles of the national and provincial forestry and land management institutions are given in Annex I. Legislation as it relates to land management is described in Annex II, while the numerous land management procedures are covered in Annex III. In this chapter, we outline how land management in South Sumatra over the past 30 years has encouraged the recurrent wildfires experienced today.



Inadequate Land Rights and Resources for Local People

People living within areas managed under the Basic Forestry Law

“The branches of production which are important for the State and which affect the lives of most people, shall be controlled by the State. Land and water and the natural riches therein shall be controlled by the State and be made use of for the greatest welfare of the people.” (Constitution 1945, Article 33).

As a result of the interpretation of what constitutes the ‘*greatest welfare of the people*’, the people who actually live on or near forest land have generally been deprived of their previous rights to land and forest resources. The Forest Administration has ignored previous systems of land-rights, such as those enacted by customary (*adat*) laws, and put in their place new laws over land access and the use of forest resources.

Forest Land boundaries are largely inherited from the colonial period when demographic pressure was much less than today. This has led to 45 percent of South Sumatra Province being declared as State Forest Lands, and hence to be managed under the Basic Forestry Law (see Annex II). The on-going revision of the boundaries is being conducted without real participation of local people at the village level³².

Thus, almost one half of the province land is under the control of an administration which is out of touch with the lands it is supposed to administer and is thus unable to control and manage it effectively³³.

³² See Annex II, Chapter 2.

³³ There are only 167 forest guards (*jagawana*) in the province.

The lack of rights of local people to Forest Land is a major underlying cause of continuous trespass in the forest, deforestation and, to some extent, fires. This is clearly shown in our case study in Musi Banyuasin District, where illegal logging is carried out not only by outsiders, but also by local people living within or near to forest lands. Paradoxically, it is because local people were officially excluded from the benefits of forest exploitation that they are driven to become illegal loggers themselves. But in most instances illegal logging is backed by well-connected middlemen and some officials³⁴.

People living within areas managed under the Basic Agrarian Law

Villagers living on land subject to the Basic Agrarian Law have more rights than those on lands under the Basic Forest Law. The Agrarian Law requires all land-rights to be registered, and the registration process includes measurement, survey and mapping of the area. Land-rights are registered and issued by the National Land Office (BPN).

The *hak milik* is an individual land ownership right recognised under the Agrarian Law. *Hak milik* must be registered and the holder is given a certificate that ensures security for owners and users, and the right of transfer (sale, gift, exchange, etc.). However, because of the uncertainty and the complexity of the procedures and the costs involved, official land registration is out of reach of most smallholders. Few in the South Sumatra countryside hold a *hak milik* property right (see Table AII.1).

The Basic Agrarian Law – at least in theory - recognises traditional local (*adat*) rights acquired before the Agrarian Law came into force. After that date the Basic Agrarian Law takes precedence. This is a major difference from the Basic Forest Law that does not recognise *adat* (see Annex II, Section 3).

National vs. customary law: conflicts in the land acquisition process

Traditional land rights are often the sole rights known and enforced at the village level. However problems arise when traditionally owned land is claimed by outsiders. Such land may be owned individually or held in common by a village or a group of villages that belonged to the same *marga*; in either case it is officially unregistered land.

The villagers thus can not claim compensation for ‘their’ land within Forest Lands apart from an indemnification for planted trees - generally rubber and fruit. On land under the Basic Agrarian Law, smallholders are entitled to compensation for their land, but it is common knowledge that amounts are deemed unfair or unpaid. (See box on the next page).

Inadequate Land Management Policy

Centralism and overlapping of administrative structures

The formulation of land and forest management policy is still dominated by the central government and the President, without extensive consultation with provincial and district

³⁴ Suara Pembaruan, 19 August 1999. *Tak mudah mengamankan hutan di Sumsel* [The arduous task to protect the forest of South Sumatra].

authorities. In regional planning, little attention has been paid to local situations and land-management objectives at the village level³⁵.

The National Development Planning Agency (BAPPENAS) leads and coordinates the planning process for land management, while land-use planning within forest lands is in essence regulated by decisions made by the Ministry of Forestry and Estate Crops and closely linked to the President's agenda.

At the provincial level the Regional Development Planning Agency (BAPPEDA) is placed under the governor's authority. And there are two regional forest offices: *Dinas Kehutanan*, which corresponds to the decentralised structure, under the Head of Region authority (Ministry of Home Affairs), and *Kanwil Kehutanan dan Perkebunan*, under MoFEC within the decentralised structure. There appears to be no change envisaged under the New Forestry Law. (See Annex I, Deconcentration and decentralization)

Land Acquisition 'Negotiations' Vary With Land Status – As Applied In Pendopo South Sumatra Province					
Land 'acquisition'	Land status		Official arguments	Process of land acquisition	Compensation
	Government and companies views (according to National Laws)	Local perception (according to Customary Laws)			
By HTI	Forest Land Under Basic Forestry Law (BFL)	<i>Marga Forest / Tanah adat</i> communal land under local control	State Forest / State Land	No negotiation (conflicts)	None
		Privately owned fallow (<i>belukar</i> without planted trees)	Unoccupied land Secondary forest	No negotiation (conflicts)	None / some indemnification
		Privately owned rubber plantation	Recognition of rights over planted trees	Negotiation done by contractors (generally after land clearing)	Indemnification for planted trees
By estate company	Land under Basic Agrarian Law (BAL)	Privately owned forest fallow (<i>belukar</i> without planted trees)	Unoccupied land Secondary forest	No negotiation (conflicts)	None / some indemnification
		Private land with rubber trees (not titled)	No title but some compensation	Direct negotiation with plantation company	Compensation for trees and/or land
		Titled land (privately owned)	Usual transaction		Full compensation for land and trees

At the District level, the forest offices, *Cabang Dinas Kehutanan* (CDK) and *Perhutanan dan Konservasi Tanah* (PKT) are placed, for administrative reasons, under the authority of the Head of District (*bupati*), i.e. under the Ministry of Home Affairs. PKT technically falls under the Directorate of Reforestation and Land Rehabilitation (BRLKT) of the provincial office of MoFEC (*Kanwil*). The unclear separation of functions between the Dinas and Kanwil forest offices is partly responsible of the poor integration of Forest Land management into regional planning (ECO, 1997).

³⁵ See Annex I

The overlapping of various administrative structures in Jakarta and within the provinces creates a legion of administrative territories³⁶. Such bureaucratisation leads to complex and unclear procedures, lack of accountability and, ultimately, to inefficiency. In the case of fire, no one feels responsible.

Ineffective land-use planning and inter-sectoral coordination mechanisms

Land-use planning at the provincial and district levels in South Sumatra is still in its infancy. This is a major limitation to any sound fire management plan. And it must be stressed that up to now, fire-risk is not taken into account in land-zoning³⁷.

The risk of wildfire during land clearing operations and the potential for smoke haze pollution should be evaluated prior to land allocation. Where found to be unacceptably high, as is certainly the case for peat swamps, permission to clear should be refused. In 1997, fire and pollution issues were taken into account only during the peak fire period when diverse administrations issued regulations to ban land clearance by burning. These belated regulations could not be enforced and their aims were in essence, unrealistic.

The reasons for the inefficiency of regional planning are multifold.

- The provincial Development Planning Agency (BAPPEDA) has insufficient capacity to effectively coordinate land-use planning, despite support by LREP I in the late eighties³⁸.
- The lack of an accurate basic land-use map and coordination between government agencies, which tend to use their own maps, are both major problems³⁹. Poor mapping is a source of confusion and land mismanagement that leads to conflict, and in several cases has proven to be a direct cause of fires.
- The use of small-scale maps makes the boundaries unclear⁴⁰. Unresolved cases of overlap and related discrepancies between planned and allocated land-uses, have

³⁶ For instance, planning: the Ministry for National Development Planning and the National Development Planning Agency (BAPPENAS); land affairs: the Ministry for Agrarian Affairs and the National Land Agency (BPN). And at provincial level there are diffused and decentralized structures (see Annexes I).

³⁷ Provisions were made in the 1994 RTRWP for the specific protection of deep-peat swamp areas that should not be allocated for development projects. The provisions can not be observed as peat swamp areas are not shown on the maps used in the land allocation process.

³⁸ Limited support was provided to BAPPEDA by the Land Resource Evaluation Project (LREP 1987 - 1990) that covered the Sumatra provinces. The project aimed to strengthen provincial government land-use capabilities by establishing provincial data-centers and also to support land-use policy planning and the preparation of regional land-use plans (Scott and Lusli, 1998).

³⁹ Many difficulties were encountered in assembling the information required to prepare Map 3 that shows major land-use classifications. This was assembled from a number of source-maps drawn on different base-maps.

Concern about the accuracy of official maps is a *liet motiv* in almost every report that deals with land management and planning issues. 'Errors of omission and commission' are commonly reported. In a recent review of the forestry sector (NRI-DFID, 1998) it is stressed that, "One of the critical issues to forest management has been the inadequacy of the mapping base and the general confusion over the extent of the forest estate." As noted by Schweithelm (1998), "Indonesia is also in desperate need of a new national land-cover map to show what land uses and what forest types are where, and who is responsible for which."

accumulated. Thus there are now significant variations between the figures and the maps produced by different land-use institutions. Indicated and actual land-use may differ widely.

- Coordination mechanisms between land-management institutions at the provincial level are not effective (see Annex I) and the directives defined in the provincial spatial plan (RTRWP) are not enforced. The 1999 final report on the RTRWP evaluation by BAPPEDA I and the Spatial Planning Section of the University Sriwijaya Research Centre sadly concludes that⁴¹, “Land-use planning is not working as it should; not all the institutions and development actors take decisions about land-use in coordination with BAPPEDA I, and in-line with the RTRWP plan.” Members of the Provincial Land-Use Coordination Team acknowledge that they were often pressed to ratify (‘rubber stamp’) top-down decisions (i.e. decisions from Jakarta) that blatantly contravened provincial land-use planning directives decided at the provincial level and coordinated by central authorities.

Flawed procedures in the granting of land to estate plantations

Fire risks were not taken into account when land was allocated to estate plantations. It is also not uncommon for areas set aside for estates to overlap with land classified as Permanent Forest (e.g. HPH logging concessions, HTI plantations or Nature Reserves), and companies sometimes do not adhere to their stipulated boundaries. Control by third parties has been impossible as the land allocation maps prepared by BPN are considered to be confidential.

Conflicts with smallholders were further exacerbated by corrupt land acquisition procedures. Companies often ignored official channels and dealt only with government representatives - often the village heads - or through intermediaries (*calo tanah*), instead of negotiating directly with the landowners⁴². In many instances, landowners received only the ‘basic price’ (*harga dasar*) fixed by a committee of government officials, and this

⁴⁰ Maps used in land allocation planning are at a much too small a scale. The spatial plan-map (RSTRP: *Rencana Struktur Tata Ruang Propinsi*) is based on a consensus by concerned government agencies and is drawn at 1: 500 000 scale. Provincial spatial plans RSTWP (*Rencana Tata Ruang Wilayah Propinsi*) are at 1:250 000 scale. Maps at larger scale are simply derived from the RSTRP or RSTWP plan-maps and thus purport to a spurious accuracy.

⁴¹ “Pada umumnya, tidak semua instansi atau pelaku pembangunan mengkoordinasi pemanfaatan ruang dengan BAPPEDA Tingkat I. Dengan demikian, tumpang tindih pemakaian atau pemanfaatan ruang yang telah direncanakan dalam RTRWP Sumatera Selatan tidak berjalan sebagaimana semestinya.” (BAPPEDA I and Pusat Penelitian Tata Ruang UNSRI, 1999).

⁴² The regent of MUBA blamed an oil palm plantation company for not respecting official procedures when acquiring land from farmers. He also blamed the company for clearing land outside the allocated area and for burning when clearing land during the 1997 dry season. (Sumatera Ekspres, 14 April 1999. *Bupati menilai PT GPI, perusahaan nakal* [Regent judges PT. GPI as a ‘recalcitrant’ company].)

In the reform era, villagers frequently now come to Palembang to protest in front of the governor’s office to complain against village heads who have sold villagers’ land to plantation companies. Several heads found guilty of irregular land transactions have been dismissed. (Sumatera Ekspres, 14 December 1998. *Karena kasus tanah, 21 kades dipecat* [Twenty-one village heads dismissed].)

amount was almost always far below the market price (*harga pasar*), or the price actually paid by the company⁴³.

Official land allocation procedures and the correct acquisition process were rarely followed, as there was no transparency, poor control and lack of law enforcement. A situation not helped by the fact that landowners are not represented in the team designated to control land acquisition procedures, nor consulted in the land allocation process. Until very recently, they were rarely in a position to resist pressure from government officials. An example of how the allocation and acquisition rules can be by-passed by powerful interests using the '*izin prinsip. Izin lokasi*' system is given by Gouyon (1999). [See text box on page 29]

The necessity to develop 'sleeping land' (*lahan tidur*) or allegedly unoccupied land (*tanah kosong*, meaning 'empty' land), was often invoked by government to justify land allocation decisions. It is common for government officers, especially those not of local extraction, to ignore local agricultural practices such as smallholders' 'jungle rubber' plantations and fallows; all were conveniently regarded as assimilated in to the categories of secondary forest or unproductive land. Government staff similarly often refuse to take into consideration *marga* customary laws which are seen - over-hastily - as belonging to the past.

In the forestry sector, local officers acknowledge that in practice the release of Forest Land is not planned but is based simply on the demand from large land users. As a result, forest conversion is chaotic and often manipulated for corrupt purposes⁴⁴.

Land management policies favour deforestation and forest conversion

To a large extent, the fires are the unforeseen result of deliberate policies that favoured deforestation and forest conversion. Such a 'logic of fire' is obvious in the case of the large-scale forest fires that ravaged the coastal swamp (including peat swamp) forests and the remaining dryland forest in northern MUBA. As succinctly expressed by Schindler (1998), "When logging companies enter into a new area, they automatically bring with them the fire problem".

Specific forestry policies that contributed to deforestation have been reviewed by several authors (in particular by Dauvergne, 1994; Durand, 1994; Sunderlin and Resosudarmo, 1996). At heart, no, or minimal, incentive was provided for sustainable forest management⁴⁵ and lenient enforcement of regulations allowed major over-cutting⁴⁶.

⁴³ See also, Sumatera Ekspres, 4 November 1998. *Kenapa kasus tanah di Sumsel menonjol?* [Why so many noticeable land conflicts in South Sumatra?]. Sriwijaya Pos, 10 April 1999 (A. Rifai). *Masalah pertanahan di Sumsel*. [Agrarian issues in South Sumatra].

⁴⁴ Also mentioned by Schweithelm (1998)

⁴⁵ The duration of the lease given to forest concessionaires was only 20 years, i.e. less than the 35 years regeneration cycle intended under the 'selective cutting silvicultural system' supposedly supported by government, and much less than the true time actually needed for sustainable management, estimated by FAO (1990) to be about 60 years.

⁴⁶ "Of the order of twice the likely annual allowable cut" (NRI/DFID, 1998).

Under these circumstances, it is not surprising that ‘fire follows the chainsaw’ in forest concessions where two decades of abusive and uncontrolled logging have greatly disturbed the forest⁴⁷. In prolonged dry periods the accumulation of fuelwood and the opening of the canopy create an easily flammable understorey. This situation is even worse in the fragile peat swamp forest ecosystem.

Many incentives were provided to forest concessionaires to encourage the planting of large-scale industrial timber and pulp plantations (HTI) of fast-growing species. These included interest-free loans, low land-taxes, and right to clear-cut and sell remaining trees (Potter and Lee, 1998). The high fire risks in HTI during clearing and in the first years of plantation establishment were not sufficiently taken into account.

Fire-risks were increased where transmigration sites were sited within or close to logged-over forest. Large-scale mechanical clearing up to two years before the arrival of transmigrants, allowed *alang-alang* grassland to take hold over extensive areas. Drainage to reclaim swamps in tidal transmigration sites made adjacent swamp forests more prone to drought and fire.

Local fire-risks were also increased owing to the failure of forestry services to take into account the land-use objectives of local communities. Re-greening and reforestation programmes were imposed on farmers who later let burn or burnt the plantations.

The fiscal system also acts as an incentive for local government to convert forest lands to agriculture. Agricultural land is subject to direct taxation by provincial and district government, whereas the majority of forest revenues are collected by the Ministry of Forestry and Estate Crops and only a small part is redistributed to provincial and lower levels of government⁴⁸.

‘Development at all costs’ orientated policies

Objectives given in the Five-Year Development Plans (REPELITA) are focused on improving macro-economic indicators. It is thus essential for the provincial governments to attract sufficient investment to reach the targeted growth rate in their provinces. ‘Development’ is generally read as “Rapid economic development at all costs” (Potter and Lee, 1998). In consequence, provincial government officials sided with the investors in their effort to attract investors and to favour the creation of large-scale development schemes. Their private and corporate interests prevailed over social and environmental development in the both short- and long-term.

The abuses and limits of such policies are clearly on-view in the expansion of estates and pulp plantations in South Sumatra since the late eighties. As a rule, government officials and security forces defended the rights newly granted to large landholders (HTI and oil palm plantations) rather than those of local people. And, if necessary, used intimidation and force⁴⁹ to uphold these ‘rights’. Smallholders who objected to the release of their lands were viewed as opposed to the national development and as threats to national stability and security.

⁴⁷ STREK data from Berau, East Kalimantan, suggest that conventional logging damages 48 percent of the trees (Bertault and Sixt, 1995).

⁴⁸ Allocation of forest royalties in 1989: Central Government 10.7 percent; Province 13.4 percent; District 11.3 percent, Ministry of Forestry 64.6 percent (Mubariq Ahmad, 1992).

⁴⁹ Land ownership and compensation disputes between rural people and plantation companies lead both parties to burn crops and trees. In the new reform era, further acts of sabotage have started to appear.

Links between Business and the Political Elite Influence Land Management

There are numerous examples of connections between the national elite and forestry businesses. Many forest concessions (HPH and HPHTI) were granted to well-connected business groups. Business associations, such as the powerful Indonesian Plywood Association (APKINDO), tycoons of the timber industry and other dominant private interests have strongly influenced the formulation of forestry policy (Jemadu, 1997). The short-term economic interests of a business and political elite over-rode environmental concerns, while forestry policy favoured rapid exploitation of the forests and their conversion to other uses. Collusion of officials with business contributed to deforestation and increased fire-risk. The environmental and social costs were borne by local communities and ultimately by society as a whole.

Lack of Counter-Powers from Civil Society

Lack of representative institutions at the community level

Local communities were systematically kept in a weak position in their relationship with officials and large landholders.

Since the abolishment of the comparatively democratic *marga* system in 1983, the governmental institutions at the village level, mainly vested in the head of the village, are often not representative of villagers' aspirations. Formal *adat* institutions, enacted by the governor's decision in 1988, are insubstantial owing to a lack of prerogatives. Although the *marga* spirit survives informally, it is not embodied in any institution.

Farmers groups (*kelompok tani*) - sometimes formed around local leaders - united in their struggle against large landholders and corrupt heads of village, are gaining a new influence in the reform era. A local network of such groups⁵⁰ now claims 10 000 members in South Sumatra.

Non-Governmental Organisations

Two NGOs that assist farmers with land-rights issues are playing a significant role in South Sumatra in raising awareness about fire related problems.

The Palembang Legal Aid Bureau (LBH) provides legal assistance to farmers groups who claim for their rights over land seized by large landholders. A census of land conflicts in the province, prepared by LBH and listing 136 cases in October 1998, was instrumental in the recognition of land conflicts by local officials, including by the governor himself who decided (6 October 1998) to institute the formation of a Fact-Finding Team on Land Conflicts.

⁵⁰ KSKP (*Kelompok Solidaritas Kesajahheraan Petani* - Solidarity Group for Farmers Welfare)

Izin Prinsip, Izin Lokasi: Fast Land Acquisition

Anne Gouyon

The granting of an HGU on areas above 200 ha is in the hands of the National Land Agency, below 200 ha with the Provincial Office. The process in theory takes into account environment conservation, regional planning and existing rights. The application is reviewed by a committee that includes the local land officials and the local authorities at sub-district (*camat*) and village (*kepala desa*) level. The application can only succeed after the committee has reviewed the land history, existing rights, and the conformity of the proposed development to land-use plans and policies (World Bank, 1991).

If the procedure were followed, time and costs become important considerations. Land survey and the checking of the history and status of each sector requires considerable practical abilities as well as the capacity to successfully discuss and negotiate with local communities – impossible unless mutual trust is established over time. The full HGU process can easily take several years.

To bypass the process, corporations and government made ample use of procedures that regulate what happens before the HGU is issued. A corporation must first apply for an *izin prinsip* (a provisional rights permit). This grants the right to survey the land and make development plans.

The *izin prinsip* is granted by the district government, and its holder can apply for a land reserve right (*pencadangan tanah*). The next step is to obtain the *izin lokasi* that enables a corporation to start planting without having necessarily met the requirements of an HGU.

As noted by Boehmer (1998), this system gives a developer the monopolistic right to purchase land. Although government regulations also stipulate rights for landowners who refuse to sell their land to such permit holders, in practice developers and local officials pressure owners to release their land at below-market prices, especially if they do not hold an official title.

The power to grant *izin lokasi* was shifted from the regional to the national government in 1993 as part of a deregulation package [*Pakto 1993*] meant to ease foreign investment. The change allowed corporations backed by central government to obtain land permits in Jakarta with little involvement of the local authorities. The system has led to many abuses: development of land despite contrary environmental regulations (e.g, planting oil palm on steep slopes without terracing), and the unfair expropriation of land from local people are now commonplace.

In many cases the land granted to a company under *izin prinsip* is much larger than the land actually developed. Many corporations have then used their permits as collateral for bank loans spent on other projects, while retaining their monopoly right over the original land. According to a recent evaluation by the National Development Planning Bureau (BAPPENAS), of the 2.9 M ha under *izin lokasi* nationwide, only 470 000 ha (16 percent) has been developed. The total land reserved for large private plantation companies in 1997 in South Sumatra was 876 000 ha - only 180 000 ha with full HGU - of which 240 000 ha were planted (Map 3).

The *izin prinsip* / *izin lokasi* system was suspended in 1998 when the government froze the granting of new permits and started to review existing grants. The permits of a few companies that did not meet development regulations were revoked. The granting of *izin lokasi* reverted to regional governments in May 1999 in anticipation of local autonomy. Whether this will lead to a wiser use of land resources depends on the accountability of the administrators to the local citizens.

The South Sumatra wing of the national Indonesian Forum for Environment (WALHI), was established in the early nineties. The organisation is active in raising awareness on environmental questions, particularly on forestry and fire issues. It supports farmer's interests in conflicts over land- and forest-rights. In 1998, both organisations took legal action against eleven forest concessionaires. (see box on the next page).

**A case of legal action against logging concessionaires
suspected of being responsible for fires in South Sumatra**

“Early in 1998, the South Sumatra branch of The Indonesian Forum for Environment (WALHI) took legal action against 11 forest concessionaires suspected of burning forest between September and November 1997. This was one of the first cases brought under the new Environmental Management Act (No 22 1997)”⁵¹.

“In its ruling of 17 October 1998, the Palembang District Court found two companies (PT. MHP pulp-wood plantation and logging company PT. Inti Remaja Concern) guilty of negligence that led to forest fires, and ordered them to prevent forest fires from happening again. WALHI's demand for US \$256 millions in compensation for the losses was not met.” (Jakarta Post, 20 October 1998. Two firms blamed for forest fires.)

A Time of Change

As recognised by Sunderlin (1998), changes that are underway as a result of the economic crisis and the policy reform will have a, “Profound influence on the forest sector and on land use in general”.

- Increased pressure for conversion of forest lands to agriculture will lead to additional land clearance and will increase the risks of fire in at least the short-term.
- But in the long-term policy reform is likely to aid fire prevention if the intended objectives that include greater recognition of the rights of local people and transparency in the decision-making process are achieved.

The forestry sector is, “In a period of dramatic change and fluidity”. The policies of the Ministry of Forestry and Estate Crops are now focused on encouraging the growth of small and medium-scale enterprises, control of monopolies / oligopolies, trying to reduce corruption through greater public sector transparency and accountability, and on government decentralisation (NRI/ DFID, 1998)⁵¹.

Many people expect that the present double administrative structure will be simplified under a reformed system and that the Kanwil offices will disappear while Dinas offices take on a greater role. This would clarify responsibilities and enhance coordination between agencies.

⁵¹ “Until there is a sea-change in the operation of the Kanwil and Dinas, and a willingness to accept real responsibility the changes at the center could still end as rhetoric.” (DFID/NRI, 1998)

But the reforms face resistance from the forest state bureaucracy. There is a real risk that the new policies will remain simply ‘paper policies’ if they are not supported by concrete political and attitudinal change⁵².

The provision of greater responsibilities to provincial and district authorities may bring positive change if accompanied with greater transparency and accountability⁵³. More decentralised decision-making is not in itself a guarantee of more effective land management, but it should allow local conditions and the needs of local people to be better taken into account.

The recent change in political climate has allowed greater freedom of expression. Foremost among topics of concern voiced by village communities in South Sumatra are conflicts that centre on land issues and, to a lesser extent, on rights to forest resources.

With the political uncertainties and in the degraded social situation, local government officials and security forces are less able to control access to land and forest resources. ‘Free access’ to forest lands is starting to be a reality in some regions. The resultant increase in land clearance and illegal logging is leading to an enlargement of fire-prone areas.

In line with the reform policy, and to prevent new conflicts, the governor of South Sumatra (appointed in August 1998) has adopted a new stance and emphasizes the need to halt the growth of estate plantations presently pushed through to the detriment of smallholders. He urges companies to do their best to solve the most pressing land disputes. But he insists that South Sumatra still needs investors to develop 2 Mha of land available for agriculture and plantations⁵⁴.

Conflicts are likely to increase unless durable solutions are found to the land tenure problems: the implications for fire prevention efforts are obvious.

The future of logged-over concessions must be a major concern of the forestry and land-use planning sectors in South Sumatra. Fire-risks are particularly high in these Forest Lands that are: (i) often heavily degraded or even devoid of forest cover; (ii) already locally burned, or; (iii) *de facto* converted to agriculture. The danger of fire can be exacerbated or mitigated depending of the decisions to be taken about their future management.

⁵² “Implementation of these policies may lead to modest improvement in the management and forest conservation practices of some concessionaires. However, it is difficult to imagine how these reforms will modify in any meaningful way the incentives that currently promote over-harvesting and that maintain past patterns of destructive logging practices.” (Sunderlin, 1998)

⁵³ First steps for decentralized decision-making have been taken in the land allocation process for plantations. According to the recent regulation of the State Minister for Agrarian Affairs / Head of the National Land Agency (Kepmen Agraria/Kepala BPN No.2/1999), the Heads of Districts now have the authority to grant location permits for plantations (*izin lokasi*). The specified fees will go to the local government budget (*pendapatan asli daerah*).

⁵⁴ Sriwijaya Pos, 14 January 1999. *Sumsel masih membutuhkan investor* [South Sumatra still needs investors]. The governor was quoted as saying, “... Di bidang pertanian dan perkebunan saja masih tersedia 2 juta hektare lahan yang masih membutuhkan investor untuk menggarapnya.”

Logging will continue beyond 1999 in only three or four of the nine private concessions⁵⁵. The management of former logging concessions is taken over by the parastatal company Inhutani V that already has charge of more than half of the 1.7 M ha of logging concessions. These include concession areas transitionally placed under its responsibility as well as some 250 000 ha of timber plantation concession with less than 10 000 ha planted. (Table AV.3)

How the long term risks of fire will be taken into account in the future decision-making processes for land management is of the highest importance. If, as in the past, they are ignored, fires will continue unabated in numbers and severity.

⁵⁵ Underlining the fact that the forest logging concessions have made little contribution to the local economy and destroyed the forests of South Sumatra, the governor (14 August 1999) decided not to extend the period of four logging concessions scheduled to the end of 1999, and stopped the issuance of new licences. “Selama ini Pemda hampir tak pernah merasakan manfaat keberadaan HPH itu, yang ada hanya kerugian berupa kehilangan kayu dan gundulnya kawasan hutan.” (Sriwijaya Pos, 16 August 1999. *Pemda Stop Izin HPH* [Local government stops granting forest logging concession rights].

4. RECOMMENDATIONS

A top-down bureaucratic approach to fire management that concentrates on fire suppression will be almost as useless in the field during the next *el Niño* as it was in 1997⁵⁶.

Fire-prone areas are expanding, in the main because of continued forest degradation in the swamps, and the cost of fire damage and of fire management is bound to increase over the years if nothing is done to stop the process of land degradation. Yet, this situation is not a fate. The decline can be halted and trends can be reversed if land management decision-making processes and policies are amended to take into account the needs of local people in a more equitable way and to integrate fire prevention in to land-use planning. This should be the priority for long-term fire prevention. See also, Byron and Shepherd (1998), Dennis (1998), Abdul Malik (1999), Chandrasekraran (1999), Fox (1999), Sayer (1999) and Schweithelm (1999, 1999a).



It is essential that the design of fire prevention and control projects takes into account the perceptions of the stakeholders. There is a risk of inconsistency between the stated project objectives and the realities of what is either desirable or feasible in the field, if the objectives are over-influenced by Jakarta-based or international views.

The perceptions of the fires in South Sumatra differ widely depending on whether the stakeholder lives in a western country, Singapore, or Jakarta. The respective concerns may be: carbon emission and global warming; smoke haze and; a cause of reproach from neighbouring countries, or a new opportunity to share grants from foreign assistance (See box on next page).

Perceptions at field level are completely different. Farmers see wildfires as a threat to welfare as they may destroy their smallholding but there is also a fatalistic acceptance of their regular recurrence. In the coastal swamps *sonor* rice cultivation is viewed first and foremost as a potential source of income during a prolonged dry season, and not as a possible cause of wildfire and cross-boundary smoke haze. South Sumatra people are as a whole more directly concerned about drought and water or food shortage in *el Niño* years than in fire damage and related smoke haze problems.

Land-use, and the use of renewable resources in general - with their direct and associated fire risks - are shaped by local perceptions. These local views on the use of natural resources vary from place to place, but in most cases local perceptions are in-line with a wise management. They could well be used to serve national and international as well as local fire prevention goals.

⁵⁶ See MoE / UNDP (1998). Forest and Land Fires in Indonesia. Volume 1: Impacts, factors and evaluation. page 107.

Differing Views On Fires		
Level	Major concerns about fires	Priority areas for fire management in Indonesia
World	Loss of biodiversity, Carbon release (climate change)	Primary forests, Swamp* areas
Region (Singapore- Malaysia)	Haze pollution (public health, transport)	Swamp* areas in Sumatra eastern coast, Central and West Kalimantan
Country <i>Central government of Indonesia</i>	Threats to - International relations - Economic development (agriculture, forestry, transport, tourism) - Public health	Sumatra Kalimantan
Province <i>Provincial authorities of South Sumatra (Jambi, Riau, Lampung)</i>	Wildfires as a threat to economic development	Coastal swamps - degraded forests - grasslands Drylands - degraded forests - plantations
District (<i>kabupaten</i>)	as above	as above
Sub-district (<i>kecamatan</i>)	as above	as above
Village	Wildfires as a threat to plantations	

* including peat swamp

Shortcomings and outright failures in many sectors over the last twenty years have contributed to the number and severity of the vegetation fires throughout Indonesia. Wholly inadequate land management policies have been much to blame. If there is to be any improvement, then there must first be a genuine will, followed by rapid and decisive action to integrate fire prevention in to all decisions and activities that relate to land management. We see four principle steps as required to achieve this goal.

1. Support to village level institutions for land-management planning and fire prevention;
2. Develop mediation mechanisms to prevent and to solve conflicts related to land-use and land management;
3. Strengthen the capacity of the key land management agencies at provincial and district levels, and;
4. Prepare a fire management plan that limits fire risks in the coastal wetlands.

These four general recommendations are based on field-work in South Sumatra province. They are however, much more widely applicable and could be implemented with benefit throughout Indonesia. The same holds true of the majority of more specific recommendations that follow. Only those that relate to the cultivation of *sonor* rice have a more restricted geographical applicability.

Land Management and Fire Prevention at the Village Level

Village communities must be fully recognised as the dominant level in land management and fire prevention decision making. In most cases, the village is the only level where control and accountability for the use of natural resources are workable and where fire prevention, detection and suppression, are physically possible.

Cooperation between these village communities and the many other stakeholders (government administration, private or parastatal companies) is a prerequisite if land management and fire prevention is to be effective. This collaboration can not merely be called for only when fire problems arise. Neither can it be achieved by the creation of ‘co-operatives’ instigated from ‘the top’. It requires the participation of village communities in all decisions and at all times about the use of the indigenous natural resources. In this context, village (or inter-village) land management means that village stakeholders participate in the definition of objectives and in the design of the village land management plan, including consensus boundary setting.

Local NGOs assisted by Donor Project are probably best-placed to support the creation of village institutions, and strengthen existing ones, such as farmers groups, active in village land management and thus, in fire prevention.

There is a need to increase the awareness of local people not only about their land rights and about the options offered to them, but also about their duties in fire prevention.

The current development of farmers’ groups (KSKP), the revival of the *adat* groups, and the increasing activity of provincial NGOs, whose role is becoming more commonly accepted by local authorities, offer a positive environment in which to start ‘bottom-up land-use planning’.

Mediation Processes for Land Co-management

The co-management of land between local communities, the state and private companies will entail a revision of the boundaries of state forest lands at village level. Mediation procedures for consensus boundary setting need to be developed and tested in cooperation with BIPHUT and BAPPEDA II.

There is also a need to improve mechanisms to consult communities when decisions on land allocation are being taken by local government. As suggested by Potter and Lee (1998) intermediaries, including NGOs, should ensure that holders of large parcels of land engage in transparent discussions with people living in the area and that the system finally put in place is supported by the communities. (See also Gouyon, 1999).

Land Management at the Provincial and District Levels

As underlined in Chapter 3, significant benefits for fire prevention can be achieved by ensuring:

- that fire risks are taken into consideration in land-use planning and in the land

allocation process at provincial and district levels, [These include risks such as those linked to a particular environment (e.g. peat swamps, degraded forests, young plantations), those involved in large-scale change in land use, and those caused by particular agricultural practice (e.g. *sonor* rice cultivation)]

- a fair balance is observed between regional development objectives and the development priorities of communities, with this comes there is a greater transparency in the land-use decision-making process, and
- there is greater coordination between land management agencies, most notably the integration of forestry sector planning into regional planning.

The realisation of these objectives largely depends on greater political will and much needed policy changes. But it is also conditional on strengthened capacities and expertise at local level, and on the availability and then wise-use of accurate information. If the gap between policy as elaborated in Jakarta and the reality as experienced in the field is not bridged, there is a great risk that the reform process will abort or that the hastily implemented field programmes will perform poorly. Either outcome would lead to even greater distrust from provincial communities.

Our research shows that in South Sumatra, specific attention should be given to three courses of action.

■ Strengthening BAPPEDA's land-use planning capacity.

Discussions need to be held with BAPPEDA, BPN, BIPHUT / MoFEC to identify the most appropriate means to strengthen land-use planning capacity and thereby to ensure proper integration of fire risks into land-use planning in the province.

This will involve the provision of staff and training and the setting up of a provincial land-management data-centre at BAPPEDA that can map fire-risks (in particular the production of maps that identify peat areas). It is of major importance that the information produced by BAPPEDA is disseminated in a format that is appropriate to the needs of the users: over-complex information remains unused. (See also Schindler, 1999).

Priority should be given to integrating fire-risks into spatial plans for the Districts: especially those for OKI and MUBA that have large swamp regions.

BAPPEDA land-use planning models have been promoted in 18 provinces but not yet in Sumatra. As recommended by Scott and Lusli (1998), discussions should be held with the Directorate General of Planning Development (BANGDA). The aim would be to 'fast-track' the implementation of land-zoning and semi-detailed land-use planning that takes account of fire risk.

■ The integration of forestry planning into the provincial planning framework.

Every effort must be made to enhance the integration of the forestry sector into the provincial planning process under BAPPEDA. The need to make the IFRIS data-base more appropriate to the requirements for good regional planning has been voiced by Scott and Lusli (1998). The same authors also suggest that the Land-Use Planning Units to be established within MoFEC should be located at provincial level, i.e. with sub-BIPHUT rather than with BIPHUT, and that the approach to land-use planning should follow that of

BAPPEDA.

- Supporting extension staff in their work on participatory management of land and forest resources.

A most serious crisis of confidence exists among forestry extension workers who are ill-prepared to fill the new roles they are expected to play. Under the decentralisation policy, there is ample scope to strengthen the Forestry Extension Services by training agents in genuine participatory approaches. There is also a need to support the integration of the Service with other rural development activities carried out by the Agriculture and Estate Crops Extension services, and to develop links with NGOs.

The Coastal Swamp Regions of OKI and MUBA Districts

The coastal swamps that lie within the two districts are already degraded and under imminent threat of complete destruction. Urgent action is needed to:

- Limit the risk of recurrent peat fires linked to *sonor* rice cultivation in *el Niño* years.

A total ban on *sonor* rice cultivation is unrealistic, but ways to initiate control and to reduce the magnitude of *sonor* fires are possible.

- Promote awareness of the ‘*sonor* - fire’ link to enhance support and involvement. Target groups are: provincial and local governments to ensure political support; agriculture agencies to stimulate involvement; informal and formal leaders who organise and sponsor *sonor* activities, and; local communities.
- Identify key agencies to ensure that *sonor* cultivation and associated activities are monitored and coordinated within the agriculture services. (Dinas Pertanian, the network of agriculture extension workers, BIMAS⁵⁷, etc.) and other local government agencies (e.g. BAPPEDA at District level⁵⁸).
- Provide support to map the occurrence of fires in *sonor* areas - using 1997 and future NOAA data from ENSO years in conjunction with field checks.
- Identify those areas where *sonor* can be practised with a limited risk of fire escape and areas those where the practice should be prohibited, i.e on lands adjacent to deep peat.
- Establish a network of informal leaders who are involved in *sonor* activities.
- Support initiatives to develop alternative cultivation methods, e.g. permanent wet-rice cultivation.
- Prepare a fire management plan for the coastal swamp region.

⁵⁷ Discussions with the Secretary of BIMAS (Agricultural Credit and Marketing Service) indicated that BIMAS - directly responsible to the governor and involved in organizing the transport of harvested *sonor* rice - may be able to play a role in coordinating efforts to control *sonor* activities.

⁵⁸ BAPPEDA Tk. II OKI has recently attempted to produce a tentative map of *sonor* areas based on information provided by agricultural extension workers.

The uncontrolled logging of, and ill-planned drainage in, the coastal peat swamp region promote large-scale fires. It is recommended that:

- A specific fire management plan is drawn-up as a matter of urgency for the last remnants of peat and non-peat swamp forests in good condition that remain in the southern part of Sumatra⁵⁹. The plan should integrate both conservation objectives and the needs of local communities. The area in need of conservation is located in the logging concessions adjacent to the proposed Sungai Sembilang National Park (currently 156 000 ha, mostly mangrove forest).
- Fire prevention measures in the planned HPHTI plantation on drained peat swamp are carefully re-assessed and strengthened.

The dangers of embarking on rehabilitation programmes in burned forest concessions without taking into consideration the reasons that underlie the causes of the original wildfires are stressed. In both swamp and in dryland areas rehabilitation programmes that do not answer the short- and long-term needs (in particular land-rights) of the people are doomed to be destroyed by fire. This is particularly true in the new climate of '*reformasi*' and the upsurge in claims on land and natural resources.

⁵⁹ Including 49 000 ha formerly included in Terusan Dalam Nature Reserve which were excised in 1988 and granted to forest concessions PT. Sukses Sumatera Timber currently co-managed by Inhutani V and PT. Riwayat Musi Corp.

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6. ABBREVIATIONS AND ACRONYMS

BAL	Basic Agrarian law
BAPEDAL	Badan Pengendalian Dampak Lingkungan (National Board for Environmental Impact Management)
BAPEDALDA	Badan Pengendalian Dampak Lingkungan Daerah (Regional Board for Environmental Impact Management)
BAPPEDA	Badan Perencanaan Pembangunan Daerah (Regional Development Planning Board)
BAPPENAS	Badan Perencanaan Pembangunan Nasional (National Development Planning Board)
BFL	Basic Forestry Law (Undang-Undang Pokok Kehutanan)
BIMAS	Bimbingan Masyarakat (Agricultural Credit and Marketing Service)
BIPHUT	Balai Inventarisasi dan Pemetaan Hutan (Forest Inventory and Mapping Office)
BNP	Badan Pertanahan Nasional (National Land Agency)
BPS	Biro Pusat Statistik (Central Statistical Office)
Bupati	Head of kabupaten (District)
Camat	Head of kecamatan (sub-District)
CDK	Cabang Dinas Kehutanan (Regional Forestry Service on district level)
CIFOR	Center for International Forestry Research
Desa	Administrative village unit, sub-division of rural sub-districts
Dinas	Service Departments at Province level or below
DPRD I	Provincial Assembly of People Representatives (Legislative Council)
DPRD II	District Assembly of People Representatives
ENSO	El Niño-Southern Oscillation
EUFREG	European Union Fire Response Group
FAO	Food and Agriculture Organization of the United Nations
FIMP	Forest Inventory and Monitoring Project (European Union Project)
GIS	Geographic Information System
Hak Milik	Right to full ownership of land
Hak Pakai	Right to use land
HGU	Hak Guna Usaha (Right of exploitation)
HPH	Hak Pengusahaan Hutan (Forest Concession Right)
HPHTI	Hak Pengusahaan Hutan dan Tanaman Industri (Utilisation Right for Industrial Forest Plantation)
HTI	Hak Pengusahaan Hutan Tanaman Industri (Industrial Forest Plantation)
IMF	International Monetary Fund
INTAG	Direktorat Jenderal Inventarisasi dan Tata Guna Hutan (Directorate General of Forest Inventory and Land Use)
IFRIS	Indonesia Forest Resource Information System
IPK	Izin Pemanfaatan Kayu (Timber usage licenses)
Kabupaten	District
Kades	Kepala Desa (Village head)
Kantor Pertanahan	Land Office at city/district level
Kanwil	Kantor Wilayah (Regional Office)
Kepmen	Keputusan Menteri (Ministerial Decree)
Kpts	Keputusan (Decree)
Marga	Clan settled over a defined territory, also the administrative village unit in use in South Sumatra prior the early 1980s
MoE	Ministry of Environment
MoF	Ministry of Forestry (before May 1998)
MoFEC	Ministry of Forestry and Estate Crops (since May 1998)
MPR	People's Consultative Assembly
MUBA	Musi Banyuasin (name of a District in South Sumatra)
MURA	Musi Rawas District
NES	Nucleus Estate and Smallholder scheme
NGO	Non-Government Organization
OKI	Ogan Komering Ilir (name of a District in South Sumatra)
PHPA	Perlindungan Hutan dan Pelestarian Alam (Forest Protection and Nature Conservation, Department of the MoFEC)

PIR or PIR-Bun	Perusahaan Inti Rakyat Perkebunan (a package program specifically intended to develop the potential of smallholders)
PMDH	Pembinaan Masyarakat Desa Hutan (Community Development of Forest Village)
PP	Peraturan Pemerintah (Government regulation)
PPL	Penyuluh Pertanian Lapangan (Field Extension agents of MoA)
PSDA	Provisi Sumber Daya Alam (National Forest Resource Contribution)
PSDH	Provisi Sumber Daya Hutan
PT	Perseroan Terbatas (Limited Liability Company)
RRL	Land Rehabilitation and Soil Conservation
RSTRP	Rencana Struktur Tata Ruang Propinsi (Provincial Structure Map)
RSTWP	Rencana Tata Ruang Wilayah Propinsi (Provincial Spatial Plan)
RTRWK	Rencana Tata Ruang Wilayah Kabupaten (District spatial plan map)
RTRWP	Rencana Tata Ruang Wilayah Propinsi (Provincial spatial plan map)
SK	Surat Keputusan (Decision Letter)
TGHK	Tata Guna Hutan Kesepakatan (The Forest Land Use Plan)
TJTI	Tebang Jalur Tanam Indonesia (logging and planting system with use of strip clearings)
UNDP	United Nations Development Programme
UU	Undang-Undang (Laws)
UUPA	Undang-Undang Pokok Agraria (Basic Agrarian Law)
WALHI	Indonesian Environmental Forum

Annex I: NATIONAL AND REGIONAL LAND MANAGEMENT INSTITUTIONS

Planning in all sectors is directly and tightly controlled by the President.

The Ministry of State for National Development Planning

The principal duties of the Ministry of State for National Development Planning are based on Presidential Decree No. 44/1993 that deals with the position, main duties, functions, organizational structure and the working organization of all Ministers of State. The Ministry formulates national development planning policies and coordinates the planning activities of all government institutions within a comprehensive framework of programme implementation.



The Ministry is specifically charged with coordinating the activities of the National Statistics Bureau (BPS) and the National Coordinating Agency for Survey and Mapping (BAKOSURTANAL) as they relate to national development planning. The activities of the National Development Planning Board (BAPPENAS) are also supervised and monitored by the Ministry.

The National Development Planning Board, BAPPENAS

The functions of BAPPENAS are laid out in Presidential Decree No. 35/1973, as variously amended in Presidential Decree No. 19/1983, Presidential Decree No. 7/1988, and No. 73/1993.

In essence it is the duty of BAPPENAS is to formulate short-medium-and long-term national development plans. The Board in agreement with the Ministry of Finance also has to harmonize sectoral and regional proposal plans and then reconcile these with the State Budget. Policies that guide the receipt and use of foreign loans and assistance are also made by BAPPENAS. Further information can be found on <http://www.bappenas.go.id/html>

The Regional Development Planning Board, BAPPEDA

The regional wing of BAPPENAS is the Provincial Development Planning Board (BAPPEDA) that operates under the control of the governors of the various provinces. BAPPEDA issues directives on land allocation (e.g. for forestry, agriculture, mining, etc) in line with its provincial spatial planning function.

The National Land Agency, BPN

The President is assisted in his control of land matters by the National Land Agency (BPN) which answers to the President and the State Ministry of Agrarian Affairs. The State Minister of Agrarian Affairs is appointed by the President and receives from him instructions in land policy matters (Presidential Decree No. 44/1993). The State Minister is also automatically the head of BPN, and is a member of BAPPENAS.

The Ministry coordinates agrarian policy formulated by BPN who is in charge of land registration, cadastral surveys, land measurement, land-use mapping, land certification and the granting of land.

At the provincial level, Kanwil BPN is under the Governor (operating within the decentralized system) and is divided in four sections that deal with land ownership, land-use planning, land-rights, and land measurement and registration. Kanwil BPN is assisted at the district level by Land Offices (Kantor Pertanahan).

The Ministry of Forestry and Estate Crops, MoFEC

The Ministry of Forestry and Estate Crops controls 70 percent of the country's land and thus has great potential influence on the prevention and management of vegetation fires. The Ministry is divided in to five Directorates-General, (i) Forest Utilization, (ii) Reforestation and Land Rehabilitation, (iii) Inventory and Land-Use Planning, (iv) Forest Protection and Nature Conservation, and (v) Estate Crops, together with a Secretariat-General and an Inspectorate-General.

The State-Owned Forest Enterprises Inhutani also lie within MoFEC. There are six, each of which operates in a different province or provinces: Inhutani I, East Kalimantan; II, West Kalimantan; III, Central Kalimantan; IV, Aceh, Riau, West Sumatra and North Sumatra; V, Jambi, South Sumatra, Bengkulu and Lampung, and; VI, Sulawesi. An equivalent enterprise, Perum Perhutani, operates in Java.

MoFEC plays two distinct roles. As the Forest Authority it is responsible for licensing forest exploitation and for policing the activities of the licensees. In this MoFEC has to enforce the New Forestry Law 1999 and be relatively inflexible, operating straightforward procedures and enforcing regulations without favour or discrimination.

As the overseer of the Inhutani, MoFEC finds itself responsible for companies that perform a large number of different activities, e.g. logging, reforestation, transmigration, agroforestry, etc. which require efficient and flexible, but at all stages, accountable management.

The two roles are in many ways incompatible as MoFEC is called up on to control itself. That it has not always done so, has had a strong negative impact on the quality of forest-land management in Indonesia.

At Province level two Forestry Offices work side by side.

- Kanwil Kehutanan dan Perkebunan is the provincial office of the MoFEC that is responsible for policy making.

- Dinas Kehutanan Tingkat I (Provincial Forest Services) is also under MoFEC but is responsible for the field implementation of policies.

Dinas Perkebunan Tingkat I, the Provincial Plantation Service, also operates within the province as part of the decentralized system.

At District (Kabupaten) level, the Forestry and Plantations Services, Dinas Kehutanan Tingkat II and Dinas Perkebunan Tingkat II, are under the authority of the Head of District. Kanwil is not represented at District level.

The Provincial Government has its own budget but as between 70 and 90 percent of this is contributed by central government and is designated for specific purposes, there is limited scope for decision-making at this level.

The Ministry of State for the Environment, BAPEDAL

The Ministry of Environment has a limited remit. It formulates environment policies, e.g. pollution control, and is in-charge of fire prevention and disaster management.

The Environmental Impact Management Agency (BAPEDAL) is directly subordinated to the President, and deals mainly with pollution issues, although it also has the major interest in fire damage and environmental rehabilitation schemes.

BAPEDAL is represented at provincial level by a regional office (BAPEDALDA) that supports local government. In Palembang, South Sumatra, it is a new office with limited means.

The Ministry of Transmigration and Forest Squatters Resettlement

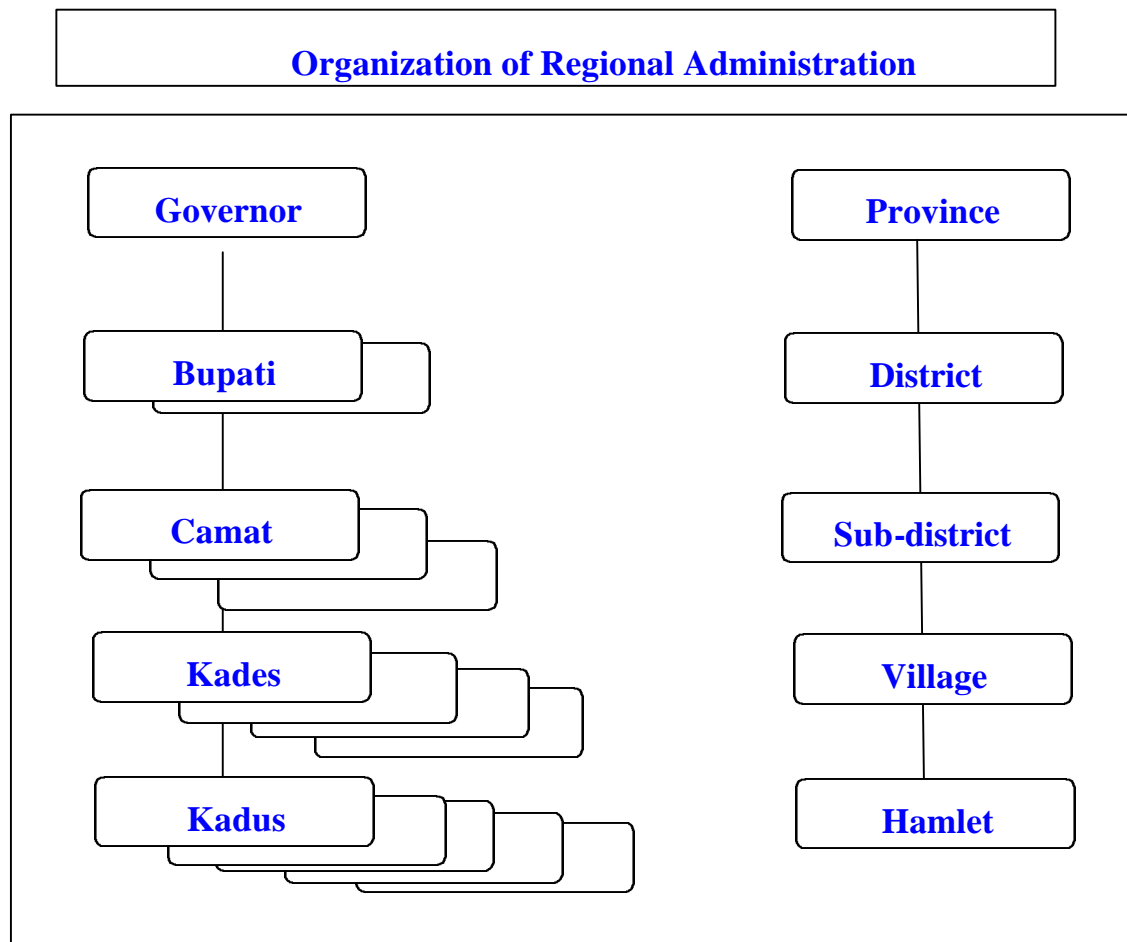
The Ministry of Transmigration and Forest Squatters Resettlement is powerful and manages large transmigration programme projects supported by the state and donors, e.g. the World Bank.

The government gave high priority to transmigration programmes within Repelita I (1970 - 1974), Repelita II (1975 - 1979) and Repelita IV (1985 - 1990) when hundreds of thousands of families a year were resettled. Current numbers are only 50 000.

The Ministry of Agriculture

The main job of the Ministry of Agriculture is to manage the tasks of government and to formulate policy. It is also charged with developing production, extension and processing methods in the fields of general agriculture, agri-business, fisheries and livestock. Although the Directorate-General of Food crops and Horticulture is involved in land rehabilitation and land development, land management is not a major responsibility of the Ministry.

Institutions at Province Level



Under the control of Ministry of Interior, the Governor and Bupati are elected respectively by the Regional Assembly of People Representatives (DPRD I) and the District Assembly of People Representatives (DPRD II). The head of District (Bupati) appoint the heads of sub-districts (Camat). The villagers in turn elect the head of village (Kades) among candidates officially designed.

Deconcentration and decentralization: two overlapping systems

The administrative divisions: The Republic of Indonesia is divided into 27 Regions, that correspond exactly to the 27 Provinces.

The First Levels of the Regions (Daerah Tingkat I) are subdivided into Second Levels (Daerah Tingkat II). The 'Provinces' (Propinsi) are subdivided into Districts (Kabupaten). The Second Levels of the Regions and Districts (Kabupaten) also coincide perfectly.

The Third Level covers the same geographical area as the Sub-District (Kecamatan) and forms the link between the Village Level and the Second Level.

Since 1979, the Village Government Law Number 5 (UU 5/1979) allows the government to control villages whenever needed by replacing their elected village heads with appointed state staff.

Below the Village Level, there is the Hamlet Level (Dusun).

The Indonesian administrative structure at Regional/Province levels is characterized by a double system, that overlaps. The Region has an autonomous administration but the national administration has its own line agencies inside the different administrative levels of the Province. Decision making processes are therefore complicated. Development planning and investment are still highly centralized, the Government is gradually embarking on a process of decentralization.

Until the 1960s, the positions of Governor and Head of Region were held by two different people. Act 5 of 1974 defined the, 'principles of Administration in the Regions' and to integrated the two systems, (the autonomous Region and the Province), and one person acts simultaneously as Head of the Region and as the Governor. The Governor is the administrator of the Province on behalf of the Central Government.⁶⁰

Deconcentration within the Province (dekonsentrasi). Deconcentration is the delegation of authority from the Central Government to the Governor's Office, and from the Governor's office to the Head of District (Bupati). Governor and Bupati at their levels are in charge of the implementation of the laws and regulations issued by the Central Government. Within the deconcentration system, the Governor and the Bupati are the representatives of the Central Government (Ministry of Interior) at Province level and District (Kabupaten) level.

Decentralization within the Region (desentralisasi). Decentralization is the devolution of authority from the Central Government to the Regional Government and also from the Regional Government to the District Government. The Regional government, as well as the District Government at its level, produces regional regulations and policies in coherence with the national regulations.

The Regional Government has its own budget which relies on central Government for 70 to 90 percent of its monies. As this contribution is designated for specific purposes, decision-making at Provincial level is limited.

Overlapping systems

At Province/Region level two Forestry Offices work side by side :

- *Kanwil Hutan* under the Ministry of Forestry and Estates Crops (deconcentration system), is the Provincial MoFEC Office, responsible for policy making.
- *Dinas Kehutanan Tingkat I* is the Regional Forest Service and is responsible for field implementation. *Dinas* belong to the decentralized system.

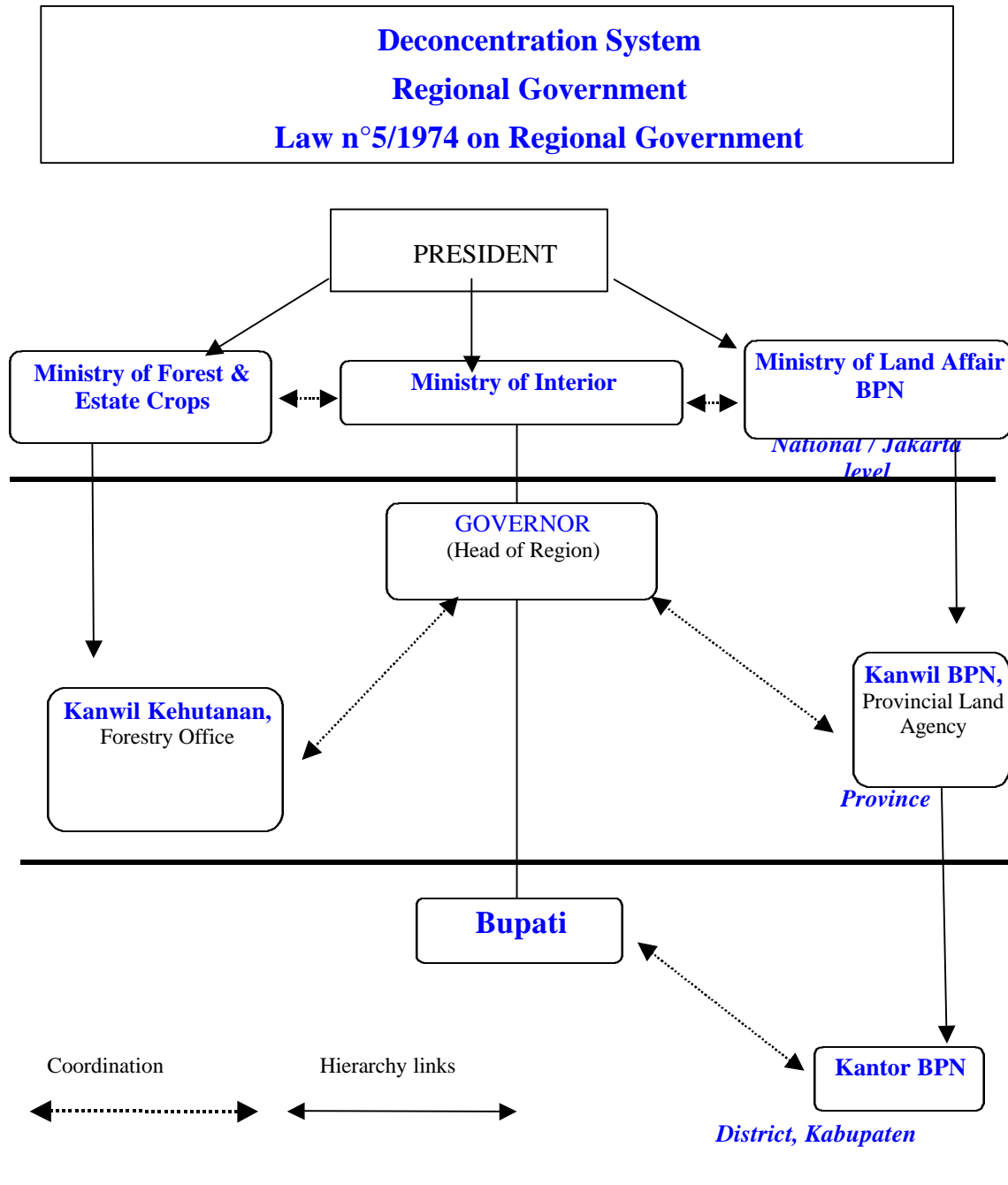
There is also a *Dinas Perkebunan Tingkat I* (Plantation Service).

At District (Kabupaten) Level, both the Forestry and the Plantations Services (*Dinas Kehutanan Tingkat II* and *Dinas Perkebunan Tingkat II*) are under the authority of the Head of District. Kanwil is not represented at District level.

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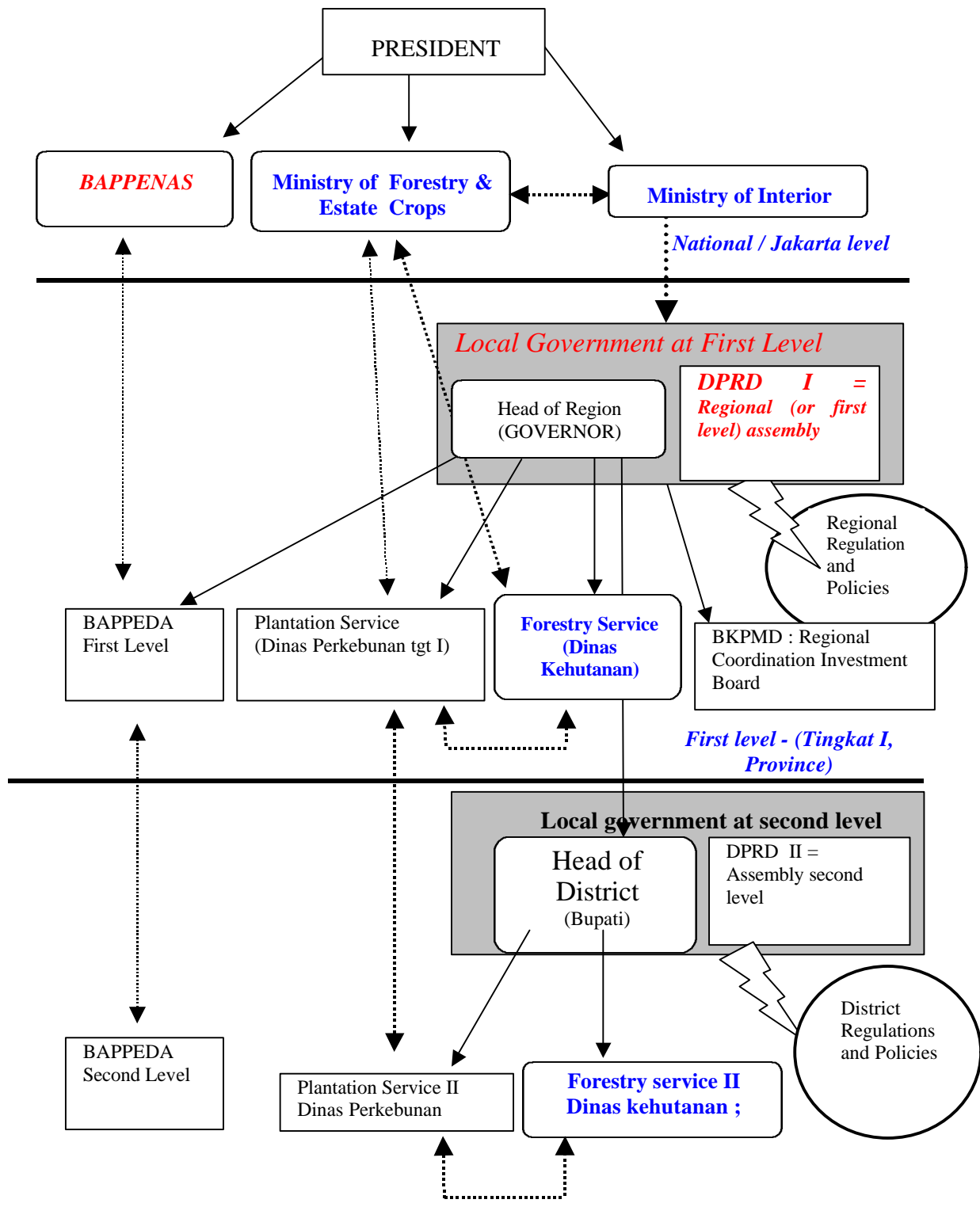
"Jan Michiel Otto, 1997. Implementation of environmental law: harmonisation , environment management and enforcement by the courts, with references to Indonesia and the Netherlands, *Indonesian Journal of environmental law*. Page 41."

The similarities and differences between the decentralization and the decentralization system are shown diagrammatically on the following two pages.



Decentralization System

According the law N°5 1974 on Regional Government



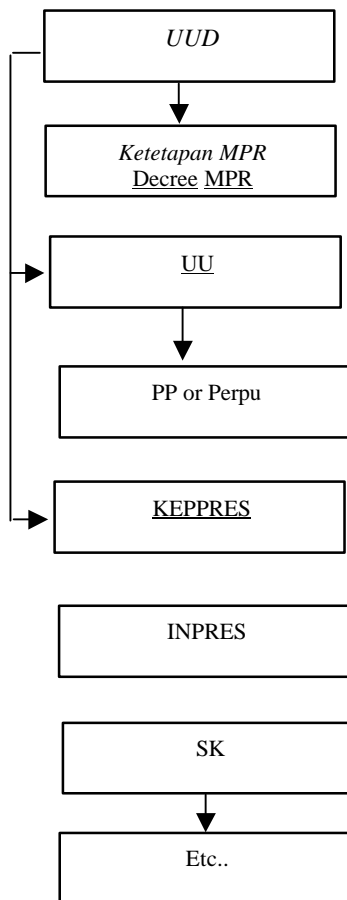
Annex II. LEGISLATION

AII. 1. Forms of Laws and Regulations in the Forestry Sector

The forms of laws and regulations used to administer the legislation on land management and forestry issues are outlined with particular reference to the Basic Agrarian Law of 1960, and more especially to the Basic Forestry Law of 1967 and its replacement, the New Forestry Law of 1999. It should be noted that commercial oil palm and rubber estates are managed under a Plantation Business License (*Izin Usaha Perkebunan*, IUP) which is granted by either the minister or a province governor depending on the size of the area. These regulations, of which Ministerial Decree No. 107/Kpts-II/99 (3 March 1999) is the latest, are not dealt with here.



Laws and Regulations Issued at National Level



Undang-Undang Dasar 1945 are the statutes of the 1945 Constitution on which the laws are based.

UUD can be implemented through decrees issued by the People's Consultative Assembly (*Ketetapan MPR*).

They can also be implemented by statutory laws (*Undang-Undang*) such as the Agrarian Law and the Basic Forestry Law which are promulgated jointly by the President, the People's Consultative Assembly and the House of Representatives.

Government regulations (*Peraturan Pemerintah*) aim to implement statutory laws (UU). They are prepared by the executive bodies in Ministries, signed by the President and promulgated by the State Secretariat. *Perpu* is a government regulation to replace a regulation.

UUD can be implemented also by a Presidential decision Keppres (*Keputusan Presiden*).

procedures.

An SK (*Surat Keputusan*) is a decree. It can be issued by Ministers, who, in turn, may delegate to Directors General, specific regulatory capacity to issue decrees. These decrees are detailed documents on

Indonesian laws are based on the 1945 Constitution. According to the constitution, branches of production which are important for the State and which affect the lives of most people are controlled by the State and must be used for the greatest welfare of the people. Land, water and the natural riches therein shall be controlled by the State. Article 33 provides the basis for state control and exploitation of resources on Forest Lands. Accordingly, the government manages the nation's forests by the provisions and implementing regulations of the Basic Forestry Law of 1967 (*Undang-Undang Pokok Kehutanan No. 5/1967*).

The procedures for rule-making within the Ministry of Forestry are defined in the Minister of Forestry SK No. 12/1984, 'Guide for the preparation of laws, regulations and decisions in the Department of Forestry'. The Basic Forestry Law delegates authority over forest to the then Ministry of Forestry, now the Ministry of Forestry and Estate Crops (MoFEC).

MoFEC issues SKs (Ministerial Decisions). The draft SKs are usually prepared by appropriate technical staff with the assistance of the Directorate's legal staff and the Bureau for Legal and Organization matters (*Biro Hukum dan Organisasi*) which is under the Secretariat General. An inter-directorate or inter-departmental team is set up when an SK involves different Directorates or another Government Department.

However, because of lack of coordination in the rule-making process, SKs may overlap or contradict each other. Presidential Instruction Programs (INPRES) can also overlap with SKs. A listing of supplementary regulations and decrees that relate to vegetation fires is given in the last section of this annex.

Regulations Issued at Provincial Level

Some SKs issued by Directorates General delegate authority to regional forestry department offices (*Kantor Wilayah*), while others (UU and PP) may also delegate authority to the Province Heads who control the provincial Forestry Services (*Dinas Kehutanan*).

AII. 2. The Forestry Laws

The 1967 Basic Forestry Law

The BFL of 1967 consisted of eight chapters that covered the definition of 'forest', planning, administration, management, production, conservation and security.

Article 5 defined the role of the government in forest management as, "The government determines the use of forests according to the interest and benefit of the state and population, the government determines the legal relationship between people and legal entities with forests".

Forest Lands (Kawasan Hutan)

Article 7 was the basis for land to be registered officially as Forest Lands, i.e. as state-controlled land. The Forest Lands are, "Special areas maintained as permanent forest by Ministerial Decree". Deforested lands can be included in forest areas provided that reforestation is planned.

Permanent Forest Areas (Kawasan Hutan Tetap)

The Permanent Forest originally fitted into one of has four categories: Protection Forest (*Hutan Lindung*), Production Forest (*Hutan Produksi*), Nature Conservation (*Hutan Suaka Alam*) or Recreation Forest (*Hutan Rekreasi*). Subsequent SK regulation established a category of Production Forest Convertible to Non-Forest Uses (*Hutan Produksi yang dapat di Konversi*).

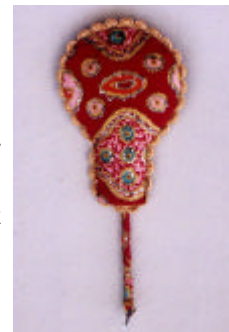
Procedures for forest land planning and classification

All the procedures are top-down and the administrative approach does not allow much involvement of local people and populations. Regulations provide guidelines for forest policy and planning processes. These guidelines are divided into five steps: (i) inventory and survey (ii) preparation of a general plan (iii) preparation of a forest-area boundaries-setting plan, (iv) preparation of a forest land-use plan, and (v) preparation of forest management-plans.

SK 837/1980 of the Minister of Agriculture details procedures to classify Protection Forest areas⁶¹. The classification is based on a scoring system. Three basic factors are evaluated for each area: (i) slope, soil (type and erosion potential), (ii) and rainfall. A score 1 to 5 is given to each factor. The three figures are then weighted and added to give a single score for the area. Decisions about forest classification are made by comparing the score obtained again on index: if the score is over index ‘A’ the land is classified as Protection Forest; between ‘B’ and ‘A’ as Limited Production Forest, and; under ‘B’ as Unlimited Production Forest. Nature Reserves and Recreation Forests are established by following a separate set of technical and other criteria.

In 1980 the Directorate General of Forestry initiated the process of the ‘Consensus Forest Land Use Plan’ (*Tata Guna Hutan Kesepakatan* – TGHK). The process is a set of rules and guidelines to assign Forest Lands into Production, Protection, and Reserve Forest categories and to determine which areas are to be classified as Permanent Forest and those that can be converted to agricultural and other uses⁶². Here, the term ‘consensus’ means agreement among the different state agencies at the provincial and national levels, and does not imply the participation of the local population.

A draft TGHK at province level was prepared jointly by the Provincial Forest Service (Dinas Kehutanan) and the Regional Forest Mapping and Inventory Center (BIPHUT). The draft was then discussed among all provincial level agencies concerned with land-use. Once a consensus was reached, it was approved by the Governor and sent to Jakarta for approval by the Ministry of Forestry. The TGHK then became the official plan and a map was issued showing the delineation of all forest areas in the province together with those of the various sub-classifications; it was accompanied by a supporting explanatory document. No village people participated.



⁶¹ The Minister of Forestry was created in 1983. Previously, forestry was a Directorate General within the Ministry of Agriculture.

⁶² Charles Victor Barber ‘The Legal and Regulatory Framework for Forest’, in Ch. Zerner, ‘Legal Options for the Indonesian Forestry Sector’, Indonesia Forestry Sector Development Planning Project, MoF-FAO, 1990.

Some limited reform was seen when the new Ministry of Forestry and Estate Crops under pressure from NGOs and academics issued a decree on Community Forestry (SK. 677 *Hutan Kemasyarakatan*) in October 1998 to provide guidelines to allow communities to exploit their forests.

The New Basic Forestry Law 1999

A New Basic Forestry Law (NEW BFL) of fourteen chapters was approved by The House of Representatives on 15 September 1999, was signed by the President on 30 September. It replaces the 1967 law.

Written in the context of the post-Soeharto reform area, Article 2 stipulates that forestry implementation shall be based on equity, transparency, integration and sustainability.

However, the new law does not modify the statute that enforces total state control over Forest Land: “The designated and/or established forest area based on the prevailing legislation rule prior to the issuance of this Act shall be considered approved and established as forest area based on this act. ” (Transitional Provision Article 51)

Different articles re-affirm the state control over Forest Lands:

- “All forests, including its natural wealth, that are located in the jurisdiction of the Republic of Indonesia, is controlled by the state for the maximum prosperity of the state”. (Chapter 1, Part 3)
- “State’s control over forest resources as referred to in paragraph (1) [above] grants the authority to the government to: (a) regulate and take care of all issues related to forests, forest areas and forest products, (b) decide a status of certain areas as forest area or non-forest area, (c) regulate and stipulate the legal relations between man and forest and regulate all legal conducts pertaining to forestry”. (Chapter 1, Part 3)
- “This effort also aims to protect and to maintain the government’s rights on forest and its products”. (Chapter VII, Forest Protection, Article 33)
- “No one/any other parties shall be allowed to: a) cultivate and/or use and/or occupy illegally a forest area”. (Chapter VII Forest Protection, Article 35)
- “State forest shall mean a forest situated on a state’s land, including forests with prior ownership by traditional community law, namely Regional Forest, District Forest and many other terms. The inclusion of forest with prior ownership by traditional community law into State Forest is due to the consequence of ownership rights by the state as the top power organization of the entire community, and due to the Union State of the Republic of Indonesia principle”. (Clarification on the Bill of Republic of Indonesia Year 1999, draft)

This is the same paradigm expressed in the BFL. ‘Traditional bias’ and old concepts about the attitude of local communities recur. “Forestry extension shall be intended to increase the knowledge and skill and to change the mental attitude of the communities so that they shall be capable to support the forestry development and be aware of the importance of forest resources to human life”. (Chapter IX, Education, Training and Forestry Extension, Article 43)

There also appears to be no immediate intent to resolve the problems caused by diffusion of function by the existence of Kanwil Kehutanan dan Perkebunan within a province, BFL 1999 makes no stipulation and UU 22/99 regarding local Government appears to remain valid.

The new BFL does however introduce opportunities to increase the participation of the local population:

- “State forest as referred to in paragraph (1) can be in the form of ‘adat forest’. (Article 5 (2))
- “Government stipulates forest status referred to in paragraphs (1) and (2): and adat forests is guaranteed as long as such traditional law is prevailing and its existence is officially recognised. ” (Article 5 (3))
- “...when adat law is no more existing, management right shall be returned to government. ” (Article (4))
- “Forestry plan arrangements shall be implemented based on inventory results by considering the community’s aspiration and the respective parties involved in forestry development and environmental factors.” (Chapter IV, Forestry Planning System, Article 21, Forestry Plan Arrangement)
- “However, the inclusion of forest with prior ownership by traditional community law into state forest as defined under Basic Provisions on Forestry, shall not erase the rights of traditional community law based on its existence to harvest forest yields/products. It still also has the opportunity to obtain the Rights of Forest Utilization or Rights of Forest Yields Harvesting” (Clarification on the Bill of Republic of Indonesia Year 1999, draft)
- “(1), A Traditional Law Community as it shall exist and be recognized shall have the rights to harvest forest products within the forest area determined by the government. (2), The recognition of traditional law community existence shall be conducted by the head of the local village.” (Chapter XI Traditional Law Community, Article 46)

Nevertheless, these opportunities are restricted and will be tightly controlled by the Minister, whose approval will be required for formal recognition of Traditional Law Communities. The concept of ownership rights is also, restricted in that most of the local population do not possess land ownership certificates.

Only one article (Chapter 5, Article 48 (6)) deals specifically with forest fires. “The holder of right or license shall be responsible for forest fires occurring in its working area”. It remains to be seen how the words, “responsible for” and “forest fires” are interpreted in the expected Government Regulations (*Peraturan Pemerintah*) and by the Courts.

Conclusions

The government regulatory framework was established to favour timber production to supply the Indonesian wood industry. Seventy percent of the land in Indonesia is now classified as Forest Lands and the people living in the forest zone have been deprived of

their rights. They can be evicted legally at any time by the forest administration. This is a source of conflict between the people and the forest administration.

The new BFL has been prepared in a political context of reform with input from groups of foresters, lawyers and scientists. Although it does not modify the statute of the Forest Lands open possibilities for local people to be involved in forest management and forest production. In this context it is worth noting that the new BFL states that, "Government means central government". This phrase does not exist in BFL 1967 and is thought to anticipate the decentralisation of forestry affairs, and to differentiate central government from local governments.

Revision continues and new guidelines and regulations are to be issued for implementing the new law. Their content will depend on the post-November 1999 political context in Indonesia. If reform is to prevail, significant improvements can be expected. But there is a risk that the new BFL will be interpreted in a way that will allow the timber industry to run 'business as usual' until the forest disappears. If this happens, social conflict at local level will increase and become even more difficult to handle.

AII. 3. The 1960 Basic Agrarian Law

Around half the land in South Sumatra Province is classified as Forest Land and is thus administered under the Basic Forestry Law; the other half falls under the Basic Agrarian Laws No.5/1960.

The state controls land under the Basic Agrarian Law (BAL) based on the concept that land has a social function as it provides both food and clothing.

Sixty-seven articles cover all aspects of land-use (i.e. rights to land, water and space, land registration, penal provisions, transitional provisions). In theory, traditional local (*adat*) rights acquired prior to its promulgation are recognised; otherwise BAL takes precedence over *adat*. (The Basic Forestry Law of 1967 did not recognise *adat*).

Land rights

There are three major types of land rights recognised under BAL: *hak milik*, *hak guna usaha* and *hak pakai*.

Hak milik is an individual land property right granted in perpetuity under BAL and the owner can lease the land to others. The total land owned by a household can not exceed 22 ha. Only Indonesian nationals and statutory bodies (*badan hukum*) appointed by the government (e.g state banks, agro-cooperatives, religious and social non-profit making organisations) may acquire *hak milik*. This right should be registered and the holder given a certificate: in practice few smallholders in South Sumatra have registered rights (see Table AII.1).

The right of exploitation *hak guna usaha* (HGU) is the right to use state land for agriculture, fisheries, etc. Large company plantations are operated under an HGU that is granted for 25 to 35 years and can be extended for a further 25; a *de facto* 50 or 60 years. An HGU can be acquired by Indonesian nationals and by statutory bodies established under Indonesian law and domiciled in Indonesia. No maximum land area is specified but

the right must be recorded at the Land Registry Office. Land registered under HGU can be used as security for a mortgage and may be transferred to other parties – by sale, exchange or gift - with the permission of BPN.

Hak pakai gives the holder the right to use a particular area of land that is held in either in state or private ownership. In practice, the right is scarcely used for private land since other titles, such as the right of lease or the right of land-pledging, play a greater role. *Hak pakai* is time limited and, in principle, can be transferred when no other regulations apply. Resident foreigners and foreign corporations with representatives in Indonesia can be awarded *hak pakai*. The right for private land to be registered is not realized as the implementing regulations do not exist.

Of the remaining two land titles, *Hak guna bangunan* is a title on land which gives its holder a right for a fixed period of time, on a construction built on land owned by another party, while *Hak Penggunaan lain* are rights of lease, share-cropping, lodging, land-pledging, etc.

Table AII.1. Land titles issued by the National Land Agency in South Sumatra from 1961 to 31 March 1999

Land titles	Number of certificates issued	Area (ha)	% of province area
<i>Hak milik</i> Right of ownership	669 290	340 014	3.3
<i>Hak guna usaha</i> Right of exploitation	86	363 123	3.5
<i>Hak pakai</i> Right of use	57 891	40 836	0.4
<i>Hak penggunaan lain</i> Other kinds of rights	128	39 107	0.4
<i>Hak guna bangunan</i> Right of building	45 546	6 227	0.06
Total	772 941	789 308	7.66

Source : BPN Propinsi Sumatera Selatan, April 1999. “Rekapitulasi penerbitan sertipikat, dari tahun 1961 s/d 31 maret 1999”

AII. 4. Supplementary Regulations and Decrees Related to Vegetation Fires

At the time of writing in September 1999 these supplementary regulations and decrees are believed to remain in-force despite the passing of the New Basic Forestry Law. It is however, known that a number of government committees are engaged on drafting guidelines and procedures designed to clarify the workings and applications of the New Law. It is likely that when they are published that some of the old decrees will be annulled or modified.

State Regulation on Forest Planning PP Number 33/1970. Mandates the spatial planning

and demarcation of the functional categories of forest together with an inventory and survey of resources for use and conservation. Precedence is given to conservation over utilization in all cases where demarcation is not yet determined.

State Regulation on Forest Protection PP Number 28/1985. Primary responsibility is given to the provinces to prepare regulations to prevent and suppress forest fires, and to provincial forestry officers to protect areas in and around the estate. It is the responsibility of the local population to take part in prevention and suppression of forest fires, but the false assumption that no people live inside but only around the forest is perpetuated.

Decree of the Minister of Forestry Number 195/Kpts-II/1986. Directives on the prevention and control of forest fires. Prevention and management of forest fires (PPKH) should be founded in local regulations as stipulated in Paragraph 10 of the above regulation. Provides guidelines to local governments to formulate local regulations on the prevention and management of forest fires.

Presidential Decree Number 43/1990. On the establishment of Bakornas PB (National Coordinating Board on Disaster Management) as an extra-structural organization at the national level. Major forest fires can be declared a national disaster.

Guidelines for the Protection of Utilization Forestry Number 523/Kpts-II/1993. Each concession holder is made responsible for the organisation and equipping of a patrol and protection unit (*Satpam PH*), appropriately funded and competently staffed according to the size of the concession.

Decree of the Minister of Forestry Number 677/Kpts-II/1993. On the establishment of an Echelon III Sub-Directorate of Forest Fire under the Directorate General of Forest Protection and Nature Conservation. Describes the tasks and authority of the Sub-Directorate.

Decree of the Director General of Forest Protection and Nature Conservation Number 243/Kpts/DJ-VI/1994. On fire prevention and control in forest concessions. After a fire, the area burnt, economic and ecological losses and rehabilitation costs must be estimated.

HPH/HTI companies and state-owned enterprises must establish a fire control centre and reduce controlled burning in land clearance. The size of fire control teams is specified. If license holders do not carry out fire control, the services provided by all forestry institutions will be halted. The size of financial penalties for failure to rehabilitate burned areas is specified.

Decree of the Director General of Forest Protection and Nature Conservation Number 244/Kpts/DJ-VI/1994. On technical guidelines for forest fire control. Requires companies to provide transport, fire fighting kits, communications and food, as well as firefighting teams and command posts near the fire areas. Firefighting tools are described, as are supporting machinery and national level equipment. The number of firefighters is stipulated for various sizes of fire as on the control methods to be used.

Decree of the Director General of Forest Protection and Nature Conservation Number 245/Kpts/DJ-VI/1994. On the functions, application, maintenance and storing of fire control equipment, transport and communication tools.

Decree of the Director General of Forest Protection and Nature Conservation Number

246/Kpts/DJ-VI/1994. On the production of fire warning signs. HPH and HTI holders are obliged to make signs and are instructed where and how to deploy them.

Decree of the Director General of Forestry Protection and Nature Conservation Number 247/Kpts/DJ-VI/1994. Describes standardized firefighting infrastructure, such as radios, fire control teams, patrol equipment, observation facilities and tools.

Decree of the Director General of Forest Protection and Nature Conservation Number 248/Kpts/DJ-VI/1994. Describes fire prevention procedures; patrols; sign fixing; fire control training; observation tower, and; fire control.

Decree of The Minister of Forestry Number 260/Kpts-II/1995. On improvements to SK Menhut Number 195/Kpts-II/1986 on fire prevention.

Decree of the Minister of Forestry Number 188/Kpts-II/1995. Establishes the National Forest Fire Control Center (Pusdalkarhutnas) and gives its organizational structure and job description.

Decree of the State Minister of Environment Number Kep-18/MenLH/3/1995. On the establishment of National Coordinating Team on Land Fires (TKNKL). Issued by the Minister of Environment on the same day as the previous decree by the Minister of Forestry. Creates the National Coordination Agency for Fires (BKNL). Like the forestry decree, mandates the creation of coordinating units at the provincial level, to be established by Governor's decree and known as the Coordinating Team for Management of Fires (*Tim Koordinasi Pengendalian Kebakaran Lahan: TKNPKL*)

Decree of the Director General of Plantations Number 38/KB10/SK/DJ.BUN/05.95. On Zero Burning Land Clearance (PLTB). Sets out in detail how land is to be cleared by hand.

Decree of the Coordinating Minister of People Welfare / Head of Bakornas PB Number 17/Kep/Menko/Kesra/X/1995. On the work of Bakornas BP to prevent and mitigate disasters, as well as in the rehabilitation and reconstruction of the areas.

Decree of the Director General of Forest Protection and Nature Conservation Number 81/Kpts/DJ-VI/1995. On guidelines for Local Forest Fire Control Centres. (Follow-up of MoF Decree No.188/Kpts-II/1995 and MoE Decree No.18/MenLH/3/1995.). Stipulates the establishment and membership of provincial Pusdalkarhutda. The Land and Forest Fire Control Task Force (Satlak) is to be housed at the provincial / district forestry office.

Decree of the Director General of Forest Protection and Nature Conservation Number 47/Kpts/DJ-VI/1997. On technical guidelines on controlled burning. Determines requirements for land clearance by controlled burning, such as the permit requirement; dryness level of the fuel; maximum wind speed; lowest air temperatures, and; relative humidity.

Decree of the Director General of Forest Protection and Nature Conservation Number 152/KPTS/DJ-VI/1997. Revokes Decree No. 47/Kpts/DJ VI/1997 of 3 April on the technical guidelines for controlled burning.

Act Number 23/ 1997. On environment management. Does not specifically refer to fire management but the act is the foundation to assess and to adapt other existing regulations, including forestry regulations.

Decree of the State Minister of Environment Number Kep-40 Men LH/09/1997. On the revision of TKNKL to become the National Coordinating Team on Land and Forest Fire Control (TKNPKHL). Changes in TKNPKHL membership and gives it greater authority to, formulate national policies on fire prevention and management; to coordinate central and local operations, and; to formulate a human resource management system, a monitoring mechanism, an information system and an incentive system.

Government Regulation Number 28/1999. On forest protection. Article 10 states that no one is allowed to burn forests without a legal authority and stipulates that communities living around the forest must participate in the prevention and control of forest fires. Prevention and control of forest fire is regulated by provincial regulations, based on directives from the Minister. Article 18 regulates criminal sanctions on parties that cause forest fires due to their negligence. The violator will be jailed for a maximum of one year or fined a maximum Rp. 1 million.

Annex III: LAND MANAGEMENT PROCEDURES

AIII. 1. The National Planning Process

Planning processes based on time span

The main outputs - through BAPPENAS - of the State Ministry for National Development Planning, are as the name of the ministry implies, national development plans for the long-, medium- (Repelita) and short-terms. The Minister advises the President on the content of the plans and on how best he may evaluate their implementation.



Long-term plans (*Pembangunan Jangka Panjang*, PJP) look 25 years ahead. State Policy Guidelines (GBHN), the medium-term plans, are set every five years by the People's Consultative Assembly (MPR), for a period that corresponds to the Repelita. Repelita VI, 1998 – 2003, coincided with the beginning of PJP II. Short-term plans, such as the state budget, are prepared annually.

The Repelita planning process in the forestry sector

National policy guidelines and overall strategies issued through BAPPENAS and the Ministry of Finance are communicated to the other ministries and then to the provinces. In the case of forestry matters, the *Dinas Kehutanan* office (decentralized system) prepares a Forest Provincial Plan that is submitted to the planning boards in Jakarta. Under the forest de-concentration system, *Kanwil Kehutanan dan Perkebunan* is not directly involved at this stage and can only communicate comments to MoFEC.

In Jakarta the Planning Bureau of MoFEC assembles all the provincial plans and in collaboration with forest industry associations produces a proposed Forest Sector Plan. This is sent to BAPPENAS and is harmonised with plans for other sectors before it is integrated into the Repelita. If the whole is acceptable to the Cabinet of the President, the National Repelita is published as an indicative plan.

Guidelines based on the Repelita are sent to the line agencies to translate into sector strategies and projects. From the line agencies they are sent to the provinces and turned into prescriptive production targets. The political and economic elite of the timber business can exert influence at any time in the cycle from the *Dinas Kehutanan* office through Jakarta and then back to the province. The content may become profoundly altered in the process.

AIII. 2. Provincial Spatial Planning And Mapping In South Sumatra Province

The provincial structure plan-map (*Rencana Struktur Tata Ruang Propinsi*, RSTRP)⁶³ is prepared by BAPPEDA. It shows the land-classification accepted by the provincial agencies involved in the management of land and proposed for development before the end of 2005. It is the product of a consensus reached after consultation between government agencies at national level, and between provinces (*paduserasi* process). The RSTRP includes changes made to the forest classes as defined by the Forest Law Classification Map (TGHK). As noted by Scott and Lusli (1998), of the fifteen mapped categories in the RSTRP, eight are under the responsibility of the MoFEC.

District spatial plan-maps (*Rencana Tata Ruang Wilayah Kabupaten*, RTRWK) are prepared from the RTRWP (or RSTRP, see footnote). These maps are meant to be a tool to coordinate development and avoid inter-sectoral conflicts. In theory every development project must comply with the RSTRP / RTRWP map. The map should be used as a directive for land allocation, especially when granting HGU.

The process of map revision is undertaken formally at five-year intervals. In South Sumatra province the first steps of evaluation and recommendations for revision, are contracted to the Spatial Planning Section of the local University Sriwijaya (UNSRI) Research Centre (*Pusat Penelitian, Bidang Tata Ruang*).

The process of revision itself (in 1999 - 2000) is carried out under the governor by a coordination team (TKPR: *Tim Koordinasi Penataan Ruang*) of 15 representatives of government agencies who are appointed by the governor (SK 590/SK/IV/1996, 30 September 1996). The team is headed by the head of the infrastructure division at BAPPEDA (*Kabid. Fisik dan Prasarana*), and includes staff of Kanwil BPN, Kanwil Kehutanan dan Perkebunan, BAPEDALDA and Dinas Kehutanan. The results are submitted for approval to the Provincial Legislative Council (DPRD I) which then adopt the plan as a regulation (*Peraturan Daerah*, or *Perda*).

It is this smaller-scale RSTRP map that is used to prepare the Forest Land Categories Boundaries (*Peta Tata Batas*) at the larger scale of 1:25 000 and not the reverse as would be logical. These maps update the forest zonation mapping presented in the Forest Land Classification Map (*Tata Guna Hutan Kesepakatan*, TGHK) and give authority for the boundary of Forest Land categories.

The map preparation process, carried out by a team led by the Head of the District, includes field delimitation by sub-BIPHUT staff. The team includes members of concerned government agencies at the provincial level (*Sub-Balai BIPHUT, Kanwil Kehutanan dan Perkebunan*) and at the regency level (*camats*, Heads of the *Cabang, Dinas Kehutanan, Bappeda II, BPN II, Dinas Perkebunan, Dinas Tanaman Pangan II, Dinas Pekerjaan Umum II*). The maps have then to be approved by INTAG and MoFEC. Until 1997, they also had to be approved by the governor before getting the approval of the ministers.

⁶³ The provincial structure map (*Rencana Struktur Tata Ruang Propinsi*), at an approximately scale of 1 : 500 000, was issued in 1994, but was already under preparation in 1992 when each province was required to prepare a RTRWP (*Rencana Tata Ruang Wilayah Propinsi*) provincial spatial plan at 1: 250 000 scale. This explains the confusion between RSTRP and RTRWP.

RTRWP in South Sumatra⁵

The 1994 *Pemerintah Daerah Tingkat I Sumatera Selatan (RTRWP)* includes the following instructions:

- Forty percent of the total province area (10 925 400 ha) must remain as Permanent Forest (Article 11).
- The Permanent Forest Estate was estimated to be 4 237 600 ha (38.8 percent) compared to 37 percent found in the TGHK. It was thus hoped that part of the Convertible Protection Forest, especially where adjacent to forest logging concession, would remain as Permanent Forest. However the target area is likely to be lowered, since the Permanent Forest Estate is by 1999 estimated to be only some 30 percent of the land area (Ir. Idhamto, *Kepala Seksi Tata Ruang dan Tata Guna Tanah*, BAPPEDA, Palembang, *pers. comm.*, May 1999).
- Forest conversion can take place only in designated Convertible Production Forest areas which were estimated to total 774 100 ha or 7 percent of the province area (compared to 9.6 percent in the TGHK). Any extension of agricultural areas should first take place on degraded land (in areas of *alang-alang* or secondary vegetation) and not in productive forest area with more than 20m³ of timber trees of more than 30 cm diameter per hectare.
- *Alang-alang* grasslands, scrubby vegetation (*belukar*) and swamp forest (*hutan rawa*) [sic] in Permanent and Limited Production Forest areas can be converted into Plantation Forest (HPHTI). (Article 12).
- *Deep peat areas (> 2.5m) in OKI and MUBA regencies are in the category of 'Protection Areas' (kawasan lindung) and deserve special protection status. (Article 17). Infringement of protected area regulations can be punished by six months imprisonment and/or a fine of Rp 50 000 (Article 44).*

It is also stipulated that:

- Every citizen is entitled to consult the RTRWP map. (Article 39).
- Everyone is entitled to receive fair compensation is a affected by development carried out in accordance with the guidelines provided by the RTRWP. (Article.35.c).

The boundaries of the various categories of Forest Land are available for around 85 percent of South Sumatra and the positions of field boundary markers (*patok*) are plotted on the maps. In the process of field delimitation needed to establish the positions of the markers, the surveyors are allowed to excise established agricultural areas. (Scott and Lusli, 1998).

⁵ Pemerintah Daerah Tingkat I Sumatera Selatan (1994). *Peraturan daerah propinsi tingkat I Sumatera Selatan nomor 05 1994 tentang Rencana Tata Ruang Wilayah Propinsi Daerah Tingkat I Sumatera Selatan*. [Regional Government of South Sumatra province. Regional Regulation number 5 of 1994 concerning the Provincial Spatial Plan of South Sumatra].

AIII. 3. Land Registration

The BAL stipulates that all land-rights have to be registered with the National Land Agency. Registration should provide security for both owners and users, as well as the right to transfer land. However land registration has proceeded very slowly and that which has taken place has mostly been in urban areas and in Java. The registration process includes the measurement, survey and mapping of land, the registration of rights, and the issue of the rights certificates. Smallholders can barely afford to register their lands because of the fees and the complexity of the administrative process. In South Sumatra, many do not even contemplate getting an official land-ownership certificate.

The procedures to obtain a *hak milik* title are:

- The applicant marks the limits of his land with posts (*tanda batas*).
- The applicant passes a letter he has obtained from BPN to the neighbouring land-owners and asks their agreement on the proposed limits.
- The applicant must provide information on the historical ownership status of the land (*riwayat tanah*). If the applicant can not provide any title, he must certify his right under oath in the presence of an official representative.
- The District BPN Office carries out a field check to identify any counter-claims.
- The land is officially surveyed and a map (*surat mengukur*) prepared.
- The map and documents are posted in the offices of the village head and sub-district head for 60 days to allow time for objections.
- If no objections are received, the district BPN Office prepares a letter of recommendation.
- The letter of recommendation is sent to the provincial office of BPN for a letter of decision. (For non-adat land, the letter is forwarded to Jakarta).
- The applicant is informed of the decision and required to pay a fee for the completion of the process.
- A land-ownership certificate is issued, and a copy is provided to the applicant. This right can be contested during the five following years.

Indonesian culture places a high value on consensus. The decree (PMDN No. 2/1976) on the release of land to the private sector for the implementation of projects of public interest incorporates this value. According to this process the amount of compensation given to the holder of a land-right is decided by consensus and may be less than the market price.

Land Acquisition By Expropriation

The President alone is authorized to expropriate land by decree to facilitate the implementation of projects (Act No. 20/1961). Indonesian law states that expropriation must only be used as a last resort when negotiations have irreparably failed and the act is in the public interest. A presidential decree fixes the form and amount of compensation.

Land Consolidation

Officially recognised land-consolidation procedures are followed to release land for infrastructure development (e.g a road) and other public facilities and they are carried out with the agreed participation of local people. The process can also be used to re-arrange land-tenure and land-ownership in both urban and rural areas. The legal bases for action are found under the BAL and under the Spatial Use Management Law No. 24/1992.

The BPN District Office (*Kabupaten*) executes land consolidation projects. A committee, under the chairmanship of the *bupati*, is in-charge of the site location and the Bupati

coordinates state agencies at district level. A second committee (with Kanwil BPN as a member) at provincial level, in turn, controls the first. The head of the provincial office of BAPPEDA chairs the second committee.

Conclusions

Unclear and often inadequate delineation between lands under BAL and forestry lands under BFL is a frequent source of conflict between local communities and the state. The competencies of the numerous departments and bodies involved in land-planning overlap and are unclear. These discrepancies are a major cause of decades of land mismanagement in Indonesia. They are also detrimental to fire prevention.

In the reform era, the process of administrative decentralization could allow the evolution of a much improved, participative land-use planning system at provincial level. BAPPEDA should be the focal point of new initiatives and international donors are encouraged to aid the process.

AIII. 4. Trends in Forest Policy

Impacts of the Economic Crisis, International Agencies and Political Turmoil on Forestry Policy

The economic crisis, the intervention of international institutions and the political turmoil of 1998 – 1999 had a great impact on the policy making process.

To overcome the economic turmoil, the government took limited steps towards reform. These included some structural adjustments pledged to the International Monetary Fund (IMF). This commitment was expressed in the Indonesian Memorandum of Economic and Financial Policy Program (MEFP) signed by President Suharto on 15 January 1998. The conditions requested under the memorandum cover various economic and monetary changes. Eight articles are directly related to the forestry sector (Articles 10, 12, 36, 37, 38, 40, 42, and 50). These articles requested forestry reforms including the liberalization of the forest industry and wood trade, and were aimed at increasing the efficiency and competitiveness in the international market. But the articles also underlined the need to implement sustainable forest management under the principle of economic equity.

The eight articles required three key changes: (a) create consistency and transparency in decision-making processes that affect the utilization of forest as a public good, (b) open competitive market mechanisms, and (c) strengthen property rights in forest utilization.

The guidelines for the ‘Reform Agenda of the Forestry and Estate Crops Sector’ made public in July 1998, were intended to show the will of the new government to speed up the reform agenda and to do so within a new decision making process. An independent reform team was established to identify needed changes in the forestry and estate crops sector.

The Legal Framework for HPH and HPHTI: The Present Situation and Trends

Hak Pengusahaan Hutan (HPH)

The granting of a forest logging concession (HPH) is, “A right to exploit the forest in a designated forest area, through cutting of timber, regenerating and caring for the forest, and processing and marketing forest products, in accordance with a forest exploitation workplan, in line with existing regulations, and on the basis of conservation and sustainable production”. (SK. 21/1970)

HPH could be granted only to state corporations and to private companies. Under the new regulation, the right may be granted to state-owned corporations (BUMN), to regional-owned corporations (BUMD), to private companies and to cooperatives. (New Basic Forestry Law 1999, Article 24)

Regulations and requirements to gain an HPH are legion. They include application and extension request procedures, a requirement to submit work-plans and reports, regulations to specify roads, infrastructure and facilities, and technical requirements for forest exploitation. (See text box on the next page)

An Example of Bureaucracy: the HPH Progress Reports

Companies are required to produce a variety of reports (monthly, quarterly, annual, five-year and termination reports) under SK No. 521/1985 and SK No. 75/1989.

- Cruising report: on the stand composition of a particular cutting block.
- Production report: an annual report on the volume and species of logs from a particular block.
- Log transport report: on the volume and species of logs transported to processing sites.
- Log supply report: on the volume and species of logs on hand at processing site log-yards and log-ponds.
- Processed wood supply report: the weight, volume and species of each type of processed wood in the processor's warehouse.
- Register of export wood.
- Register of domestic wood and self-utilized wood.
- Register of wood from small industries.

It is unclear how the required information was intended to be used, checked and verified. This is an example of the plethora of regulations that are not implemented. Are these regulations workable? Can they be enforced? In fact they were used to effect by the forestry administration to justify concern over sustainable forest exploitation, and, too often, they provide opportunities for 'negotiations' between administration officers and forest concessionaires.

1. Ministerial decree No. 731/Kpts-II/1998, 10 November 1998, "The procedure for the auction of a concession".
2. Ministerial decree No. 732/Kpts-II/1998, 10 November 1998, "The conditions and procedures for the renewal of a concession right".
3. Ministerial decree No.734/Kpts-II/1998, 11 November 1998, "The establishment of a committee for the preparation of the auction of a concession."
4. Ministerial decree No.735/Kpts-II/1998, 11 November 1998, "The establishment of the auction."⁶⁵

Limits for a single HPH⁶⁶ concessionaire company or cooperative are fixed (PP.6/1999) at 100 000 ha in any one province (200 000 ha in Irian Jaya) and to 500 000 ha nationally. For a plantation company the limits are set at 20 000 ha and 100 000 ha. The New Forest Law does not adjust the areas given under PP.6/1999 but stipulates that there must be, 'a limitation on an area [granted] in the interests of justice, fairness and sustainability'.

⁶⁵ There appears to be no record of Ministerial Decree No. 733/Kpts-II/1998: it may have been issued for a topic other than forest management and not published. With the recent enactment of PP 6/99, Ministerial Decree No. 731 and 732 have been changed to No. 312/1999 respectively with little revision.

⁶⁶ In the recently issued PP No. 6/99 HPH becomes 'HPH alam' a 'concession in a natural forest', while HTI becomes 'HPH tanam' a 'concession for a plantation'.

The policy focuses on strengthening the communities' economy by giving a role to small and medium sized businesses and cooperatives. It is very doubtful if the development of cooperatives is the best way to achieve forest sustainability: and there are many risks linked to a biased selection and/or manipulative creation of so-called cooperatives by large forest concessionaires. Moreover, cooperatives have a bad image in rural areas, as existing cooperatives have performed poorly and are often linked to corrupt practices.

The new government talks of empowering the communities as the key to forest sustainability (www.dephut.go.id). But the government role in the Indonesian forestry context is uneasy as the major stakeholders are powerful lobbies from the timber industry, often well-connected to political and military figures.

Incentives for Timber Estate Concessions - HTI⁶⁷

As the government anticipates a wood material deficit from natural forest, the development of large-scale industrial timber plantations is a political goal. A number of incentives are given to companies (Potter and Lee, 1998).

- Loans from the reforestation funds cover 32.5 percent of establishment costs and must be paid back in seven years.
- The government helps the companies to obtain loans from banks.
- Low land taxes.
- HTI concession could be granted on logged-over areas with a timber utilization permit (IPK).
- Since 1992 within an HTI-trans scheme, the state and a state forestry company could provide 40 percent of the investment while the private company provides the remainder.

The timber utilization permit is also an incentive that allows a company to profit from the sale of timber stands. The residual biomass after exploitation is a potential fire hazard but the company may find it profitable to let it remain and take the risk of fire when it can claim compensation from the insurance company (UNDP-BAPEDAL, 1998: page 70).

The legal framework is an incentive to establish plantations but discourages their sustainable management. Incentives and loans are released according to the plantation areas and control of their release is loose: wood production is not the first source of profits. Land management for protection against fire, which is costly, is not a priority.

⁶⁷There remains confusion over the terms HTI and HPHTI. In earlier usage HTI was an industrial forest plantation where it was possible to distinguish between the different intent of setting up the plantation. e.g. HTI-trans, HTI-pulp, etc. The suffix was then dropped and industrial forest plantations were referred to as HTI. The company is initially granted an SK. HTI. In practice this is equivalent to the granting of a full Utilisation Right for an Industrial Forest Plantation or HPHTI, as the right to utilize is 'automatic' and thus the terms HTI and HPHTI are interchangeable. In the recently issued PP No. 6/99, HTI becomes 'HPH tanam' a 'concession for a plantation'.

AIII. 5. Strengthen the Legal Framework or Political Reform?

The forest legal framework should set the scene and the principles to fulfil the goal of sustainability (and prevent uncontrolled fires): empirical evidence denies the theory. Three recommendations are suggested.

- Clarify and simplify forest law.

Each year more guidelines and more regulations have been issued without success. The result is a complex and murky legal system with poor implementation. Within this context, any attempt to improve is sustainable management and fire control is difficult.

- Strengthen the forest institutions to enforce the forest laws.

Thus to reduce fires, increase the means to monitor fires (satellite imagery, GIS systems) and exert control over concessionaires and people living in or on the edges of the forest.

But before we recommend such enforcement we must be sure that the people in charge of issuing and applying the rules stand above personal interests.

- More rights must be given to those whose interests lead toward sustainable land management and a reduced fire risk.

Inevitably this means granting more rights to the local population. Some stakeholders in the existing decision making process put personal interest before the goal of sustainable forest management. The result is over-exploitation of the resources, rural poverty in the forest areas, mismanagement of the land and increasing fire risks. There are contradictory views about forest use and competition between state, rural people and industry for access to, and control over, land and forest.

Annex IV: TABULATED DATA FROM THE CASE STUDIES

Table IV.1. Area, population, smallholder rubber and areas burnt in 1997 in three Sub-Districts (Talang Ubi and Gunung Megang Sub-Districts), within Muara Enim District

	Sources	Talang Ubi sub-district		Gunung Megang sub-district		Muara Enim District (ME)		South Sumatra (SS)
			% ME		% ME		% SS	
Area (ha)	1,2	191 800	20	179 700	19	957 500	8	11 333 907
Population	1,2	137 229	20	54 466	8	685 831	9	7 593 900
Population density	1,2	71		30		72		67
Rubber smallholder area (ha)	1,2	25 693	18	16 634	12	144 419	18	779 920
Area of rubber smallholder plantations reported as burned in 1997 (ha)	3 4 5		5	1 059	16	2 243 6 609	21	10 540 ± 40 000

Source: (1) *Kabupaten Muara Enim dalam angka, 1997* ; (2) BPS, 1998 ; (3) : Dinas Perkebunan Prop. Sumsel (n.d.). *Kebun rakyat yang terbakar dalam musim kemarau* ; (4) : Dinas Perkebunan Kab. Dati II Muara Enim, 1997. *Data kebakaran kebun dan non kebun sampai dengan tanggal 22 November 1997* (as of 22 November, 1997) ; (5) According to Gouyon (1999), the total area smallholder area accidentally burnt in 1997 is estimated to about 40 000 ha or 5% of the smallholder plantations area. About half of it or 20 000 ha was probably old jungle rubber, while 6 000 ha can be estimated to be young clones aged 3-4 years in average, and the rest young jungle rubber.

Table AIV.2. The ‘sonor sub-districts’ of central and eastern OKI District

<i>Sonor</i> sub-districts (<i>kecamatan</i>)	Area (km ²)	Percent District area	Population (1998)	Percent District population	Population density
Pampangan	1 317	6	45 408	4.6	34
Pedamaran	1 524	7	54 041	5.5	35
Mesuji	1 698	7.8	97 592	9.9	57
Pematang Panggang *	2 226	10.3	33 035	3.3	15
Cengal *	2 878	13.3	33 548	3.4	12
Tulung Selapan	4 853	22.4	34 473	3.5	7
Air Sugihan *	2 594	12	33 246	3.4	13
Sub-total (7 sub-districts)	17 090	78.8	331 343	33.5	19
OKI District (19 sub-districts)	21 691	100	989 505	100	46

* *kecamatan pembantu* (provisional sub-district status)

Source: Kantor Statistik Kabupaten Dati II Ogan Komering Ilir, 1998. Adapted from Table 8 In, ‘Pemerintah daerah tingkat II Ogan Komering Ilir, (1998). *Data pokok pembangunan daerah kabupaten daerah tingkat II*’.

Table AIV.3. The relative importance of the *sonor* rice harvest in OKI and other ‘sonor regencies’ as a total and a percentage of overall rice production (R.)

	Source	1991-92			1994-95			1997-98		
		Harvested area (ha)	t./ha	Product. (t.)	Harvested area (ha)	t./ha	Product. (t.)	Harvested area (ha)	t./ha	Product. (t.)
OKI <i>sonor</i>	(1)	33 223	2.1	69 768	34 660	2.1	72 855	60 456	2.2	133 003
% R. OKI		23.4		19.9	22.5		18.4	29.9		19.2
R. OKI	(2)	139 157	2.5	350 936	153 701	2.5	395 165	202 290	3.3	692 869
4 <i>so.</i> regencies	(1)	52 109	2.0	103 832	53 038	2.1	109 207	76 252	2.1	163 850
% R. province		10.5		6.7	10.7		7.0			-
R. province	(3)	494 145	3.1	1 550 937	492 448	3.2	1 557 944	n.a.	n.a.	n.a.

Sources: (1) Head of Sekretariat Satuan Pembina BIMAS, Prop. Sumsel, pers. com., Palembang, 23 March 1999); (2) Dinas Pertanian Tanaman Pangan, kab. Ogan Komering Ilir, Kayu Agung, 1998; (3) Dinas Pertanian Tanaman Pangan, TK I Sumsel, 1998.

Annex V: LAND USE IN SOUTH SUMATRA

Table AV.1. RTRWP Land classification (1994), land allocation and principal agriculture and land use in South Sumatra province

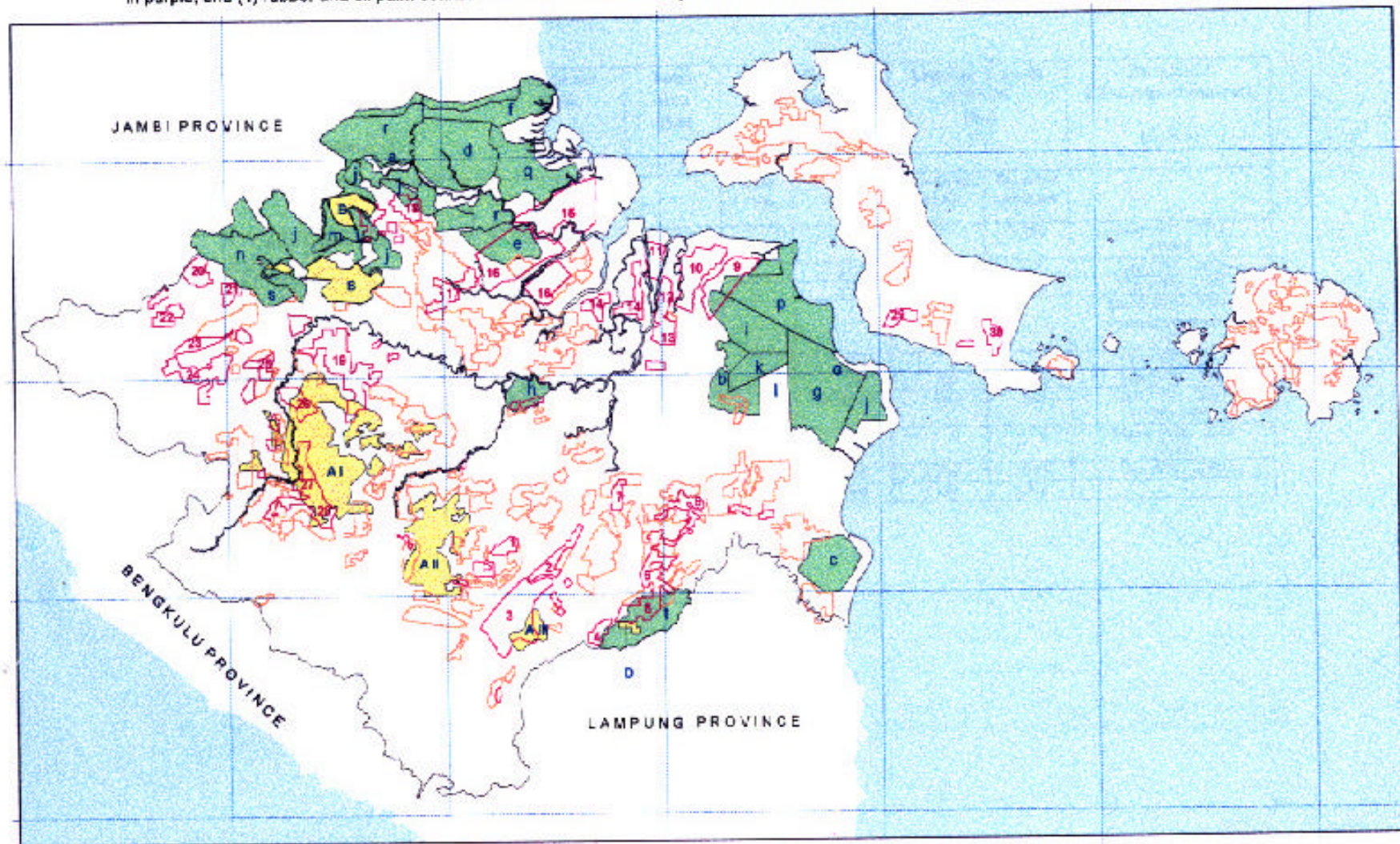
RTRWP (1994)		Source	% P	Area (ha)			Remarks (overlapping)
Province (P)		(1)	100	10 925 400			
	swamp		±30				
	dryland		±70				
Permanent Forest*		(1)	38.8	4 237 600			Estates, Smallholders Transmigration
	NatureReserves	(1)		822 300			
	Protection	(1)		847 300			
	Forest						
	Production	(1)		2 568 000			
	Forest						
	HPH Forest	(2)		Concession	Planted		Nature Reserves
	Pulp HTI	(3)		1 751 700			Nature Reserves
				353 100	213		and 'Other Uses'
	Timber HTI	(3)		291 900	21		Nature Reserves
					061		and 'Other Uses'
Convertible Product. Forest		(1)	7.1	774 100			
Other uses**		(1)	54.1	5 913 700			
Transmigration				allocated	developed	reserved	Permanent Forest
		(4)	12.2	1 333 958	851 437	482 521	Nature Reserves
Land allocated to estates (incl. in trans. sites)		(5)	13.1	1 436 000			Permanent Forest
							Transmigration
HGU (1961-99)			3.3		363 123		Nature Reserves
Commercial crop plantations	(6)	14.1	1 541 593				(as above)
Smallholders plantations	(6)	10.6			1 155 835		Permanent Forest
Rubber		7.1				779 920	
Coffee		3.5				256 547	
Company plantations	(6)						
Area planted under private scheme		2.2			240 582		Permanent Forest
Oil palm						186 694	
Rubber						47 554	
Hybrid Coconut						3 961	
PIR BUN/Trans (oil palm, rubber)		1.0			114 173		
State plantations (sugar cane, oil palm, rubber)		0.3			31 003		
Ricefields	(7)	4.3	469 670				
wet land					379 109		
dry land					90 561		

Sources: (1) Kanwil Kehutanan Sumsel, 1998; (2) See Annex V.3; (3) See Annex V.4; (4) Kanwil Transmigrasi dan PPH (1998); (5) BPN Sumatera Selatan, April 1999; (6) Laporan tahunan 1997/98, Dinas Perkebunan, July 1998; (7) Ricefields harvested in 1996 (BPS, 1997)

* According to the National Forest Inventory (1997), less than 60 percent of the 3 997 000 ha of Permanent Forest was forested in 1989 (Note that NFI used TGHK figures which differ from RTRWP ones)

** Other uses (APL: *Areal penggunaan lain*) designs the lands lying outside the Forest Estate

Map An. V. 2. Map of South Sumatra province showing (1) Forest Logging Concessions - green shading, (2) Forest Plantations - yellow shading, (3) transmigration sites outlined in purple, and (4) rubber and oil palm estates outlined in brown. See key on next page for additional information. Scale 1 : 2,000,000



Annex V.2. Table listing registered Estate Crops in South Sumatra Province (May 1999)

District	Company (PT)	Commodity	Area (ha)
OKI	Buluh Cawang Plant.	oil palm	3 433
		rubber	1 569
	Bumi Rambang K.J	rubber	2 974
	Bumi Sawit Permai	hybrid coconut	929
		oil palm	4 080
	Gembala Sriwidjaja	rubber	1 800
	Gunung Tua Abadi	oil palm	2 415
	Hortensia Permai	rubber	738
	Kodrat Aman Jaya	oil palm	100
	Lonsum Indonesia	rubber	5 128
	Pancaroda Utama	hybrid coconut	50
	Rusli Taher	rubber	1 156
	Selapan Jaya (Pedamaran	oil palm	2 556
	Selapan Jaya (Mesuji)	oil palm	18 177
	Sinar Sasongko	oil palm	995
	Sumber Wangi Alam	oil palm	1 300
	Telaga Hikmah	oil palm	2 700
	Telaga Hikmah	oil palm	3 000
	Tri Kreasi Marga Mulya	oil palm	1 869
	Waymusi Agroindah	rubber	6 500
			61 479
OKU	Gunung Meraksa Jaya	oil palm	180
	Gunung Meraksa Jaya	oil palm	388
	Kud Minanga Ogan	oil palm	3 012
	Laras Astra Kartika	oil palm	2 021
	Minanga Ogan	oil palm	6 834
	Sri Inti Katon	rubber	99
	Sungai Wall Sawitindo	oil palm	540
	Swadaya Corporation	rubber	419
		oil palm	9 963
			23 456
MUBA	Agro Polindo Sakti	oil palm	419
		rubber	556
	Alicia Ind	rubber	2 500
	Moesi Ind, Pt,Meilania In.	oil palm	502
	Citra Sembawa	rubber	384
	Hassuddin Utama	rubber	99
	Karya Tani Pratama	rubber	95
	Lembu Jaya	oil palm	4 770
	Lubuk Lancang Kuning	rubber	500
	Manunggal Adi Niaga	rubber	64
	Palma Betung Prima	rubber	330
	Panca Tirta B. Agung	oil palm	4 000
	Peconina Baru	oil palm	775

Estate Crops continued

District	Company (PT)	Commodity	Area (ha)
	Pinago Utama	oil palm	500
	Pinang Witmas Sejati	oil palm	1 487
	Pulau Harpindo Mas	rubber	64
	Pulau Hijau	rubber	45
	Sentosa Mulia Bahagia	hybrid coconut	4 774
	Serasan Sekate Nia	rubber	95
	Sumatera Candi Kencana	hybrid coconut	2 200
			24 159
MURA	Bina Saint Corporation	oil palm	4 685
	Cikenceng	rubber	1 186
	Dendy Marker Indah L.	oil palm	2 200
	Dwi Reksa Usaha Pks	oil palm	2 520
	Haruma Amin	rubber	170
	Hasil Musi Lestari	oil palm	9 180
	Juanda Sawit Lestari	oil palm	3 060
	London Sumatera Ind	oil palm	10 107
			33 108
Muaraenim	Bumi Sawindo Permai	oil palm	3 296
		rubber	3 000
	Cipta Futura	oil palm	2 019
		rubber	2 000
	Gunung Tua Abadi	oil palm	85
	Sayang Heulang Huda (Pusaka Sinar Dian Abd)	oil palm	627
	Surya Bumi Agro L.	oil palm	3 200
			14 227
Lahat	Aditarwan	oil palm	747
	Artha Prigel	oil palm	1 673
	Eka Jaya Perkasa	oil palm	850
	Multrada Multi Maju	oil palm	5 478
	Padang Bolak Jaya	oil palm	3 236
	Paradis Maju	rubber	12
	Perjapin Prima	oil palm	2 248
	Trimitra Sumber Perkasa	oil palm	2 312
			16 556
Bangka	Bumi Permai Lestari	oil palm	13 080
	Bumi Permai Surya L.	oil palm	440
	Gunung Maras Lestari	oil palm	5 178
	Gunung Sawit Bina Lt.	oil palm	5 030
	Leidong West Indonesia	oil palm	1 476
	Sawindo Kencana	oil palm	5 350
	Sumarco M. Indah	oil palm	9 500
	Swarna Nusa Sentosa	oil palm	4 200
	Tata Hamparan Eka P.	oil palm	1 200
			45 454

Estate Crops continued

District	Company (PT)	Commodity	Area (ha)
Belitung	Angkasa Puri	pepper	60
	Parit Sembada	rubber	3 1 791
	Poresta Lestari D.K	oil palm	9 800
	Rebin Mas Jaya	oil palm	3 338
	Sahabat Mewah &Mkmr	oil palm	8 057
		rubber	2 536
	Stelindo Wahana Pks	oil palm	13 815
			69 397
			287 481

Summary of Estate Crops

District	Oil Palm	Rubber	Coconut	Pepper	Tea	Sugar Cane
OKI	40 625	19 875	979	0	0	11 714
OKU	23 357	99	0	0	0	0
MUBA	12 458	4 732	6 974	0	0	0
MURA	31 752	1 356	0	0	0	0
Muaraenim	9 227	5 000	0	0	0	0
Lahat	16 544	12	0	0	1 437	0
Bangka	45 454	0	0	0	0	0
Belitung	35 010	34 327	0	60	0	0
	214 427	65 401	7 953	60	1 437	11 714

Summary of Land Use in South Sumatra (ha)

Area of South Sumatra	11 333 900	
Forest Logging Concessions	1 773 616	15.6 percent
Forest Plantations	684 988	6.0 percent
Transmigration Sites	1 284 113	11.3 percent
Estate Crops	300 632	2.7 percent

Source: Data Satatistik Luas Areal dan Produksi Perkebunan Besar, 1997 DISBUN Tk I propinsi Sumatera Selatan

An.V.3. Table listing registered logging concessions (HPH) in South Sumatra province as of May 1999

No. on map	Logging concessionaires HPH	Location CDK	Total area (ha) (1)	Areas officially reported as burned (ha) (2)		Logging areas in 1997/98 (ha) (3)		Duration / First year of contract (1, 3, 4)
	Source: (1)	(1)		until 1996	in 1997	planned for logging	report ed as logge d	
a	PT. Bumi Pratama Usaha Jaya (ex PT. Sylva)	Lalan	56 000		120	2 400	2 250	09/1997-2017 (1980)
b	PT. Famili Jaya	OKI	57 000		1 215	480	100	06/1985-2005
c	PT. Fatma Bersaudara	OKI	51 000		650	0	0	10/1988-2008
d	PT. Kurnia Musi Plywood (ex PT. Bumi Raya Utama)	Lalan	130 000					03/1979-1999 - extension in process- (1979)
e	PT. Nindita Bagaskari	Lalan	48 100		400	0	0	10/1979-1999
f	PT. Riwayat Musi Corp.	Lalan	85 000		23	700	450	09/1979-1999
g	PT. SBA Wood (ex PT. Inwihco)	OKI	134 200	5 800	20 180 *	1 100	761	07/1992-2012 (1980-1991)
h	PT. Sentosa Mulia Bahagia (ex PT. Sentosa Jaya)	Lalan, OKI M. Enim	77 000		1 200	0	0	03/1988-2008 (1988)
i	PT. Sribunian Trading Co.	OKI	75 000		1 452	1 300	753	01/1979-2000
	<i>Sub-total (companies)</i>		<i>713 300</i>	<i>5 800</i>	<i>25 240</i>	<i>5 980</i>	<i>4 314</i>	
j	PT. Inhutani V	Musi Ilir Lalan	167 550		3 171	1 020	1 017	11/1992-2012
k	PT. Inhutani V (ex PT. Daya Penca)	OKI	87 000			900	161	(03/1978-98)
l	PT. Inhutani V (ex PT. Kurnia Musi) 2 loc.	OKI MURA	130 000		3 825			10/1996-2016 (1981)
m	PT. Inhutani V (ex PT. Niti Remaja Concern)	Lalan Musi Ilir	35 000					10/1996-2016 (1976)
n	PT. Inhutani V (ex PT. Padeco/MHP) incl. 9 000 ha <i>Acacia mangium</i>	Musi Ilir	80 000					1996 - (1969)
o	PT. Inhutani V (ex PT. Phala Wana Lestari)	MURA	68 500					1993 - (1973)
p	PT. Inhutani V (ex PT. Sinar Belanti Jaya)	OKI	78 000					05/1996-2016 (1974)
q	PT. Inhutani V (ex PT. Sukses Sumatera Timber)	Lalan	179 000	8 040	530	250	250	08/1991-2011 (1979)
r	PT. Inhutani V (ex PT. Sylva)	Lalan	67 700					1997 - (1980)
s	PT. Inhutani V (ex PT. Buah Megow)	MURA	23 916					1996 - (1973)
t	PT. Inhutani V (ex PT. Wai Hitam)	OKI	121 750					1996 - (1974)
u	PT. Inhutani V (ex PT. Wisma Lukita)	Lalan	21 900					(1970)
	<i>Sub-total (Inhutani V)</i>		<i>892 766</i>	<i>8 040</i>	<i>7 526</i>	<i>2 170</i>	<i>1 428</i>	
	TOTAL		1 773 616	13 840	32 766	8 150	5 742	

(* representing only surveyed area, burned area possibly five times larger according to company staff, (pers. comm. April 1999)

Sources: (1) Bidang Pengusahaan Hutan Kanwil Dephutbun Prop. Sumatera Selatan, April 1998 ; (2) *Data areal kerja HPH/HPTI yang terbakar*, Kanwil Kehutanan Sumsel, 18 November 1998 ; (3) *Statistik Kehutanan Propinsi Sumatera Selatan Tahun 1997/1998 (Realisasi Blok Tebangan HPH)*, Kanwil Kehutanan Sumsel, 1998; (4) *Statistik Dinas Kehutanan Propinsi Sumatera Selatan Tahun 1996/1997*

An.V.4. Table listing registered Forest plantations concessions (HPHTI) in South Sumatra province as of May 1999

No. on map	Forest plantations	Location	Total concession area	Main species	Total planted area in June 1998	Areas officially reported as burned until 1996	Areas officially reported as burned in 1997	Plantation years of burned areas / Remarks
	Sources: (1)	(1)	(1, 2, 3)	(2, 3)	(1, 2, 3)	(2)	(2)	(2)
PULP WOOD								
A I II III	PT. Musi Hutan Persada (SK HPHTI 29/01/96) Benakat-Lemtg. Subanjeriji Martapura	OKU, Lahat MURA MUBA, M. Enim 198 741 ha 87 354 ha 10 305 ha	296 400	<i>Acacia mangium</i>	194 364	8 257*	3 157	1990/1991 to 1996/1997
	PT. Tunas Bentala (SK HPHTI Trans 4000 ha 21/02/92; SK HPHTI 5 000 ha 30/08/90; 4 388 ha ex PT Tuah Megow)	MURA	13 288	<i>Acacia mangium</i>	1 767		101	1993/1994 1994/1995
B	PT. Pakerin (SKHPHTI 43 380 ha 27/02/98)	MUBA	43 380	<i>Acacia mangium</i>	17 250	800	6 248	1993/1994 to 1996/1997
G	PT. SBA Wood Industries (SKHPHTI 18/02/98)	OKI	40 000 within HPH	<i>Acacia mangium</i>	0		(burned HPH area)	Plantation planned in 1999/2000
	Total		393 068		213 381	9 057	9 506	
TIMBER								
D	PT. Wai Hijau Hutani (SKHPHTI Trans 3 700 ha 21/02/92; SKHPHTI - 1/10/91)	OKI MUBA	21 250	<i>Gmelina arborea</i> , <i>Acacia mangium</i> , <i>Paraserianthes falcataria</i>	14 861	8 441	1 567	1990/1991 to 1994/1995
	PT. Inhutani V (ex PT Rimba Jaya Borang) (Surat Menhut 29/08/96)	OKI	8 950	<i>Hevea brasiliensis</i> , <i>Peronema canescens</i> , <i>Parkia speciosa</i>	200	-	-	-
	PT. Inhutani V (ex PT. Niti Remaja, Padeco and Wisma Lukita) (SKHPHTI 27/02/98)	MUBA	261 720 (incl. 15 000 ha PT Vitco in Jambi)	<i>P. canescens</i> <i>Swietenia mahagani</i> , <i>Hopea mengarawan</i> , <i>Shorea spp.</i>	6 000 (incl. 3 200 ha <i>Peronema canescens</i>)	-	-	-
	Total		291 920		21 061	8 441	1 567	
Sources: (1) Laporan pembangunan HTI prop. Sumatera Selatan, Tahun anggaran 1998/1999 s/d bulan Juni 1998; (2) Data areal kerja HPH/HPHTI yang terbakar, Kanwil Dephutbun Prop, Sumsel, 11 November 1998; (3) Inhutani V, Palembang (pers. comm., April 1999) * about 20 000 ha burnt in 1994, according to Saharjo (1996)								

An.V.5. Table listing registered Transmigration sites in South Sumatra province as of May 1999

Kabupaten	No. on map	Location	Area (ha)
OKU	1	Pandan Sari	2,000
	2	Peninjauan Baturaja	3,500
	3	Batumsarta	65,000
	4	Lubuk Batang	1,800
		Bangsa Negara	3,000
		Batumsarta	15,225
		Bunga Mayang	1,460
		Lubuk Batang	8,000
		Marga Madang SK. I	35,000
		Marga Madang SK. II	25,000
		Rantau Kumpai	2,200
		Rasuan	650
		Rasuan Jatisari	1,200
		Tanjung Tiga	500
			164,535
OKI	5	Pematang Panggang F	17,000
	6	Pematang Panggang (Mesuji)	45,000
	7	Sriguna	6,000
	8	Pematang Panggang (Marga Mesuji)	75,375
	9	Air Sugihan Kiri	44,992
		Air Sugihan	16,472
		Pematang Panggang (K. Agung)	30,000
		Pematang Panggang I	6,000
		Way Hitam IV	7,975
			248,814
MUBA	10	Air Sugihan	36,500
	11	Delta Upang	15,000
	12	Air Saleh	16,500
	13	Air Kumbang-Air Padang	13,666
	14	Delta Telang	40,000
	15	Karang Agung	176,383
	16	Pulau Rimau	33,434
	17	Sungai Lilin	39,500
	18	Pangkalan Kersik	20,000
	19	Sekayu Babat Toman	76,741
		Air Saleh & Sugihan	24,714
		Cinta Manis	4,000
		Rantau Panjang	3,310
			499,748
MURA	20	Bingin Teluk I C	12,975
	21	Bingin Teluk I B	10,200
	22	Bingin Teluk I D	15,400
	23	Lembah Liam	89,300
	24	Terawas (Air Bal)	27,665
	25	Kelingi II	76,300
	26	Kelingi IV D	13,600
	27	Lahat-Tebing Tinggi	13,047
		Air Bungin	4,800
		Babat Toman IV	12,000
		Bingin Teluk I C	3,800
		Jayaloka	3,000
		Ketapat SP I & SP 0	1,700
		Ketapat XVI B/I	7,300
		Margoyoso	575
		Megang Sakti III/IV	875
		Muara Beliti III/E	1,500
		Ngestiboga	3,000
		Ngestiboga II	4,550
		Semangus I	7,000
		Singkut	5,000
		Sukarame Jaya	500
		Tebing Tinggi III A/B	1,200
			315,287
Lahat	28	Lahat - Tebing Tinggi	37,900
		Padang Muara Dua	610
		Tanjung Ning	150
			38,660
Bangka	29	Batu Betumpang	7,500
	30	Kurau	600
		Rias Toboali	1,800
			9,900
Muara Enim		Air Belidah	6,000
		Air Limau	800
		Mg. Panang Sangang Puluh	6,000
		Sugih Waras	1,379
		Sukarame	510
			14,689
Total			1,284,133

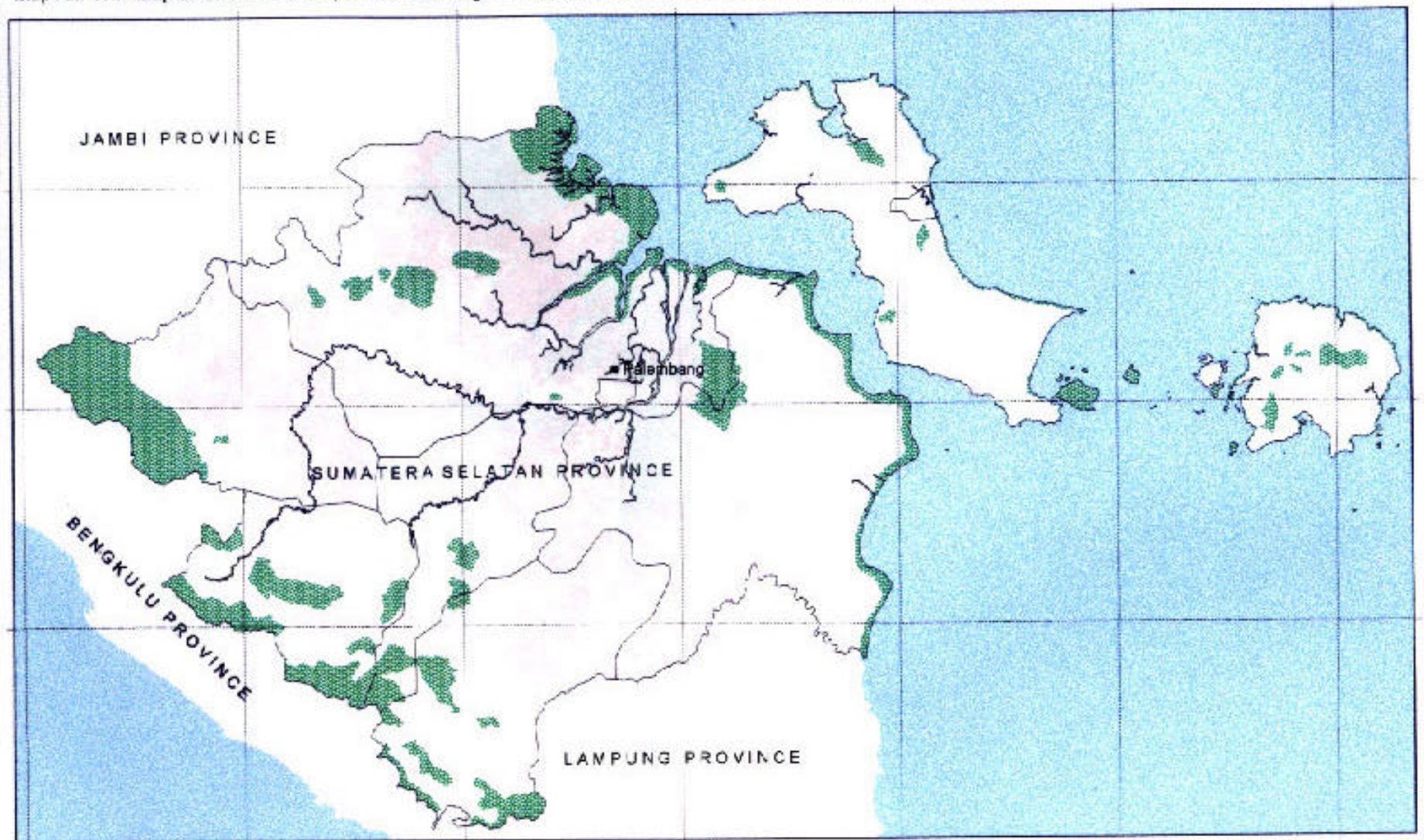
Source : Peta Pencadangan Tanah Perkebunan dan Transmigrasi Sumsel, BPN, 1997

The map displays the following districts and their locations:

- North:** Musi Banyuasin, Musi Rawas, Lahat.
- West:** Musi Rawas, Lahat.
- East:** Ogan Komering Ilir, Ogan Komering Ulu.
- South:** Muarasin, Muara Enim, Ogan Komering Ulu.

Surrounding provinces and islands are also labeled: JAMBI PROVINCE, BENGKULU PROVINCE, LAMPUNG PROVINCE, and the island of BANGKA-BELITUNG.

Map An. V. 7. Map of South Sumatra province showing Protection Forests and Nature Reserves. Scale 1 : 2,000,000



Map An. V. 8. Map of South Sumatra province showing distribution of fires between 1 July and 31 October 1997 in relation to wetlands (green), transmigration sites (pink) and logging concessions and forest plantations (outline in blue). Scale 1 : 2,000,000

