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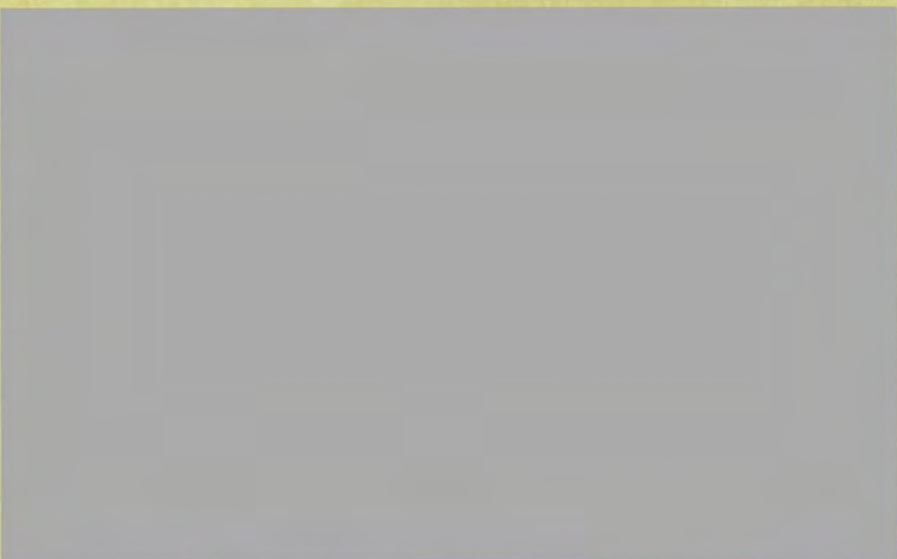
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SEKRETARIAT MENTERI NEGARA  
KEPENDUDUKAN DAN LINGKUNGAN HIDUP

MEMORANDUM

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Kepada Yth. : Asmen II KLH  
D a r i : Aca Sugandhy  
Tanggal : 5 April 1988  
Perihal : Komentar untuk "Draft land  
Allocation and Land use in the  
outer Islands"

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Memenuhi permintaan Bapak dengan ini terlampir saya sampaikan komentar yang telah saya coba susun, semoga bermanfaat adanya untuk bahan penyempurnaan bagi Tim Bank Dunia.

A. Sugandhy



KOMENTAR TERHADAP DRAFT  
"LAND ALLOCATION AND LAND USE IN THE OUTER ISLANDS"

-----  
Yang Disiapkan Tim Bank Dunia  
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I. U M U M

1. Konsep/dasar penilaian land allocation dan land-use hanya ditekankan untuk pengembangan wilayah di luar Jawa. Padahal dari sudut kesinambungan pembangunan yang berwawasan lingkungan dan tingkat kerawanan tekanan penduduk. Masalah kebijaksanaan alokasi tanah dan perencanaan penggunaan tanah sangat kritis sekali di pulau Jawa dan Bali. Jadi konsep untuk luar Jawa tidak bisa terlepas dari pengelolaan di pulau Jawa dan Bali.
2. Analisa alokasi lahan dan penggunaan tanah di luar Jawa lebih banyak dibahas untuk pengembangan sektor pertanian dan dalam kaitan dengan sektor transmigrasi.
3. Analisa dan rekomendasi kaitan alokasi tanah dan penggunaan tanah sebagai suatu alat perencanaan dengan pengelolaan sumber daya secara utuh di daratan, lautan dan angkasa dan dalam kerangka pemikiran regional spatial planing tidak terungkap dan dibahas secara nyata.
4. Sesuai arahan U.U No.4 Tahun 1982, PP No.29 Th.1986 dan GBHN 1988 maka perlu diusulkan untuk penyempurnaan Draf tersebut agar kontek P.Jawa Bali merupakan satu paket kebijaksanaan dengan luar Jawa. Dan dalam mengembangkan kebijaksanaan pembangunan berwawasan lingkungan, maka alat perencanaan pembangunan di setiap wilayah harus dibakukan mekanisme penyusunan tata ruang wilayah dan AMDAL sebagai satu paket untuk keterpaduan proyek-proyek yang berwawasan lingkungan di suatu wilayah khususnya pula proyek-proyek bantuan luar negeri (Bank Dunia).
5. Pengembangan sistem informasi geografi yang baku ditingkat nasional, propinsi, kabupaten sampai dengan kecamatan, perlu dikembangkan bukan hanya dalam kaitan land allocation dan land use saja untuk kawasan kehutanan, pertanian, atau program transmigrasi tapi perlu dikembangkan secara utuh dalam kerangka pengelolaan sumber daya di daratan, lautan, angkasa dalam satu kesatuan tata ruang wilayah.
6. Pengembangan pembakuan sistem data, peta, perencanaan tata guna tanah di tingkat propinsi di Indonesia berada pada Bappeda kurang tepat dan tidak sesuai dengan fungsi tugas Bappeda sebagai Badan Koordinasi. Lebih tepat untuk pengembangan peta tata guna tanah yang baku dilakukan oleh Direktorat Tata Guna Tanah Dirjen Agraria. Sedangkan data dan perencanaan tata guna tanah dan ruang sektoral oleh dinas masing-masing. Kemudian dengan koordinasi Bappeda untuk menentukan optimal use of land dalam kegiatan pengembangan tata ruang wilayah dan pembangunan daerah.



## II. Catatan untuk Usulan Perbaikan per item

1. Judul sebaiknya "Policy on Land Allocation and Land Use in Java and the Outer Islands".
  - A. The Demand for land, pembahasannya hanya untuk sektor pertanian di luar Jawa. Padahal permasalahan pembangunan nasional dan penurunan kualitas lingkungan sangat mendesak di Jawa/Bali akibat The demand for land on non-agricultural sectors.
2. Tabel 3.1 informasi mengenai current land use by Island dengan melihat permasalahan tekanan penduduk dan tekanan pada lingkungan sebaiknya diadakan pengelompokan yang lebih tepat. Diusulkan sebagai berikut:
  - Jawa/Bali
  - Sumatera
  - Nusa Tenggara (NTT-NTB-TIMTIM)
  - Kalimantan
  - Sulawesi
  - Maluku
  - Irian Jaya
3. Angka 3.2.
  - Bali permasalahannya sama dengan Jawa
  - Nusa Tenggara, dominan dry land agriculture dengan kendala curah hujan dan kesuburan tanah terbatas, Maka perlu kebijaksanaan alokasi tanah dan usulan penggunaan tanah yang khusus.
4. *perubahan* ~~Perubahan~~ pada angka 3.3, 3.4 dan 3.5, juga hanya dianalisa sektor pertanian di luar Jawa.
5. Tabel 3.2.
  - Usulan pengelompokan sama seperti Tabel 3.1.
  - Informasi mengenai Irian ?
6. Angka 3.12, pengembangan pemikiran untuk pola agro-forestry, sosial-forestry, agro tourism, ~~wild~~ wild-life tourism dll. Yang bisa mengarah pada keterpaduan mixed farming dalam rangka optimal use of land dan ruang kehidupan perlu diminta dikembangkan dalam proyek-proyek bantuan Bank Dunia.
7. Angka 3.15 saran berkaitan dengan angka 3.12.
8. Tabel 3.5, sifatnya terlalu umum, perlu dikembangkan sistem produksi yang bukan hanya orientasi ekspor untuk komoditi-komoditi yang sama ada di negara lain dari sudut competitive market price dan quality saja tapi penting untuk setiap wilayah dikaji komoditi-komoditi yang comparative advantage dan competitive di pasaran dunia, karena kekhasan dan keunikan yang tidak sama / tidak dimiliki wilayah/negara lain. misalnya : Kayu besi, kayu cendana dari Kalimantan dan Nusa Tenggara dll.



9. Angka 3.17, comparative Advantage mengenai timber production, Sulawesi, Sumatera dan total dari pulau-pulau kecil Nusa Tenggara dan Maluku yang persentasinya cukup besar (14,5 %), kenapa tidak dipertimbangkan potensinya.
10. Angka 3.18, kalimat terakhir mengenai :  

"to realize the benefits of different regions, better land classification systems are needed, and better land use planning is required at the national and regional levels".

Kalimat ini saya kira harus didudukkan dalam kerangka tata ruang wilayah dan pembangunan daerah. Spesifikasi daerah / wilayah dalam pengembangan komoditi dominan dan unik atas dasar biogeofisik dan klimatologi seperti Kalimantan = timber, Sumatera = tree crops, Jawa food crops, Nusa Tenggara = livestock, Maluku = fisheries, Irian Jaya = Mining ?, memang perlu dikaji secara teliti.
11. Angka 3.19, perlu konsistensi dalam penggunaan terminologi "uplands low lands" atau "drylands VS wetlands"
12. Angka 3.20, untuk swamps area beverage crops disamping tea dan cocoa, sangat penting perlu dipertimbangkan peranan jeruk (buah-buahan).
13. Bagian C Land Use Planning and Allocation, angka 3.27 dan 3.28, sama seperti catatan di depan perlu dilihat dalam kerangka regional spatial planning.
14. Angka 3.37. Land Use Planning perlu dikaji dalam konteks tata ruang.  
koordinasi antara Agraria, Cipta karya, Bappeda dan dinas-dinas sektoral untuk keterpaduan pengadaan data, peta, perencanaan perlu didudukkan mekanismenya.
15. Angka 3.40. land acquisition and land registration, perlu dikaitkan dengan adanya land banking dan land consolidation dengan mempergunakan alat perencanaan tata guna tanah dan tata ruang.
16. Angka 3.50, Capital land Purchase perlu diatur oleh MENPAN dan Agraria.
17. Angka 3.53 Summary and recommendations perlu dikembangkan pembakuan data, peta antar instansi pusat dan daerah.
18. Angka 3.54, Regional Spatial Planning dan Amdal sebagai alat perencanaan keterpaduan pembangunan sektoral dan daerah yang berwawasan lingkungan.
19. Angka 3.54 point e "The Bappeda's ability to undertake coordination on land use Planning....."



Jakarta 5 April 1988

Ir.Aca Sugandhy M.Sc  
Banasbina 2  
bidang Pengelolaan  
Kualitas Tata Ruang

### III. LAND ALLOCATION AND LAND USE IN THE OUTER ISLANDS

#### A. The Demand for Land

##### Current Land Use

3.1 As Table 3.1 indicates, only about 8% of Indonesia's land is currently under sedentary agricultural production systems. This estimate is not based on aerial photography and must be regarded as very rough. Nevertheless, even with a wide margin of error, it is clear that, except for Java, only a small portion of land is in permanent production. As noted previously, air photo interpretation indicates that 22% of Kalimantan and 30% of Sumatra appear to be under brush, shrubs, grass or long fallow cultivation.

Table 3.1: CURRENT LAND USE BY ISLAND ('000 ha)

Island	Wetfield rice /a	Dryfield rice	Smallholder estates	Other	Total	Percent agriculture
Java	2,864	2,361	324	98	5,665	43%
Sumatra	1,247	1,310	1,308	81	3,939	8%
Bali/NTT	321	572	139	21	1,053	14%
Kalimantan	506	548	683	68	1,806	3%
Sulawesi	469	654	366	51	1,540	8%
Maluku and Irian Jaya	6	219	227	10	462	1%
<u>Total</u>	<u>5,414</u>	<u>5,665</u>	<u>3,047</u>	<u>328</u>	<u>14,465</u>	<u>8%</u>

/a Includes irrigated rice, banded rainfed rice, and tidally irrigated areas.

Source: 1983 Agricultural Census

3.2 Data on agricultural productivity indicate that there is very little difference in the productivity of labor from one province to the next. Java's average agricultural gross regional domestic product (GRDP) per worker, Rp. 393,000 in 1980, is about the same as that in other islands. There is, however, a large difference in the productivity of land as measured by agricultural GRDP per ha. Sumatra as a whole requires 2.1 ha to equal the productivity of 1.0 ha on Java, while Central Kalimantan requires 6 ha and Irian Jaya, 12 ha. This indicates that farmers in the outer islands currently require more land per family to earn the same income as in Java.



Pressures on the Land*for agriculture ? only ?*

3.3 In the early 1970s the Indonesian economy experienced a steady structural shift away from agriculture toward other sectors. With about 70% of the Indonesian population living in rural regions and dependent directly or indirectly on agriculture for their subsistence, such a change was considered long overdue. In the 1980s, rates of growth and employment generation slowed, partly as a result of declining oil revenues. Growth in manufacturing fell from about 13% p.a. in the 1970s to about 3.7% after 1983. This placed renewed pressure on agriculture to absorb surplus labor. While the sector absorbed about 22% of the growth in the labor force between 1971-80, it absorbed nearly one-half the increase from 1980-85.

3.4 Despite pressure on the agricultural sector to absorb surplus labor, the capacity of the sector to do so was limited. This was particularly true in Java. By the early 1980s, 74% of all the surface area on Java was under either agriculture or productive forests, virtually all economically irrigable areas were under the command of irrigation systems, and 94% of wet rice fields were planted with high-yielding rice. While opportunities remained for increasing agricultural production, there was very little room for increased employment in the sector. Therefore, if surplus Javanese labor were to be absorbed in agriculture, it would have to be through movement to the outer islands. Conditions in the outer islands have produced the same effect. Although 40% of Indonesian people are in the outer islands only 20% of industries are located there. This again means that new entrants to the labor force will seek employment in agriculture placing increased pressure on the land.

3.5 The results of these pressures are reflected in Table 3.2. This table shows that irrigated land expanded more rapidly than dryland between 1963-1973, but that between 1973 and 1983 dryland agriculture expanded at the most rapid rate. In this period, dryland production in the outer islands increased by more than 50% and expanded by 3.4 million ha. Particularly noteworthy is the rapid growth of dryland production between 1973 and 1983 in Sulawesi (5.6% p.a.), Kalimantan (4.6% p.a.) and Sumatra (3.7% p.a.). All these factors point to increasing demands for land in the outer islands and growing concerns about the trade-offs between forests and agricultural use.

*in  
outer  
islands  
not in  
Java*



**Table 3.2: AVERAGE ANNUAL RATE OF EXPANSION  
FOR WETLAND AND DRYLAND RICE (%)**

Island	1963-1973		1973-1983	
	Wetland	Dryland	Wetland	Dryland
Java	0.4	-0.8	1.1	1.8
Sumatra	2.9	-1.2	2.2	3.7
NT/Bali	1.8	2.7	2.2	3.7
Kalimantan	4.6	2.3	3.5	4.6
Sulawesi	6.1	4.1	1.6	5.6
Maluku	-	-	-	-
<u>Total</u>	<u>1.7</u>	<u>0.6</u>	<u>1.7</u>	<u>3.6</u>

Source: Kasryno, Faisal, et al. 1986. Pola Usaha Pertanian dan Pola Tanam. BPS Agricultural Census 1983.

### Development Programs

**3.6 Transmigration.** The main land settlement scheme in Indonesia is the transmigration program. The objective of the program has been to move people from overcrowded areas in the inner islands to the less populated outer islands. Transmigration can be fully sponsored, partially assisted, or unassisted (spontaneous), and local resettlement also occurs. Migrants generally receive 2-3 ha of food crop land and title to the land after five years. Between 1980 and 1986 more than two million people were moved (Table 3.3). In support of the program about 800,000 ha of land were cleared of which about 300,000 ha were in secondary forest and an equal amount was in logged over primary forest. Another 500,000 ha were allocated, but uncleared.

**3.7** The central question in the evaluation of transmigration is whether sites on marginal soils can be sustained. As noted previously, traditional cultivators typically rely on shifting cultivation to circumvent the limitations of low fertility soils and, ordinarily, 15-20 ha of land is needed to sustain a family on this basis. Given the widespread nature of this adaptation, critics of transmigration have argued that transmigrants will not be able to sustain food crop production on one or two ha of marginal land, and as a corollary of this, they suggest that transmigrants will engage in widespread shifting cultivation destructive to the environment or will abandon their sites. Unsuccessful land settlements in Brazil have reinforced this view. It is important to recognize, however, that in the case of Javanese and Balinese migrants, land constraints, combined with cultural, technical and economic factors, including the presence of off farm work, necessitate and permit sedentary cultivation. Extensive forms of cultivation on the part of sponsored migrants who have received land (as opposed to spontaneous migrants who have not) are uncommon, and there is no evidence of widespread site abandonment among the two million migrants recently settled.



Table 3.3: SPONSORED SETTLEMENT IN THE OUTER ISLANDS  
(Families)

Years (Repelita)	Sumatra	Kalimantan	Sulawesi	Irian Jaya	Total
1969-74 (I)	22,000	6,000	11,400	100	39,500
1974-79 (II)	33,000	11,000	9,000	2,000	55,000
1979-84 (III)	227,000	70,600	51,000	16,600	365,200
1984-86 (IV)	84,500	38,300	23,800	7,400	154,000
<u>Total</u>	<u>366,500</u>	<u>125,900</u>	<u>95,200</u>	<u>26,100</u>	<u>613,700</u>
%	60	20	15	5	100

Source: World Bank, 1986, Transmigration Sector Review.

3.8 Recent World Bank studies indicate transmigration has contributed significantly to development objectives. In the third five year plan, transmigration created at least 500,000 to 600,000 permanent jobs, and the temporary work generated by the settlement process was very large. Transmigration employed almost 15% of those moving into the labor force for the first time. Of public investment programs, only temporary rural works programs and tree crop development programs generated more jobs in the plan period. The lives of most migrants also appear to have improved. While virtually all migrants were below the poverty level when in Java, a study by the Central Bureau of Statistics indicates that about half of all settlers in the sample were above the poverty line. These achievements have not been realized without difficulties. Chief among these are the increasing problems of finding suitable unclaimed land, low incomes from agriculture and low rates of return for some types of sites. There is also concern about the large scale movement of spontaneous migrants and about the impact of the program on local people and on forests and wildlife.

3.9 In early 1986 the transmigration program was curtailed due to declining oil revenues and implementation problems. For the remainder of Repelita IV (1984-1989) and of Repelita V (1989-1994), the funds available for transmigration are to be used primarily to upgrade the infrastructure and production systems on existing sites. Even if no new large scale settlement were to occur, however, sponsored migrants would be expected to expand their holdings into allocated, but as yet uncleared land, and land pressure will increase as spontaneous migrants are attracted to successful settlements.

3.10 Tree Crop Development. Although Indonesia has stressed the importance of nonoil exports since the late 1970s, the recent declines in revenues from oil and liquid natural gas (LNG), and the unexpected increase this has caused in Indonesia's debt service ratio, have strengthened Government's resolve to make the policy changes which are necessary to support export



industries. In so doing, it also hopes to address poverty and employment objectives. With favorable policy changes the Bank expects timber exports to grow by 5% and plywood by 8%, while coffee, rubber and palm oil would grow by 3%, 5% and 10% respectively. Altogether these primary products, grown mainly in the outer islands, would account for more than 40% of nonoil exports through the remainder of the century. In order to meet these development targets, large land areas are required.

3.11 In recent years the main vehicles for tree crop development have been (a) the Nucleus Estate and Smallholder (NES) program, in which Government owned estates plant new areas for the estate (20%) and smallholders (80%); and (b) Project Management Units (PMUs), which help existing smallholders plant or replant on their own land. In Repelita III about 22% of tree crops were planted by estates and 78% by PMUs. Private estate development has recently been encouraged.

3.12 To date, only relatively small areas of primary forest have been used for estate crop development as estates have had the financial resources to obtain other land. It is now becoming increasingly difficult, however, for estates to identify land which is not forested and not already under smallholder production, and land acquisition is a growing problem. PMU projects on smallholder land have good prospects for intensifying production systems and can help limit shifting cultivation and improve smallholder incomes. For this reason they are attractive on both environmental and equity grounds. However, recent PMU programs have suffered serious problems arising from the poor quality of planting. To be cost effective, program implementation and cost recovery mechanisms must be improved.

3.13 Given budgetary constraints, Government has recently launched an ambitious program to support private estate development in which 40% of all block planted areas would be for the estate and 60% for smallholders. In anticipation of such expansion, requests have been made for the reservation of very large areas of land. According to Forestry Department statistics, 1.6 million ha of land were requested for agriculture in Repelita III of which 137,000 ha were allocated in the five year period; and 1.5 million ha were requested in the first half of Repelita IV, of which 627,000 have been allocated. Virtually all allocated land was transferred from areas already earmarked for conversion and not all was forested. Nevertheless, the magnitude of these numbers suggests the extent of pressures on the land. It also indicates the urgent need for a good environmental impact assessment of agricultural development projects.

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1/ Statistics from the estate crop sector indicate that about 46,000 ha of primary forests were allocated for tree crops in Repelita III, about 40% of the area allocated for this purpose in the plan period.



Table 3.4: TREE CROP PLANTING PROGRAMS (HA)

Commodity	Repelita III achievements	Repelita IV estimates	Repelita V projections
Rubber	262,000	120,000	250,000
Oil palm	59,700	120,000	300,000
Coconut	193,300	78,000	200,000
Beverage crops	217,000	200,000	250,000
<u>Total Hectares</u>	<u>732,200</u>	<u>488,000</u>	<u>1,000,000</u>

3.14 Because of budgetary constraints it is difficult to predict the total area of Government sponsored and private tree crop development likely to occur in Repelita IV. However, assuming a reasonable increase in development expenditures and the ability to overcome quality control and credit recovery problems, it is not unreasonable to assume that 500,000 ha to one million ha of tree crops could be planted in Repelita V, virtually all in the outer islands (see Table 3.4). This very large area presents Government with clear development options with respect to land use. Either arrangements will have to be made to permit the upgrading of existing agricultural land, or the expansion of this area will have to be made at the expense of forests. Given the pressure on agricultural land in Java, the question is not whether land will be converted, but how much land will be converted and whether it will be done by design or by chance.

#### B. Optimal Land Use

##### The Economics of Alternative Land Use Systems

3.15 If adequate areas have been set aside for conservation and watershed protection, the decision about whether land should remain under timber, shifting cultivation or sedentary cultivation depends, in part, on the economic returns to alternative land use systems. To evaluate this, Bank staff have calculated the net present value of several common production systems in the outer islands and their returns per ha. As Table 3.5 indicates, shifting cultivation under optimal conditions provides a higher net return to family labor than most sedentary production systems. This is, however, an optimal case with production in excess of normal family requirements, an unusual situation. If benefits are reduced by half, and production is, on average, barely sufficient to meet a family's subsistence needs (a more typical situation where short fallow rotation is being practiced), then low input, low output sedentary production systems on adequate soils are slightly more attractive in terms of total household income, although the return to labor day is still higher for shifting cultivators. The fact that shifting cultivation takes fewer days than sedentary cultivation (if adequate land is available) explains why many households use shifting cultivation to meet their subsistence needs and use their remaining time to seek off farm work. Farming



systems relying wholly on block planted tree crops provide better returns than short fallow shifting cultivation or low input food crop cultivation on marginal soils.

Table 3.5 NET PRESENT VALUE OF ALTERNATIVE PRODUCTION SYSTEMS  
(10% Discount Rate, 1987 Constant Rp)

Production System	Net return per labor day (Rp)	Net farm income	Hectares needed for this return	NPV per hectare (Rp)	(US\$)
<u>Shifting Cultivation</u>					
Optimal	5,400	4,637,000	20	193,700	117
Short fallow	2,200	1,861,000	12	87,000	53
<u>Sedentary Cultivation</u>					
Low input food crops	1,900	2,576,000	1.5	736,600	44
PMU rubber	2,500	4,708,000	2.0	1,850,000	1,182
Rubber and house garden	2,300	6,060,000	2.5	1,758,000	1,065
<u>Timber Production</u>					
Low value stand (\$15/ha/yr)		-	1.0	211,000	128
Moderate value stand (\$35/ha/yr)		-	1.0	492,000	298
Good value stand (\$65/ha/yr)		-	1.0	913,000	555

3.16 If land productivity, not household productivity, is assessed, the results are quite different. The return to one ha of land under optimal shifting cultivation is about US\$120, while under low input food crops it is about US\$450. Systems with block planted rubber have returns of about US\$1,100 annually. Of primary interest, however, is the fact that timber production in a good stand of natural forest produces a net present value (NPV) better than shifting cultivation and in roughly the same range as sedentary food crop production. Tree crop production has a NPV significantly higher than food crops or timber production. These data suggest that it would be generally preferable to intensify existing land use and to develop land allocation mechanisms which would make optimal use of marginal land for tree crops and timber production. They also suggest that the opportunity cost of foregone timber production should be taken into account in the economic analysis of development projects.

#### Comparative Advantage in Timber Production

3.17 Not all of Indonesia's forest is equally valuable for timber production, and the quantity of trees varies significantly from province to province. Table 3.6 shows the percentage of land in each province within

Sandak-?  
Wood?  
Classified  
under  
which category



permanent forest classification and the percentage of commercially harvestable timber. These figures are not based on good on site assessment of the quality of stands, but in spite of this shortcoming, the proportions are thought to be reasonably accurate. As the Table indicates, Kalimantan, which has one third of Indonesia's area within permanent forest boundaries, has more than half (55%) of the commercially valuable timber, and East Kalimantan alone has almost one quarter of all commercially valuable trees. Irian Jaya with one-quarter of the area within production forest has only 9% of the commercially valuable species.

3.18 In the past there has been a tendency on the part of Government to encourage the development of all provinces along a similar path. Each province has been encouraged to be self-sufficient in rice, raise secondary crops (e.g., soybeans), plant tree crops, produce timber and accept migrants. This has been true even though these objectives may be contradictory and one province may have a strong comparative advantage in one form of production rather than another. To continue this policy is neither economically nor environmentally sound. Kalimantan, and East Kalimantan in particular, has a comparative advantage in timber production, but it has poor soils and is not well suited to food crops. Under the circumstances, movement to East Kalimantan should be discouraged and food crop production minimized except on the limited, settled areas with good soils. Sumatra, which has relatively good infrastructure in comparison with other outer islands, has a strong comparative advantage in tree crops. Intensification of low output tree crops should be encouraged there. To realize the benefits of different regions, better land classification systems are needed, and better land use planning is required at the national and regional levels.

Sumatra  
Balawan

1.25  
Sumatran

spatial  
Planning?  
- towards

Kalimantan  
Sumatra  
Jawa  
Irian  
N.T.  
Mekong

- Timber  
- tree crops.  
- Food crops

Organize  
the utilization  
of natural resources  
and human  
resources



**Table 3.6: PROPORTION OF COMMERCIAL TIMBER IN THE NATURAL FOREST  
BY PROVINCE**

Province	% Forest in permanent forest categories (A).	% Commercially Marketable Timber (B)
Aceh	3.0	4.0
North Sumatra	3.0	2.0
West Sumatra	3.0	2.0
Riau	6.0	9.0
Jambi	4.0	3.5
South Sumatra	2.0	2.5
Lampung	1.0	0.0
Bengkulu	1.0	1.0
<u>Sumatra</u>	<u>22.0</u>	<u>24.0</u> 2
West Kalimantan	7.0	8.5
Central Kalimantan	10.0	19.0
South Kalimantan	2.0	3.0
East Kalimantan	14.0	24.0
<u>Kalimantan</u>	<u>32.0</u>	<u>55.0</u> 1
North Sulawesi	1.0	1.0
Central Sulawesi	4.0	4.0
South Sulawesi	2.0	1.0
Southeast Sulawesi	3.0	0.0
<u>Sulawesi</u>	<u>10.0</u>	<u>6.0</u>
Bali and Nusa Tenggara	2.0	0.0
Maluku	4.0	5.5
Irian Jaya	<u>25.0</u>	<u>9.0</u> 4
<u>Eastern Islands</u>	<u>31.0</u>	<u>14.5</u> 3
Other /a	5	0
Total	100.0	100.0

/a Java and other smaller islands with little timber in natural forest.

Source: (A) Forestry Department Statistics

(B) Atlanta Inproma, 1987, Wood Raw Material Supply.



*Drylands vs wetlands*

- 45 -

Uplands vs Wetlands

*Cawland R*

3.19 Indonesia originally had an estimated 36.5 million ha of peat, freshwater and mangrove swamps of which about 25 million ha remain, including some 3,365,000 ha in reserves. Most of the area is in low lying coastal swamps. These areas are flat and have poor drainage networks so that rainwater, floodwater and water backed up by tidal action is trapped on the land. This forms swampy areas which are relatively inhospitable to people and difficult to cultivate without major drainage works. Because of their physical characteristics, and because of the absence of suitable technologies to develop them, swamps have relatively low population densities. For this reason they are one of Indonesia's richest areas for wildlife conservation and one of its last agricultural frontiers.

3.20 Assuming that some areas will be converted to agriculture, swamp-lands have advantages over other forested areas from an economic and ecological point of view. First, dryland areas contain more commercially valuable timber than do swampy areas. Second, upland forests have important functions in watershed conservation and protection of steeper slopes. This is less true of swamp forests, even though they also serve important ecological functions. Finally, the fact that swamps are flat permits bunded rainfed rice and intensive rice production. Because of the high organic content of some swamp soils, many older communities in tidal reclamation schemes produce two to four times as much rice as upland communities. Swamps are also suitable for oil palm and coconut, but not for rubber, coffee and other beverage crops (tea, cocoa).

*Stranges*

3.21 Experience in smallholder settlement in swamplands has been mixed. Both the best transmigration settlements and the worst are in tidally influenced areas and a number of site selection issues and technical problems must be overcome before smallholders can be settled without undue risk. If current problems can be overcome, however, development planners with environmental concerns will face a difficult choice. On one hand, because of their lack of development, swamps are perhaps the most important reserve of waterfowl and animals, and they play an important role in the protection of coastlines and fisheries. On the other hand, they more readily lend themselves to sustainable smallholder production than do the marginal soils in upland areas.

3.22 Recently private investors have also discovered the development potential of swamplands and very large applications have been made for the reservation of swamplands for development purposes. This suggests that policies and procedures are urgently required on swampland development which take both economic and environmental factors into account. It also reinforces the need for developing environmental impact procedures at the provincial level.

3.23 To minimize environmental degradation, which might be associated with any future swampland development, studies are urgently needed to identify those areas which are most important for conservation and protection. A study of this type is about to be carried out by the Asia Wetlands Bureau in cooperation with the MOF and with Dutch financial assistance, but will take at



least two years to complete. More thorough work is also required on the hydrological impact of drainage and on possible mitigatory measures to reduce acidification and other adverse effects.

### The Potential for Intensification

3.24 Since forest conversion entails relatively large opportunity costs in terms of foregone timber revenues and often involves the destruction of important ecosystems and wildlife habitat, the question arises whether options exist which would meet Government objectives without forest conversion. The answer lies in the intensification of existing production systems.

3.25 There are at least two million ha of low productivity rubber in the outer islands which yield 350-500 kg/ha and which could be upgraded by smallholders with Project Management Unit (PMU) assistance and produce 1,200-1,500 kg/ha/year. Opportunities also exist for upgrading coconut and coffee areas. To encourage smallholders to replant, systems have been developed to stagger planting (one ha every three to four years) so that some rubber is producing when the rest is immature and to intercrop with food crops in early years. There are also ample opportunities for upgrading food crop production systems. However, such intensification schemes generally benefit landowners and wealthier farmers and do not meet Government's resettlement and equity objectives for landless farmers.

3.26 Land purchase may permit land intensification and meet equity objectives. There are many areas in the outer islands where cleared land is available at a fair price (US\$60-\$100/ha). This land could potentially be used either by development projects or by local smallholders and immigrants, if smallholder land registration systems were developed and if credit were available for land purchase. Developing procedures for the purchase of land would also be economically and financially attractive to Government. Table 3.7 compares the estimated rates of return to new settlement where Government (a) provides access to remote areas and clears forested land, or (b) allocates money for land purchase and land registration in areas where access already exists. As the Table indicates, the high overhead costs associated with standard large scale settlements produce low rates of return. However, if programs were developed to permit new settlers, whether transmigrants or locals, to purchase underutilized, cleared and accessible land, economic returns would be significantly increased. Government's production and equity objectives could also be met at lower cost and pressures on natural forest areas could be reduced.



**Table 3.7: ECONOMIC RATES OF RETURN TO NEW SETTLEMENT IN REMOTE AREAS, AND IN AREAS WHERE LAND IS PURCHASED FOR INTENSIFICATION**

Models /a	Agriculture only		Agriculture & off farm Work	
	Large scale settlement	Land purchase	Large scale settlement	Land purchase
Low Input Food Crops	neg	neg	1%	15%
Diversified Food Crops	2%	14%	4%	17%
Sustained Input Food /b	2%	16%	7%	27%
Project PMU Tree Crops	8%	13%	9%	15%

/a. Adapted from the Transmigration Sector Review, World Bank 1986, Indonesia.

/b. Observed primarily in research areas.

### C. Land Use Planning and Allocation

3.27 Even with land intensification programs, some new land will have to be put into agricultural production. To maximize economic benefits and minimize adverse environmental impacts, such areas should have suitable soils. They should be as close to existing agricultural areas and infrastructure as possible, and they should be located away from reserves and protected areas. In order to take locational factors into account, mechanisms must be developed to identify the land best suited to agriculture, allocate it to smallholders and ensure appropriate use. To date, however, efforts to determine optimal land use have been hampered by (a) the fragmentation of data collection among agencies; (b) the absence of basic tools such as geographic reference systems and agreed base maps; (c) inadequate land classification and land allocation systems; and (d) uncertainties about the nature of, and authority for, land use planning. — and Spatial planning?

### Data Collection and Mapping Services

3.28 General Issues. In the past decade, the Indonesian Government has spent large sums on aerial photography, land resource assessment and mapping in urban and rural areas. In spite of this, there are still no standard base maps for Indonesia, data are fragmented and redundant, and an adequate geodetic control system, which is critical for mapping and land registration, has yet to be established for the outer islands. The reasons are familiar. There are a large number of agencies involved in data collection (see Table 3.8); and relatively new agencies, like the National Body for Surveys and Mapping (Bakosurtanal), have had limited absorptive capacity and have remained underfunded and understaffed in relation to the task. Given ambitious development targets, line agencies have requested and received relatively large amounts of funds to do land resource assessment for their own projects (estates, irrigation, transmigration, oil exploration) and the data gathered on this scale have not been absorbed by Bakosurtanal and are frequently inaccessible to others.



Table 3.8: PARTIAL LIST OF LAND RESOURCE INVENTORY  
AND MAPPING AGENCIES IN INDONESIA

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Bakosurtanal (The National Coordinating Agency for Surveying and Mapping)

LAPAN (The National Space and Aeronautics Institute)

Armed Forces Survey and Mapping Service

Army Topographic Service

Naval Hydro-Oceangraphic Service

Air Force Aerial Photographic Service

Directorate of Meteorology and Geophysics

Director of Geology

Geological Mapping Division

Ministry of Home Affairs

Directorate General Agraria

Bappedas

Ministry of Agriculture

Soils Research Institute

Directorate General of Estates

Ministry of Forestry

Agency for Forest Land Use Inventories

Ministry of Transmigration

Directorate General for Site Selection Planning and Programming

Ministry of Public Works

Directorate General of Water Resources Development

Cipta Karya

Various Directorates

Pertamina

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3.29 Under the circumstances, there is need to consolidate existing piecemeal efforts to carry out mapping and land resource inventories. Key agencies should be identified and strengthened, and they should be given adequate funds and technical support to carry out their work. Priority should be given to fundamentals, such as base maps and an adequate geodetic network; and training and manpower development should be accelerated. To determine what agencies should be strengthened, stronger coordination is needed among those agencies involved in data collection, compilation and dissemination. One possible way to do this would be to strengthen Bakosurtanal. Another



would be to form a task force, under BAPPENAS or Ministry of Home Affairs authority, charged with improving and coordinating land resource inventories.

3.30 A major issue in need of attention is the effective utilization of mapping done in connection with Government's very large Transmigration program. In the past decade the World Bank alone has committed about US\$300 million to surveys and mapping in the outer islands intended to identify land with agricultural potential. This work evaluates soils, present land use and forest cover and would be useful for a wide variety of planning purposes in the outer islands. The dissemination of this information is particularly important since transmigration has slowed and land is being committed for other purposes, but without an adequate data base. In relation to the initial cost of collection, only small budgetary outlays are needed now to make this data base useful to the provinces.

3.31 Forestry Concerns. One example of the uncertainty introduced by poor basic information is found in the forestry sector. As noted previously, the data on topography, land use, and forest cover within forestry boundaries are rough. The reasons for this are: (a) most forest boundaries are not demarcated on the ground; (b) geographic reference systems are often inadequate to locate marked boundaries; and (c) there are no standard base maps on which all data can be imposed. These factors introduce large errors into all calculations of land use. Thus, when LRD superimposed the Forestry Department's own data on standard base maps, deviations between LRD's estimates of the area within different forest classes and the Forestry Department's estimates were as high as +20% (Table 3.9).

Table 3.9: FORESTED AREA MEASURED BY RePPPProt AS A PERCENT OF FOREST AREA MEASURED BY THE FORESTRY DEPARTMENT

	Reserves	Production Forest		Regular	Conversion
		Protection	Limited		
			%		
<u>Kalimantan</u>					
West	106	110	103	116	91
Central	61	98	93	97	116
South	94	119	118	103	129
East	85	82	111	80	129
<u>Irian Jaya</u>	88	126	97	108	108

Source: RePPPProt Studies, 1986, 1987.

3.32 To improve forestry information, Bakesurtanal should provide the Forestry Department with LRD maps showing soils, slope and forest cover. The



Forestry Department should use information on slope class and natural boundaries (e.g., rivers), to revise the boundaries of reserves and protection forests. The Forestry Department should also review current land use from aerial photographs with an eye to excluding areas used by local smallholders from Forestry Department lands. Agreement must also be reached on the appropriate means of classifying other land intended for timber and agricultural production.

#### Land Classification for Forestry and Agriculture

3.33 In the process of mapping land suitability in Kalimantan, LRD concluded that areas suited to food crops were limited. Large areas of production forest had the slope and soil requirements for tree crops, but these areas would have to be reclassified to permit development. Accordingly, LRD proposed revised forestry boundaries. The proposed revision increased the amount of land in reserves and protection forest (due mainly to the large area over 45% slope) and put all areas where agriculture was not counterindicated into a conversion category. Table 3.10 summarizes the results of this exercise.

Table 3.10: PERCENT OF KALIMANTAN LAND UNDER CURRENT FORESTRY CATEGORIES AND PROPOSED LRD REVISED CATEGORIES

Forest category	Current boundaries	Proposed revision
	%	%
Reserves and Protection Forest	19	30
Production Forest	47	26
Conversion and Nonforest Categories	34	44

Source: RePPPProt Studies, 1986-1987.

3.34 Under the proposed LRD revisions, the amount of land in Kalimantan in reserves and protection forests would increase from about 10 million ha to 16 million ha; and the amount of land which could potentially be converted to agriculture would increase from about 11 million ha to 23 million ha. The amount of land remaining in permanent production forest would, therefore, be reduced from 25 million ha to 14.5 million ha. In East Kalimantan, Indonesia's richest timber producing province, this classification system would potentially reduce the land within permanent production forest categories from 50% of total land area (9.8 million ha) to 22% (4.3 million ha). This is due to the overlap in the qualities required for productive land, whether for timber or tree crops. Although not all land would be converted, and any conversion would occur over many years, a classification system of this type would have significant repercussions for the area under permanent forest cover.

3.35 The LRD proposal assumes agriculture is likely to have priority over



timber production. Mike Ross in his book, Forestry in Land Use Policy in Indonesia (1983), takes a somewhat different approach. Ross, like LRD, argues that land must be allocated for agriculture to meet the basic needs of the population. In deciding what land should be maintained as production forest, however, he weighs those attributes which contribute to the financial value of the production forest, e.g., regenerative potential, location and accessibility. Forests with lower quality, either because of depletion or species mix, would have lower priority for preservation than higher quality forests. In order to implement such a system, Ross suggests that all agencies agree on an appropriate land classification system, taking both agriculture needs and forest type into account. All land earmarked for wildlife reserves, ecological protection or buffer zones would be excluded from further analysis, but production and conversion forest would be subclassified. A decision would then be taken on the amount of land which should remain under forest cover for industrial use. Thereafter, land could be allocated to agriculture from areas earmarked either as production or conversion forest until the lower limit for industrial forests were reached.

3.36 Many environmentalists will be distressed by the prospects of deliberately converting any forested land. This is understandable. But any effort to protect all land from further development will also have adverse environmental and social effects, and it is critical that land which is developed be suited to agriculture and that land with the most valuable forest for ecological or economic reasons remain intact. The Bank assisted Forestry Project will undertake a forestry inventory to clarify information on the quality of production forests and help address issues related to wood raw material supply. However, it is not intended to decide what land should remain forested. Under the circumstances, there is an critical need to develop an institutional framework for land use decisions and a classification system that take both forestry and agricultural interests into account.

#### Land Use Planning

3.37 There are a number of institutions with strong vested interests in land use planning and land allocation. Among the most important are the following:

- (a) Agraria. The Basic Agrarian law envisioned that the Directorate General of Agraria in the Ministry of Home Affairs would take the lead in developing a comprehensive land use plan. In practice, however, Agraria is mainly involved in land use mapping and land registration, and since the 1960s it has avoided a macroplanning role.
- (b) Cipta Karya. The Directorate of Urban and Regional Planning in the Ministry of Public Works is the strongest advocate for spatial planning. To date, however, Cipta Karya has been involved largely with housing and urban issues, and it is not well represented in rural areas.
- (c) Agriculture. The Soils Research Center in the Ministry of Agriculture has a role to play in determining land suitability for



agriculture. However, until recently the agency has been underfunded, understaffed and overcentralized. Its main function to date has been largely investigating soil type and recommending appropriate agriculture systems.

- (d) Bappedas. Each province has a provincial planning office, or Bappeda, which can and should help make land use planning decisions. The obstacles, however, are large. Most data are aggregated at the center and unavailable in the provinces, and skills are limited, particularly among Government staff. On the other hand, only local staff have the regional knowledge and access to the detailed local level data.

3.38 Bakosurtanal with Asian Development Bank (ADB) support, has recently initiated a project (Loan 730-IND) to strengthen key land resource information centers and to improve the capacity of the Bappedas in eight Sumatran provinces to make appropriate land use decisions. Under the project, a simplified Geographic Information System (GIS) is to be established in the land use subsection of the Physical and Infrastructure Section of each Bappeda. Data would be obtained from local, provincial and national agencies to: (a) evaluate the suitability of areas selected by the provincial service offices for a particular type of proposed development; (b) provide planners within the line agencies with maps showing where there are areas suitable for specific types of development; (c) enable boundaries to be drawn more accurately than they are at present; (d) permit a better delineation of areas for conservation and watershed protection; and (e) improve the selection of farming systems suited to specific agroclimatic conditions.

3.39 This project is now being implemented, and some lessons are already clear. As was known, the land resource evaluation capacity of the Bappedas is weak and setting up the units requires strong technical support, probably in excess of that provided by the small team from ADB and intended to set up GIS systems in all eight provinces. On the other hand, early experience with mapping boundaries, identifying overlapping claims, isolating "hot spots" (e.g., areas where protected wildlife and people are coming into contact) and devising programs to deal with these problems confirms that only within the provinces can authorities find adequate solutions. The fact that ADB has provided salary support to project staff has been a major factor in permitting full time commitment and improving the quality of work.

#### D. Land Acquisition and Land Registration

3.40 Land acquisition for development projects is one of the most difficult problems facing Government. It has been cited as a major reason for delays in implementation by the World Bank. In fact, the difficulty of acquiring land in settled areas is a major reason why Government agencies look to forested land for development purposes. Complicated land markets also poses problems for smallholders, who find it difficult to identify land and obtain secure title to it. When underutilized land cannot be purchased, they turn to forested land. Thus to reduce smallholder pressure on the forests, land acquisition procedures must be improved.

*Land Bank*  
*Land Credit*



Government Acquisition of Land

3.41 Acquisition with Compensation. The Government acquires land for roads, buildings and development projects through a district land release committee. Government agencies seeking land apply to the Governor who submits the request to the land release committee. This committee, which includes local level officials and the village head in which land is located, is intended to facilitate land transfer where adat rights are involved and to ensure that both the purchaser and the local people are treated fairly. The committee examines the site, consults with the user and intended user, considers the quality of land, access, buildings and productive crops and determines the amount of compensation.

3.42 The land release committee is entitled to receive 1.5% of the compensation price in large land transactions, or Rp one million (US\$600), whichever is less, plus another 1.5% for administrative costs. In practice their share is often higher. To limit abuses, BAPPENAS has set guidelines for Government acquisition and in recent years the provinces have been required to pay one half the cost of land purchase from their own revenues as an incentive to keep prices down. In some areas the system works reasonably well, but unofficial payments intended to facilitate the work of the committee, particularly where private enterprises are involved, drive up the cost of land and cause serious delays, particularly in rural areas of the outer islands. To reduce such problems, the work of the land release committees should be more carefully supervised and independent mechanisms must be developed for appeal and review of land use decisions.

3.43 Land Acquisition without Compensation. Although Government institutions regularly pay compensation for the land required for roads, offices and other infrastructure, they do not pay cash for land used for development projects such as transmigration and NES.<sup>3/</sup> In theory, the local people also benefit from the employment and infrastructure which these projects provide, and they can become project participants. This policy reflects Government's view that land is a resource to be used for the good of all people, their concern that cash compensation will increase the cost of land to projects and local people, and the problem of ensuring the appropriate distribution of cash compensation.

3.44 In recent years, however, land has come to have a real monetary value in many areas. Under these conditions Government's reluctance to pay cash compensation forces development projects into increasingly remote areas and incurs a significant cost in terms of access and forest conversion. To reduce this problem Government must reassess its position on cash compensation for land and rely more on land markets to obtain reasonable agricultural land. Where cash compensation is involved, Government is well aware that mechanisms must be developed to ensure that compensation goes to the appropriate beneficiaries.

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3/ Compensation is paid for buildings and productive trees and plants, but not for the land itself.



### Smallholder Land Acquisition

3.45 General. There are many benefits to land registration including security of tenure and access to credit. For purposes of this paper, however, the most important reason for an active program of land registration is to permit land transactions. Land has a value related to what it can produce. Where land markets function effectively and arrangements are in place for land purchase and land transfer, land can be upgraded and put into production by those who have the desire, skills and capital to do so. People with claims to such land can be adequately compensated if they choose to sell.

3.46 Any discussion of land registration needs to be informed by several important social factors. First, not all people are equally prepared to participate in land transactions. Of the 12-14 million families in the outer islands, a million families or so are still relatively isolated from the cash economy. Therefore, any movement to accelerate land titling would be wise to defer registration in such areas, except when specifically requested by the local people. Second, culturally appropriate mechanisms for legal entitlement which recognize the primacy of the community need to be developed. Agrarian law permits registration of community land but this is not common. A program to do so would be well received in the outer islands since it could (a) provide protection against expropriation to local people and (b) permit transfers agreed by the community, without providing individual titles which could be permanently alienated. Third, not all families have equal access to capital, and any land registration system will only be useful and equitable if parallel programs for credit and/or land purchase are developed which permit poor as well as wealthy people to find land.

3.47 Land Registration Programs. Indonesia's land registration system provides land titles primarily upon request for documentation of land transfer. About eight million parcels of land have been officially registered since 1960; but most of these have been in urban areas, and fewer than 10% of rural households are thought to have land title. Recently Agraria has accelerated land titling through the Prona Program (Proyek Operasi Nasional) and some 900,000 titles were issued under all programs in 1985-86. This is a significant accomplishment, but the program has been slowed by recent budget limitations.

3.48 The most important constraints to land registration are the complexity of the process and the number of steps involved. Table 3.11 lists the procedures for obtaining title to adat land. Not only are these procedures beyond the administrative capacity of the average rural smallholder, but each step requires official and unofficial payments which frequently exceed the value of the land itself. Under the circumstances, few smallholders are prepared to initiate the process, and they are likely to request title only in conjunction with development projects or a subsidized one stop program, such as Prona. As recent shortages of funds have slowed the Prona program, consideration should be given to attracting external support for this effort.



Table 3.11: PROCEDURES FOR OBTAINING TITLE TO ADAT LANDSProcedure

1. Applicant obtains official documents.
2. Applicant files for land title. The application must include:
  - (a) Information on the chronological/historical status of land, certified by the village head;
  - (b) A rough sketch of land parcel showing boundaries agreed by the village head;
  - (c) Information on land ownership verified by subdistrict head; and
  - (d) Certification of tax payment, verified by subdistrict head.
3. The District Agraria Office carries out a field check to identify any adverse claims.
4. The land is officially surveyed and a map prepared.
5. Upon completion, the map and documents are posted in the office of the village head and the subdistrict for 60 days to permit complaint.
6. District (or subdistrict) Office of Agraria prepares a letter of recommendation if no complaints are made.
7. The letter of recommendations is sent to the provincial Office of Agraria for a letter of decision (for non-Adat land, the latter is forwarded to Jakarta).
8. The applicant is informed of decision and required to pay fees for the completion of the process.
9. The certificate of title is issued, and a copy is provided to the applicant.

Source: Colin MacAndrews. 1986. Land Policy in Indonesia, p. 36.

3.49 A second serious constraint to the land registration process, is reliance on Government institutions to carry out the work at all levels. Agraria staff process applications, carry out the cadastral surveys and do land titling. Efforts to encourage Agraria to accept surveys already done by transmigration officials, for example, have only recently been successful. To facilitate development generally, and to reduce delays in development projects, a program to speed and simplify the work of Agraria and to privatize some survey and mapping aspects of the land registration process should be



given high priority. Without a responsive land registration system land markets are distorted, prices are raised, and increased pressure is placed on marginal lands and forest resources.

3.50 Capital for Land Purchase. As noted, there is a reasonable amount of cleared land available in the outer islands at a price of about US\$40-\$100/ha. In general, however, Indonesian smallholders with household incomes of US\$500 annually, barely enough for subsistence, do not have sufficient funds to purchase two or three ha. Therefore, to facilitate land transfer, mechanisms must be available to provide capital for land purchase, either through development programs such as transmigration or through standard credit systems.

3.51 The World Bank's Transmigration Sector Review argues that while more general credit mechanisms for land purchase are being developed, the Ministry of Transmigration should develop a facility to provide funds for land purchase to spontaneous settlers whether from the inner or outer islands. Initially funds from such a facility might be made available to nongovernment groups (religious organizations, veterans groups and the like), which would guarantee repayment. Loans could be limited to purchases of previously cultivated land in areas where agricultural settlement was to be encouraged and such factors could be taken into account in land titling by Agraria.

3.52 In the longer run, however, capital must be available to individual smallholders for land purchase through normal credit mechanisms. In the past Government has been reluctant to provide credit for land purchase on the grounds that smallholders might not repay. However, even if land purchase and land registration cost \$200-250/ha and smallholder loans of two ha were encouraged, Government's financial outlay settlement under smallholder credit schemes would be less than one tenth that under transmigration. To facilitate the development of appropriate programs along these lines, Agraria should take a much stronger role in identifying constraints to the development of local land markets and take the needed steps to overcome them. This should include working with development projects and state and commercial banks to mobilize capital for land purchase. Agraria would also be expected to certify that land being registered is unforested and suitable for agricultural production.

#### E. Summary and Recommendations

3.53 As the pressure on the forest indicates, land resources are finite and failure to manage the relatively fragile soils of the outer islands in a sound manner has the potential for serious land and forest degradation. To manage land sustainably, Government must develop the basic tools for land use planning and allocation and improve its system of land classification. Increased attention is also needed to mechanisms for land registration, land acquisition and land transfer.

3.54 Planning Tools. Of highest priority is the development of those basic tools needed for all aspects of land use planning, allocation or registration. The following key steps are required:

Land  
Banking  
↓  
MONP/M

Transfer  
Data  
Standards  
(Land, Water, Soils, Air, Forest - Forest)  
Acres  
Maples

Standards  
(Pop., Lib. Accession → Topography, Slopes, etc.)  
Natural Resources  
Management

Regional Spatial Planning



*Java?*

- (a) The geodetic reference system in the outer islands should be completed, as this is the basis for mapping and registration;
- (b) Bakosurtanal, Forestry and Agraria should agree on a common mapping system;
- (c) Bakosurtanal's ability to compile and recover existing maps and information should be strengthened;
- (d) Key natural resource information agencies such as the Soils Research Center should be strengthened, and their data decentralized; and
- (e) The Bappeda's ability to undertake land use planning should be improved by the provision of adequate manpower, financial and technical support.

*Review and log.**Coordination*

There is also an urgent need to decide on the most effective use of mapping undertaken in conjunction with the transmigration program. In past five year plans, there has been a tendency to take shortcuts in information collection and compilation, and while these actions have undoubtedly speeded specific development projects, they have also been expensive and costly in terms of institutional development. Given anticipated resource constraints, a strong commitment to the basics is now required.

3.55 Land Classification. In order to improve land classification, the Forestry Department should use the data produced by RePPProt to determine the areas to be protected because of slope and soil considerations and to define the boundaries of the areas already included under the reserve and park systems. Such areas should remain under permanent forest cover. Next, an appropriate classification system should be established for all remaining land, taking timber production needs, forest quality, soil capability, current land use and development needs into account. This classification system should be based on general principles and responsive to changing conditions and priorities. To prepare this, new institutional arrangements are required.

3.56 Land Acquisition. Indonesia's land acquisition and land registration procedures reflect the complexity of traditional patterns of land holding and are, in general, necessary and appropriate. However, the difficulties which Government agencies and smallholders face in acquiring underutilized land for productive purposes places increasing pressure on them to colonize marginal lands and productive forests. These difficulties are due, in part, to the fact that cultivated land is subject to complicated land claims. However, difficulties are also due to distortions in land markets caused by Government's reluctance to provide land compensation for development projects, complex land acquisition procedures which drive up the cost of land transfer, difficulties in registration and titling, and a lack of capital for land purchase.

3.57 To free underutilized land for development, facilitate land transfer and ensure fair treatment of buyer and sellers, the following steps are required:



- (a) Government should consider providing compensation for land for development projects;
- (b) The work of the land release committees should be more carefully scrutinized and procedures should be developed for impartial appeal and review;
- (c) Land registration in rural areas should be accelerated through programs like Prona, and the private sector should have a greater role in mapping and surveying; and
- (d) Capital should be made available for land purchase, either through development projects or through the banking system.

In general more funds and higher priority are needed to deal with land registration issues.

3.58 Land Policy. The absence of a coherent land use policy is, at the moment, a major impediment to environmentally and economically sound development. At the present time each individual agency has its own needs and objectives and there are no mechanisms, particularly at the central Government level, for establishing cross-sectoral guidelines or mediating disputes. The Ministry of Forestry has recently stepped into the breach and developed a land use plan for 75% of the outer islands. It is clear, however, that forestry categories have been drawn up without a detailed knowledge of the slope and forest conditions, that they have incorporated local cultivators within Forestry Department boundaries and that they have not taken agricultural needs or land suitability into account in developing conversion categories. Because these categories have not been based on sound land use principles, they will be impossible to enforce.

3.59 Given the pace of development in the outer islands and the opportunity which still exists to make decisions affecting land use, Indonesia should give serious consideration to further review of its land policy. This would include a review of the Basic Agrarian Law, the Basic Forestry Law and procedures for land registration and land allocation, particularly in the outer islands. The objective of the review should be to ensure that local smallholders have secure tenure and to clearly define the circumstances in which expropriation is permitted; to speed land registration and reduce its cost; to facilitate land transfer; to determine optimal land use; and to develop mechanisms for ensuring that appropriate land is available for development purposes. As there is no one agency in Indonesia empowered and able to do this at the present time, the initiative for such a review would likely rest with BAPPENAS or Home Affairs.





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6 July, 1988

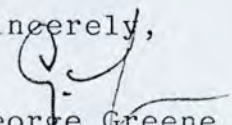
Mr. Attila Sonmez ✓  
Representative World Bank  
Jl.H.R.Rasuna Said Kav. B-10  
Kuningan  
Jakarta Selatan

07 JUL 1988

Dear Mr.A.Sonmez,

As discussed with you briefly, I am enclosing a preliminary translation of the draft GOI Act on Spatial Planning. We trust this will be useful to you and your staff in further discussions with KLH on this matter.

Sincerely,

  
George Greene  
EMDI Project Leader

cc: Mr.W. Struben  
Mr.R. Calkins

Willen

~~This is useful stuff.  
Let's also send a copy  
to Gloria? Or make sure  
that Dick list.~~

AS.

3 Set:

Mr Struben + Calkins





MENTERI NEGARA  
KEPENDUDUKAN DAN LINGKUNGAN HIDUP

Jakarta, 14 Maret 1988

Nomor: B- 522/MEN.KLH/3/1988  
Lamp. : 1 (satu) berkas  
Hal : Rancangan Undang-  
undang Tata Ruang.

Kepada Yth.  
Sdr. Gubernur/Kepala Daerah  
Tingkat I Seluruh Indonesia  
di  
T E M P A T.

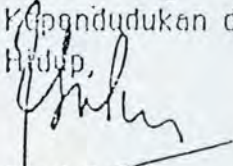
Saudara Gubernur Yth.,

Sesuai dengan penunjukan Menteri Muda/Sekretaris Kabinet kepada Kantor Menteri Negara Kependudukan dan Lingkungan Hidup melalui surat No:R-149/M. Setkab/D/1986 untuk mengkoordinasikan penyusunan rancangan Undang-undang tentang Tata Ruang, maka bersama ini saya sampaikan Rancangan Undang-undang tentang Tata Ruang terlampir.

Saya mohon dengan hormat pendapat, tanggapan dan saran Saudara sebagai bahan masukan bagi penyempurnaan rancangan tersebut. Segera setelah masukan-masukan saya terima, direncanakan membahasnya dalam forum Interdepartemental.

Oleh karena akhir tahun 1988 rancangan ini diharap dapat disampaikan kepada DPR, saya minta sudi Saudara memberi perhatian pada penekanan rancangan ini.

Atas perkenan Saudara memenuhi permintaan ini saya ucapkan terima kasih.

Menteri Negara  
Kependudukan dan Lingkungan  
Hidup,  
  
Enil Salim.

Tembusan :

1. Menteri Dalam Negeri
2. Menteri Muda/Sekretaris Kabinet.





RUU-TR/811

10031938

SEKRETARIAT MENTERI NEGARA  
KEPENDUDUKAN DAN LINGKUNGAN HIDUP

## RANCANGAN

### UNDANG-UNDANG REPUBLIK INDONESIA

Nomor ..... Tahun 1988

TENTANG

## TATA RUANG

JAKARTA







## KETENTUAN UMUM

## Pasal 1

Dalam Undang-undang ini yang dimaksud dengan:

1. Menteri adalah menteri yang bertanggung jawab dalam penataan dan pengaturan ruang.
2. Ruang adalah bagian / unsur lingkungan hidup yang merupakan wadah bagi manusia dan makhluk hidup lainnya untuk melakukan kegiatan dan kelangsungan-hidupnya.
3. Tata ruang adalah wujud struktural pemanfaatan ruang suatu wilayah baik dengan direncanakan maupun tidak, yang menunjukkan adanya hirarki dan keterkaitan pemanfaatan ruang.
4. Penataan ruang adalah upaya terpadu dalam rangka pemanfaatan ruang yang meliputi perencanaan, pelaksanaan rencana dan pengendalian pelaksanaan rencana tata ruang secara dinamik dalam memenuhi kebutuhan penggunaan ruang yang meningkat terus dari waktu ke waktu dengan cara yang optimum, berdaya guna, serasi dan berkelanjutan.
5. Perencanaan tata ruang adalah suatu proses penyusunan rencana tata ruang untuk meningkatkan kualitas lingkungan hidup dan kualitas manusianya dengan memanfaatkan berbagai sumber daya yang tersedia secara optimum, berdaya guna dan serasi.
6. Rencana tata ruang adalah hasil perencanaan tata ruang, berupa arahan kebijaksanaan dan memperuntukan (alokasi) pemanfaatan ruang yang secara struktur menggambarkan ikatan fungsi lokasi yang terpadu bagi berbagai kegiatan.
7. Pelaksanaan rencana tata ruang adalah suatu proses usaha agar rencana tata ruang yang telah ditetapkan dapat terwujud sesuai rencana.
8. Pengendalian pelaksanaan rencana tata ruang adalah suatu proses usaha agar pelaksanaan rencana pemanfaatan ruang oleh instansi sektoral, pemerintah Daerah, swasta serta masyarakat umumnya sesuai dengan rencana tata ruang yang ditetapkan.
9. Wilayah adalah kesatuan geografi beserta segenap unsur yang terkait padanya yang batas dan sistimnya ditentukan berdasarkan pengamatan tertentu.
10. Kawasan adalah suatu wilayah yang mempunyai fungsi utama tertentu.
11. Kawasan budidaya adalah suatu kawasan yang mempunyai fungsi budidaya baik permukiman maupun kegiatan usaha.



12. Kawasan lindung adalah suatu kawasan yang mempunyai fungsi lindung terhadap tanah, air, udara, flora dan fauna.

## B A B II

### ASAS dan TUJUAN

#### Pasal 2

Penataan ruang berasaskan manfaat, keseimbangan, keserasian dan kelestarian.

#### Pasal 3

Penataan ruang bertujuan untuk meningkatkan kualitas manusia dan kualitas lingkungan hidup secara berkelanjutan.

## B A B III

### RUANG LINGKUP

#### Pasal 4

- (1) Ruang lingkup penataan ruang meliputi kegiatan perencanaan, pelaksanaan rencana dan pengendalian pelaksanaan rencana tata ruang.
- (2) Ruang lingkup tata ruang meliputi tata ruang wilayah nasional dan tata ruang bagian wilayah nasional yang mencakup unsur bumi dan/atau air dan/atau angkasa, yang secara umum menggambarkan adanya kawasan budi daya dan kawasan lindung.
- (3) Bagian wilayah Nasional sebagaimana dimaksud dalam ayat (2) ditetapkan berdasarkan pengamatan tertentu.
- (4) Ketentuan sebagaimana dimaksud dalam ayat (1), (2) dan (3) diatur lebih lanjut dalam Peraturan Pemerintah.

#### Pasal 5

- (1) Perencanaan tata ruang sebagaimana dimaksud dalam pasal 4 ayat (1) meliputi kegiatan menyusun, menetapkan dan mensahkan rencana tata ruang.
- (2) Perencanaan tata ruang sebagaimana dimaksud dalam ayat (1) mempertimbangkan aspek waktu, modal dan optimasi.
- (3) Perencanaan tata ruang sebagaimana dimaksud dalam ayat (1), harus memperhatikan penggunaan bumi, air, angkasa serta keseimbangan dan daya dukung lingkungan.



## Pasal 6

- (1) Rencana tata ruang sebagaimana dimaksud dalam Pasal 5 ayat (1), berdasarkan tingkat penanganannya meliputi rencana tingkat Nasional, rencana tingkat Daerah Tingkat I, dan rencana tingkat Daerah Tingkat II.
- (2) Rencana tata ruang sebagaimana dimaksud dalam ayat (1), berdasarkan tingkat kedalamannya meliputi rencana tata ruang secara garis besar, sampai rencana tata ruang yang terinci.
- (3) Rencana tata ruang sebagaimana dimaksud dalam ayat (1) dan ayat (2) mengandung arahan kebijaksanaan dan peruntukkan ruang yang ditetapkan atas dasar kriteria lokasi, standar teknik dan pertimbangan sosial ekonomi serta dampak lingkungan.
- (4) Rencana tata ruang sebagaimana dimaksud dalam ayat (1), ayat (2), dan ayat (3) menjadi pedoman bagi perencanaan pembangunan.

## Pasal 7

Pelaksanaan rencana tata ruang sebagaimana dimaksud dalam pasal 4 ayat (1) sesuai dengan jangka waktu meliputi kegiatan membuat rencana teknik dan program pemanfaatan ruang agar dapat berfungsi sesuai dengan rencana tata ruang

## Pasal 8

Pengendalian pelaksanaan tata rencana ruang sebagaimana dimaksud dalam pasal 4 ayat (1) meliputi pengaturan, pengawasan dan penertiban dalam memanfaatkan ruang untuk mencapai tujuan penataan ruang sebagaimana dimaksud dalam pasal 3.

## BAB IV

### HAK , WEWENANG KEWAJIBAN DAN TANGGUNGJAWAB

## Pasal 9

- (1) Ruang wilayah Indonesia dikuasai Negara.
- (2) Penguasaan oleh Negara sebagaimana dimaksud dalam ayat (1) memberi wewenang untuk :
  - a. menyelenggarakan penataan ruang di Wilayah Indonesia
  - b. menyelenggarakan pengaturan keseimbangan nilai ruang.



## Pasal 10

- (1) Wewenang sebagaimana dimaksud dalam pasal 9 ayat (2) untuk mengkoordinasikan penataan dan pengaturan ruang berada pada Menteri.
- (2) Wewenang sebagaimana dimaksud dalam pasal 9 ayat (2) untuk menyusun rencana tata ruang sebagai bagian dari perencanaan tata ruang sebagaimana dimaksud dalam pasal 5 ayat (2) berada pada Menteri yang bertanggung jawab untuk penyusunan rencana tata ruang.
- (3) Wewenang sebagaimana dimaksud dalam ayat (2) untuk menyusun rencana tata ruang tingkat Daerah Tingkat I dan tingkat Daerah Tingkat II dapat diserahkan kepada Daerah.
- (4) Wewenang sebagaimana dimaksud dalam pasal 9 ayat (2) untuk pelaksanaan rencana tata ruang sebagaimana dimaksud dalam pasal 7 berada pada Menteri-menteri dan Pimpinan Lembaga Pemerintah Non Departemen yang bersangkutan dengan pemanfaatan ruang.
- (5) Wewenang sebagaimana dimaksud dalam ayat (4) dapat diserahkan kepada Daerah.
- (6) Wewenang sebagaimana dimaksud dalam pasal 9 ayat (2) untuk pengendalian pelaksanaan rencana tata ruang sebagaimana dimaksud dalam pasal 8 berada pada Menteri.
- (7) Wewenang sebagaimana dimaksud dalam ayat (6) dapat diserahkan kepada Daerah.
- (8) Ketentuan sebagaimana dimaksud dalam ayat (3), ayat (5) dan ayat (7) diatur lebih lanjut dengan Peraturan Pemerintah

## Pasal 11

- (1) Penyusunan rencana tata ruang tingkat :
  - a. Nasional diselenggarakan dengan mempertimbangkan pendapat Menteri-menteri dan Pimpinan Lembaga Pemerintah Non Departemen yang bersangkutan.
  - b. Daerah Tingkat I diselenggarakan dengan mengikuti arahan rencana tata ruang tingkat Nasional dan mempertimbangkan rencana Daerah Tingkat I yang berbatasan.
  - c. Daerah Tingkat II diselenggarakan dengan mengikuti arahan rencana tata ruang tingkat Nasional dan tingkat Daerah Tingkat I serta mempertimbangkan rencana Daerah Tingkat II yang berbatasan.
- (2) Ketentuan sebagaimana dimaksud dalam ayat (1) diatur lebih



lanjut dengan Peraturan Pemerintah.

#### Pasal 12

- (1) Rencana tata ruang Tingkat Nasional sebagaimana dimaksud dalam pasal 11 ditetapkan dengan Keputusan Presiden.
- (2) Rencana tata ruang tingkat Daerah Tingkat I sebagaimana dimaksud dalam pasal 11 ditetapkan dengan Peraturan Daerah Tingkat I.
- (3) Rencana tata ruang tingkat Daerah Tingkat II sebagaimana dimaksud dalam pasal 11 ditetapkan dengan Peraturan Daerah Tingkat II.
- (4) Pengaturan rencana sebagaimana dimaksud dalam ayat (1), ayat (2) dan ayat (3) diatur sesuai dengan Peraturan Perundang-undangan yang berlaku.

#### Pasal 13

- (1) Pemerintah wajib :
  - a. mempertimbangkan saran dan peran serta masyarakat terhadap penataan ruang.
  - b. Mengumumkan rencana tata ruang kepada masyarakat.
- (2) Pemerintah wajib meningkatkan kemampuan kelembagaan dan aparatnya serta menumbuhkan dan mengembangkan kesadaran masyarakat akan tanggung jawabnya dalam pembinaan penataan ruang.

### BAB V

#### HAK DAN KEWAJIBAN MASYARAKAT

#### Pasal 14

Masyarakat berhak untuk :

- a. menikmati pemanfaatan ruang
- b. mengetahui rencana tata ruang.
- c. mengajukan saran terhadap rencana tata ruang.
- d. berperan serta dalam pelaksanaan dan pengendalian pelaksanaan rencana tata ruang

#### Pasal 15

Setiap orang dilarang menghambat kelancaran penyelenggaraan penataan ruang dan wajib menaati rencana tata ruang.



BAB IX

KETENTUAN PERALIHAN

Pasal 21

Dengan berlakunya Undang-undang ini, semua peraturan perundang-undangan yang berhubungan dengan pemanfaatan ruang yang tidak bertentangan dengan Undang-Undang ini dinyatakan tetap berlaku, selama belum ditetapkan penggantinya dengan peraturan perundang-undangan berdasarkan Undang-Undang ini.

BAB X

KETENTUAN PENUTUP

Pasal 22

Undang-Undang ini berlaku pada tanggal diundangkan.

Agar setiap orang mengetahuinya, memerintahkan pengundangan Undang-Undang ini dengan penempatannya dalam Lembaran Negara Republik Indonesia.

Disahkan di Jakarta  
pada tanggal: Maret 1988

PRESIDEN REPUBLIK INDONESIA

S O E H A R T O

Diundangkan di Jakarta  
pada Tanggal

MENTERI/SEKRETARIS NEGARA  
REPUBLIK INDONESIA

S U D H A R M O N O . S.H.

LEMBARAN NEGARA REPUBLIK INDONESIA TAHUN NOMOR



PENJELASAN  
ATAS  
UNDANG-UNDANG  
REPUBLIK INDONESIA  
NOMOR .... TAHUN .....

TENTANG  
T A T A R U A N G

A. U M U M

1. Ruang Indonesia sebagai salah satu sumber alam yang termasuk komponen lingkungan hidup Indonesia adalah warisan YME kepada Bangsa dan Rakyat Indonesia.

Pada dasarnya, ruang mempunyai sifat hubungan komplementer dengan kegiatan manusia, baik kegiatan hidup sehari-hari maupun kegiatan usaha. Ruang memiliki arti tertentu bagi kehidupan dan penghidupan disebabkan oleh adanya sesuatu bentuk kegiatan manusia. Sebaliknya, semua kegiatan manusia membutuhkan ruang dan terkait kepada pengembangan wilayah melalui lokasi dan besaran kegiatan tersebut. Namun kenyataan menunjukkan bahwa suatu ruang tertentu pada dasarnya dapat dimanfaatkan bagi berbagai alternatif kegiatan. Sebaliknya suatu kegiatan tertentu pada dasarnya dapat berlokasi pada berbagai alternatif ruang. Ini memberikan petunjuk diperlukannya penataan ruang sebagai usaha tersendiri, di samping penataan kegiatan manusia yang telah berlaku.

Disadari, ketersediaan ruang itu sendiri bukannya tak terbatas baik dalam pengertian mutlak maupun dalam pengertian nisbi - yaitu dalam kaitannya dengan kemungkinan selalu meningkatnya teknologi budidaya pemanfaatan ruang dipihak kegiatan manusia.

Hal ini menyebabkan selalu terdapat kemungkinan pemborosan pemanfaatan ruang disatu pihak dan penurunan yang terus menerus dari kemampuan ruang dilain pihak.

Pencegahan berlangsungnya hal-hal yang dapat merugikan kehidupan bangsa tersebut antara lain perlu dilakukan dengan upaya penataan ruang yang lebih baik.

Oleh karena itu, wajib untuk dikembangkan dan dilestarikan kemampuannya agar dapat tetap menjadi sumber dan penunjang hidup bagi Bangsa dan Rakyat Indonesia serta mahluk hidup lainnya demi kelangsungan kualitas hidup dan peningkatan kualitas hidup itu sendiri.

2. Pancasila sebagai dasar dan falsafah Negara, Bangsa dan Rakyat Indonesia memberikan keyakinan bahwa kebahagiaan hidup akan tercapai jika didasarkan atas keselarasan dan keseimbangan, baik dalam hidup manusia sebagai pribadi,



manusia dengan alam maupun dalam hubungan manusia dengan Tuhan Yang Maha Esa.

Pasal 5 dan Pasal 33 UUD-45 sebagai landasan konstitusional mewajibkan agar sumberdaya alam dipergunakan untuk sebesar-besarnya kemakmuran rakyat. Kemakmuran tersebut haruslah dapat dinikmati, baik oleh generasi sekarang maupun oleh generasi yang akan datang.

Ketetapan MPR No II/MPR/1983 tentang GBHN menetapkan bahwa pembangunan tidak hanya mengejar kemakmuran lahiriah ataupun kepuasan batiniah saja, akan tetapi juga keseimbangan antara keduanya. Oleh karena itu, pemanfaatan sumber alam ruang harus senantiasa dalam keseimbangan, penyalarsan dan penyerasian dengan pemanfaatan komponen lingkungan hidup yang lainnya.

3. Ruang sebagai salah satu sumber alam tidaklah mengenal batas wilayah, karena ruang pada dasarnya merupakan wadah atau tempat bagi manusia dan makhluk hidup lainnya untuk hidup dan melakukan kegiatannya. Akan tetapi kalau ruang dikaitkan dengan pengaturannya maka haruslah jelas batas dan sistimnya. Dalam hal ruang Indonesia tidak lain adalah wilayah Nusantara dalam tiga matra : daratan, lautan dan angkasa.

Letak dan kedudukan Nusantara sangat khas, karena terbentang di antara dua benua dan dan samudra, ditambah dengan iklimnya yang bersifat tropika.

Karunia Tuhan kepada Bangsa dan Rakyat Indonesia membuat negeri ini penting secara alamiah maupun dari segi strategis.

4. Ruang Indonesia sebagai suatu sumber alam terdiri dari berbagai ruang wilayah yang masing-masing sebagai suatu sub sistim yang meliputi aspek alamiah (fisik), ekonomi, dan sosial budaya dengan corak ragam dan daya dukung yang berbeda satu dengan yang lainnya. Pengaturan pemanfaatan ruang wilayah yang didasarkan pada corak dan daya dukungnya akan meningkatkan keselarasan dan keseimbangan sub sistim, yang berarti juga meningkatkan daya tampungnya.

Pengelolaan sub sistim yang satu akan berpengaruh pada sub sistim yang lain, yang pada akhirnya akan mempengaruhi sistim ruang secara keseluruhan. Oleh karena itu, pengaturan ruang menuntut diperkembangkannya suatu sistim dengan keterpaduan sebagai ciri utamanya. Ini berarti perlu adanya suatu kebijaksanaan nasional dalam pengaturan pemanfaatan ruang.

Pemanfaatan ruang khususnya di wilayah-wilayah Indonesia yang tanpa pengaturan tata ruang yang baik dewasa ini telah menjurus pada tingkat ketidak seimbangan yang semakin mengkhawatirkan. Pemukiman di daerah-daerah jarang penduduk semakin sulit berkembang meskipun mempunyai sumber daya alam yang besar.



Banyak faktor-faktor penyebab ketidakseimbangan itu bersumber pada kenyataan wujud wilayah Indonesia sebagai suatu kepulauan. Hal ini memberi petunjuk bahwa khas ruang wilayah Indonesia perlu dipertimbangkan dalam setiap usaha pembangunan bangsa dan negara.

Kecepatan perkembangan kegiatan manusia pada dasarnya tidak segera tertampung dalam wujud tata manfaat ruang yang serasi dan optimum. Hal ini disebabkan oleh sifat kaitan fungsional antar ruang yang tak dapat terwujud secepat perkembangan masing-masing kegiatan manusia. Oleh karena itu perlu dibuat terlebih dahulu rancangan ikatan tata ruang yang ingin diwujudkan kelak, yang dapat menampung segenap kemungkinan perkembangan selama kurun waktu termaksud.

Ini seharusnya adalah produk utama usaha penataan ruang.

Ada pengaruh timbal balik antara ruang dan kegiatan manusia. Karakteristik ruang menentukan macam dan tingkat kegiatan manusia, sebaliknya kegiatan manusia merubah, membentuk dan mewujudkan ruang-ruang dengan segala unsur unsurnya.

Kegiatan manusia cenderung meningkat dengan tidak terbatas. Karena manusia tidak hanya ingin mempertahankan hidup dan kelangsungan hidup, tetapi juga ingin memperkembangkan kehidupan.

Ruang tidak tak terbatas, sehingga antara kegiatan manusia dalam memanfaatkan ruang dengan ruang itu sendiri dapat terjadi ketimpangan.

Seluruh wilayah Nasional merupakan satu ruang yang terdiri dari satuan-satuan ruang yang disebut dengan kawasan. Diantara berbagai kawasan tersebut terdapat macam dan tingkat manusia yang berbeda. Sehingga diantara berbagai kawasan tersebut terjadi tingkat pemanfaatan dan perkembangan yang berbeda-beda. Perbedaan-perbedaan ini dapat mendorong adanya ketidakseimbangan pembangunan wilayah, yang tidak dikehendaki untuk menjaga kesatuan dan keseimbangan hubungan antara kawasan dalam Kesatuan Wilayah Nasional.

Berdasarkan apa yang telah diuraikan diatas, maka penataan ruang harus memperhitungkan :

- a. Keseimbangan antara kemampuan ruang dan kegiatan manusia dalam memanfaatkan serta meningkatkan kemampuan ruang (pengembangan masyarakat, pengembangan modal, pengembangan sumber alam, dan pengembangan lingkungan kehidupan).
- b. Keseimbangan, keselarasan, keserasian pemanfaatan antar kawasan.



5. Pembangunan merupakan upaya sadar untuk mengelola dan memanfaatkan sumberdaya termasuk sumber alam ruang guna meningkatkan kualitas kehidupan penduduk. Peningkatan jumlah dan kualitas penduduk memerlukan peningkatan sumber alam ruang yang keberadaannya terbatas guna memenuhi tuntutan kebutuhan hidupnya.

Dalam rangka peningkatan kualitas hidup, pemanfaatan sumber alam ruang harus berdasarkan pada keterpaduan, asas kesejahteraan manusia secara transgenerasi, keselarasan manusia dengan lingkungan hidupnya, dan kemampuan lingkungan untuk menopang kehidupan secara berlanjut tanpa ditempuh cara-cara yang merusak dan bahkan harus dipilih cara-cara yang memelihara dan mengembangkan, agar sumber alam ruang tersebut semakin besar manfaatnya untuk pembangunan pada masa-masa yang akan datang.

Hakekat tata ruang yang ingin dicapai, adalah pemanfaatan unsur-unsur ruang (bumi, air, angkasa termasuk sumberdaya alam yang terkandung didalamnya) bagi sebesar-besarnya kemakmuran rakyat. Diterapkan bagi keadaan khas Indonesia, hal itu berarti menuju kepada pencapaian tingkat perkembangan antar daerah yang semakin seimbang.

Dengan demikian masih dibutuhkan banyak perangkat-perangkat, termasuk perangkat pengaturan perundang-undangan dibidang tata ruang yang dapat menjamin tercapainya tujuan penataan ruang termaksud diatas.

6. Sesuai dengan hakekat negara Republik Indonesia sebagai negara hukum, maka sistim pengaturan sumber alam ruang Indonesia harus diberi dasar yang jelas, tegas, dan menyeluruh guna menjamin kepastian hukum bagi upaya pengelolaan dan pemanfaatannya. Untuk itu Undang-undang tentang Tata Ruang ini memiliki ciri-ciri sebagai berikut :

- a. Sederhana, tetapi dapat mencakup kemungkinan perkembangan di masa depan sesuai dengan keadaan, waktu, dan tempat.
- b. Mengandung sejumlah ketentuan sebagai dasar bagi pengaturannya lebih lanjut.
- c. Mencakup semua segi di bidang penataan ruang agar dapat menjadi dasar bagi pengaturan lebih lanjut masing-masing segi yang akan dituangkan dalam bentuk peraturan tersendiri.
- d. Terbuka bagi masyarakat, sehingga dapat lebih mendorong peran serta masyarakat dalam segala segi pembangunan.

Selain itu, Undang-undang ini menjadi pegangan dalam usaha menyerasikan semua peraturan perundang-undangan yang menyangkut masalah pemanfaatan ang.



## B. PASAL DEMI PASAL

### Pasal 1

Cukup jelas

### Pasal 2

Cukup jelas

### Pasal 3

Cukup jelas

### Pasal 4

#### Ayat (1)

Cukup jelas

#### Ayat (2)

Kegiatan budidaya di dalam kawasan lindung diperkenankan sejauh menunjang atau tidak merugikan fungsi lindung.  
Peruntukkan kawasan hutan lindung pada hakekatnya tidak dapat diubah.

#### Ayat (3)

Cukup jelas.

#### Ayat (4)

Cukup Jelas.

### Pasal 5

#### Ayat (1)

Cukup jelas.

#### Ayat (2)

Dalam mempertimbangkan aspek waktu, suatu perencanaan tata ruang berarti pula memperhatikan adanya aspek prakiraan, ruang lingkup/wilayah yang direncanakan, persepsi/pencerapan yang mengungkapkan berbagai keinginan, kebutuhan dan tujuan dalam rangka pemanfaatan ruang.

Dalam mempertimbangkan aspek modal, berarti pula memperhatikan adanya aspek teknologi yang dimiliki pada saat itu dan kelembagaan untuk menunjang hal-hal yang direncanakan.



Dan dalam aspek optimasi terdapat adanya dinamika dan kebijakan /kebijaksanaan yang ada ataupun yang diperlukan.

#### Ayat (3)

Lukup Jelas.

#### Pasal 6

##### Ayat (1)

Yang dimaksud dengan penanganan rencana tingkat Nasional termasuk penanganan perencanaan wilayah khusus yaitu wilayah ditetapkan sebagai wilayah yang terkait dengan pertahanan keamanan.

Secara administratif wilayah penanganan tingkat Nasional dapat meliputi seluruh atau sebagian wilayah Nasional; seluruh atau sebagian wilayah Daerah Tingkat I; atau seluruh atau sebagian Daerah Tingkat II.

Yang dimaksud dengan penanganan rencana tingkat Daerah Tingkat I misalnya penanganan beberapa bagian wilayah Daerah Tingkat II yang saling berdampingan dan memerlukan penanganan yang koordinatif.

Sedangkan penanganan rencana tingkat Daerah Tingkat II, wilayahnya dapat mencakup seluruh atau sebagian wilayah Daerah Tingkat II yang bersangkutan.

##### Ayat (2)

Sesuai dengan tingkat kedalamannya terdapat beberapa jenis rencana tata ruang yang dikaitkan pula dengan berbagai sifat memperluangkannya misalnya untuk wilayah perkotaan dan perdesaan.

Wilayah perkotaan atau kota sebagai salah satu bagian wilayah Nasional dengan wujudnya sebagai kawasan pelayanan jasa dan kawasan permukiman, pada hakekatnya merupakan unsur penting dalam usaha pengembangan kehidupan bangsa dan pembinaan kesatuan bangsa untuk mencapai tujuan nasional.

Usaha tersebut antara lain ditempuh melalui serangkaian pelaksanaan program tata ruang kota yang menyeluruh, terarah dan terpadu serta berlangsung secara terus-menerus.

Sehubungan dengan usaha tersebut diatas terdapat pula tata ruang wilayah perdesaan sebagai salah satu bagian wilayah Nasional berupa kawasan yang berupa kawasan-kawasan satuan permukiman terdiri dari kawasan hunian dan kawasan usaha sumber daya alam yang dapat dimanfaatkan langsung sebagai bagian yang tak dapat dipisahkan.



## Pasal 7

Pelaksanaan rencana tata ruang merupakan proses kegiatan menyiapkan berbagai rencana pemanfaatan ruang sektoral masing-masing sesuai dengan rencana tata ruang yang telah disusun sebagai jembatan bagi pelaksanaan pembangunan fisik dan non-fisik yang dilaksanakan oleh berbagai pihak. Jangka waktu pelaksanaan rencana tata ruang sesuai dengan jangka waktu masing-masing rencana pemanfaatan ruang sektoral.

## Pasal 8

Yang dimaksud dengan pengaturan adalah pengaturan pemanfaatan ruang baik yang memerlukan perijinan maupun yang tidak. Hakikat perijinan itu sendiri hendaklah ringkas, sederhana, dan cepat dalam prosedur serta tidak dimaksudkan untuk sarana menarik dana masyarakat.

Ijin berarti harus diberikan sejauh sesuai dengan rencana tata ruang.

Dalam hal belum ada rencana tata ruang, perijinan dapat diberikan berdasarkan prinsip-prinsip penataan ruang dan persyaratan tertentu.

Pengawasan, sebagaimana dimaksud disini merupakan usaha untuk menjaga kesesuaian pemanfaatan ruang dengan fungsi ruang yang ditetapkan dalam rencana tata ruang.

Penertiban sebagaimana dimaksud, merupakan usaha untuk mengambil langkah dalam mewujudkan pemanfaatan ruang, apabila adanya penyimpangan atau perlunya penyesuaian rencana tata ruang.

## Pasal 9

Keseimbangan nilai ruang adalah harga atau taksiran harga suatu ruang untuk keperluan perpajakan yang harus diatur oleh Pemerintah, akibat baik dengan adanya atau tanpa perencanaan yang mengakibatkan perbedaan atau perubahan nilai ruang.

## Pasal 10

Cukup jelas

## Pasal 11

Cukup jelas

## Pasal 12

Cukup jelas

## Pasal 13

Cukup jelas



Pasal 14

Hak masyarakat dalam penataan ruang Indonesia dapat diwujudkan dalam bentuk bahwa masyarakat dalam batas-batas tertentu dapat mengajukan saran atau kebaratan kepada pemerintah dalam rangka menyelenggarakan penataan ruang. Maka untuk itu saran masyarakat wajib diminta, ditampung, dan dipertimbangkan melalui saluran informal dan Lembaga perwakilan formal.

Pasal 15

Cukup jelas

Pasal 16

Cukup jelas

Pasal 17

Cukup jelas

Pasal 18

Cukup jelas

Pasal 19

Cukup jelas

Pasal 20

Berbagai peraturan perundang-undangan mengenai pemanfaatan bumi, air dan angkasa sebagai termaksud antara lain adalah mengenai pengairan, keagrariaan, kehutanan, pertambangan, transmigrasi, rumah susun, perindustrian, perikanan, jalan, zona ekonomi eksklusif, bangunan gedung, perumahan dan sebagainya.

Pasal 21

Cukup jelas

Pasal 22

Cukup jelas

TAMBAHAN  
LEMBARAN NEGARA REPUBLIK INDONESIA  
NOMOR.....





# East-West Center

Environment and Policy Institute

1777 EAST-WEST ROAD HONOLULU, HAWAII 96848, CABLE: EASWESCEM TELEX: 989171 TELEPHONE: (808) 944-7555

June 15, 1988

Ms. Gloria Davis  
Head, Asia Environment Unit  
The World Bank (ASTEN)  
1818 H Street  
Washington, D.C. 20433

Gloria:  
I found this in the  
Project file!  
Have you seen it?  
Col

Dear Gloria:

Re: Comments on Chapter IV of the World Bank Environmental and  
Natural Resources Management Study in Indonesia: Java  
Uplands and Watershed Management

It was a pleasure seeing you again in Jakarta in April. Thank you for sharing a copy with me of Chapter IV of the Bank's draft Environmental and Natural Resources Management Study for Indonesia. The paper can potentially make a major contribution to improved understanding of the nature of resource management problems in Java's uplands and the justification for alternative responses, and I look forward to reading the rest of the volume. As promised (though my response is somewhat belated), I have prepared the enclosed comments on Chapter IV.

I believe that the arguments made can be further strengthened by restating the biophysical relationships and making more explicit some of the policy recommendations. The technical discussion could be brought more closely in line with the latest thinking on hydrological and erosion/sedimentation processes as well as the institutional realities of watershed management on Java. It is important to point out the need for greater attention to upland (on site) benefits from land and water management activities. However, it remains that the effective management of Java's uplands is more significant than indicated by spatial dimensions or numbers of upland residents as a result of potential downstream (off site) effects on systems of resource management and dense lowland populations. I also hope that "backward linkages" can be built into the chapter on "lowland" water management issues.

As I mentioned when we met in Jakarta, a report is being prepared to examine some of the lessons learned from the Citanduy Watershed case. This should be completed in early August, and I will see that you get a copy. Based on what has been examined thus far, I expect the Citanduy case to lend further support to most of the arguments in the Bank paper.



Page 2  
Ms. Gloria Davis  
June 15, 1988

It appears certain that I will be leaving the East-West Center before the end of the year and returning to Jakarta to serve as Environmental and Natural Resources Management Policy Advisor to the USAID Mission (I'll send you a card when the title gets shortened). There's much to be done in Indonesia on problems of mutual concern, and I look forward to the prospect of working with you and others from the Bank over the next few years in this new capacity.

I hope the IGGI meetings went well and some messages got through about the need for greater attention to the links between natural resources management and economic development. It is particularly important that more concrete thought be given to experimentation with innovative adjustments in responsibility for natural resources management and to the implications such changes would have for the training of planners, researchers, extension personnel and resource managers.

I will be in Indonesia from next week through the end of July--perhaps we will cross paths again there. With best regards.

Sincerely,



David S. McCauley  
Fellow

DSM:mr

Enclosures

cc: Dirk Leeuwrik, The World Bank (AS5)  
Richard Ackermann, The World Bank (ENV)  
William Magrath, The World Bank (ENV)



# Tentative Staff Requests and Proposed Staffing Plan

## Estimated Requests by Technical Specialization

	MAA	Review/a	Operational Support(est)	Regional Studies	Total	
General	50	25	40-60	17	92	
Ecology/Forestry		25	40	14	79	
Urban & Industrial Pollution		25	50	10	85	
Resettlement & Social		25	50	14	89	
	50	100	180-200	55	385-405	-405 or

## Estimated Availability of Staff (SW)

General					
Gloria Davis (42)	35	0	7	0	42
David Williams (42)	10	7	20	5	42
Ecology/Forestry					
Colin Rees (42)	3	17	20	2	42
Proposed Forester (30)	0	2	20	8	30
Urban & Industrial Pollution					
Art Bruestle (30)	0	5	25	0	30
Proposed Chemical Engineer (30) LT	0	5	20	5	30
Resettlement & Other Social Issues					
Bill Partridge (42)	2	10	20	10	42
Resettlement Consultant (30)	0	4	26	0	30
Short-Term Consultant (Molnar)	0	0	6	9	15
Other					
Niki Dhillon (42)	0	40	0	2	42
Jean Aden (Long-term Cons) (42)	0	30	6	6	42
Short-Term Consultants	0	0	20	8	28
Total	50	120	190	55	415
	50	100	180-200	55	385-405



/a This category includes mandatory project review, participation in ENV Task Forces preparation of guidelines, organization of training courses, liason and external relations and other related activities.





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<b>File Title</b> Gloria Davis - Chronological file - 1988 - 1989		<b>Barcode No.</b>  30084782		
<b>Document Date</b> 04 January, 1989	<b>Document Type</b> Chart / Table / Diagram			
<b>Correspondents / Participants</b>				
<b>Subject / Title</b> ASTEN Budget				
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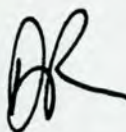


# OFFICE MEMORANDUM

DATE: January 4, 1989

TO: Distribution

FROM: Daniel Ritchie, Chief, AS4CO



EXTENSION: 76953

SUBJECT: India: Legal Issues in Land Acquisition

Where land is required for Project implementation in India, significant delays have frequently occurred in obtaining necessary land. Often, part of the delay is attributable to the time required to complete applicable legal procedures. In order to better understand the main legal issues that arise in obtaining land for project purposes, so that these may be adequately taken into account in preparing and implementing projects, LEGAS undertook a study of Legal Issues Arising in Obtaining Land for Development Projects in India (copy attached). The study was carried out by Miss Sadhana Kaul, an Indian lawyer who is currently undertaking graduate studies at Georgetown University Law School.

A meeting to discuss the main findings of the study will be held on Monday January 9, 1988 from 10 a.m to 11 a.m. in Room D 10-002. The meeting will be chaired by Mr. Vorkink, Chief Counsel, Asia. Miss Kaul will make a brief presentation which will be followed by a general discussion. I request you to kindly attend the meeting.

## Distribution:

Messrs. Alisbah, Golan, Vorkink, Humphrey, Wijnand, Gould, McCarthy, Skolnik, Raghavan, Grimshaw, Newport, Singh, Blinkhorn, Greene, Schaengold, Talbot, Diewald, Haji, Nasr, Oblitas, Perry, Slade, van de Poll, Aksoy, Arichandran, Edun, Ettori, Thomas, Wu, Gulstone, Linard, Mejia, Mulligan, Neal, Pollak, Sanchez, Teng, Cambridge, Colletta, Couzens, Kennefick, Podolske, Rotner, Albinson, Chobanian, Frederiksen, Gunasekhara, Price, Kalkat, Partridge, Rees.

Mmes. Davis, Schaengold, Thalwitz, Sunderland, Stern, Stout, Plunkett

mgopal





# Record Removal Notice

<b>File Title</b> Gloria Davis - Chronological file - 1988 - 1989		<b>Barcode No.</b>  30084782
<b>Document Date</b> 23 September, 1988	<b>Document Type</b> Report	
<b>Correspondents / Participants</b> Sadhana Kaul - Author		
<b>Subject / Title</b> India - Legal Issues in Obtaining Land for use in Development Projects		
<b>Exception(s)</b> Attorney-Client Privilege		
<b>Additional Comments</b>		The item(s) identified above has/have been removed in accordance with The World Bank Policy on Access to Information. This Policy can be found on the World Bank Access to Information website.
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<b>Withdrawn by</b> Tonya Ceesay	<b>Date</b> February 17, 2016	



## INDONESIA: RESETTLEMENT ISSUES

### Review Meeting on Butcher Report-Summary of Discussion

*Gloria: This is a  
draft (for Tony and  
Nick's comments), but  
we will use as a  
background note  
for mtg. with  
Bushma tomorrow*

#### General Points

1. The participants of the meeting recognized that earlier projects across the region and the Bank, and not just in Indonesia, have suffered from inadequate attention to the planning and implementation of resettlement activities, and that every effort must be made to improve on this record both in the design of future projects and in the supervision of projects still under execution. Within this context, there was general agreement that the Butcher Report was a valuable document that has a usefulness beyond the projects it reviews, and that it should be required reading for staff involved in the preparation of future projects where resettlement is an issue, and not just by those responsible for supervision of the projects this Report has examined.

*at 10:30*

*Dieth  
1/17*

2. As reflected in some of the points noted below regarding individual projects, the issue is less likely to be one of Bank guidelines and official government policy, but rather one of strengthening the design of resettlement plans and the implementation capacity and procedures of the responsible agencies. While the Butcher report gives high marks for resettlement in the two urban projects he examined, for example, both of these were in the Jakarta area, which may not be representative of other parts of the country. In smaller urban areas, the problems identified in the case of rural resettlement (and exemplified by the Kedung Ombo and Cirata Projects) may also apply. It will be important, therefore, to see what can be done to improve the ability of local governments to deal with resettlement issues for both urban and rural projects.

3. Regarding future uses of the report, the clear consensus was that follow-up should be project-specific, and that the report itself should not be shared with GOI authorities, for at least two reasons. First, while the issues raised regarding the Kedung Ombo and Cirata Projects are important, there was general agreement that issues of land acquisition and resettlement are not generic issues requiring across the board attention and high-level discussions with the Government, which could easily become counter-productive. Second, because there are no dam projects in the future lending program, and the Bank's involvement with transmigration will be limited to "second stage" development of existing sites, it would be more effective to focus our attention (and scarce resources) on the project-specific recommendations of the report (to improve the effectiveness of our supervision of existing projects), and to share with the relevant Government agencies the practical recommendations contained in the report, but not the report itself. Mr. Cole and Mr. Hope both felt that responsibility for this supervision effort rested clearly with



their respective divisions (including the agriculture staff in RSI) in the cases of Kedung Ombo and Cirata.

#### Review of the Cirata Power Project

4. Mr. Hope reported on the status of the Cirata Power Project, noting the following points:

- (a) A supervision mission had visited the Bandung and the Cirata and Saquling areas in late September to supervise the project, and had focused specifically on issues related to the resettlement component. (A copy of the Aide Memoire is attached.);
- (b) Developments in the expansion of the aquaculture component of the resettlement plan appear to be quite encouraging, with new technologies being introduced to reduce the operating costs of the participants, and additional efforts being made to increase the participation of the poor through expanded training, the organization of fishfarmer production groups and the formation of a fishfarmers' association. In addition, the Fisheries Department has introduced a licensing system which limits the use of the reservoir for aquaculture to the households which were affected by the creation of the reservoir. As the number of jobs created increases toward the eventual potential (about 10,000), it is expected that most of the poor affected by the project will have found a job. (The planned follow-up survey on the socio-economic condition of displaced households and effected villages, to be carried by the end of 1988, is expected to provide additional information on the progress of these efforts;
- (c) In addition, to assist those who choose to resettle through the transmigration program, the normal restrictions on eligibility have been relaxed to enable whole families to migrate together, and the number of visits to potential transmigration sites by representatives of the affected groups has been increased; and
- (d) On the environmental side, the mission noted that the quality of water in the Saquling and Cirata reservoirs has deteriorated significantly, primarily as a result of sewage from the Bandung area, combined with a severe (one-in-a-hundred years) drought. Problems caused by excessive nutrients were already being addressed, and the aquaculture component is likely to be strengthened as a result of Government efforts to adapt to these



unusual conditions. Water quality analysis carried out during this period, however, also determined that the level of heavy metal pollution may also become a problem. The mission agreed with PLN and other relevant agencies (including KLH) on actions to monitor the situation and to come up with proposals to correct the problem.

#### Review of the Kedung Ombo Project

5. Mr. Cole and Mr. Niaz reported on developments in the Kedung Ombo Project, noting the following points:

- (a) Mr. Niaz noted that some of the problems being encountered by the resettlement program were complicated by the communist history of about 600 families in the area (out of about 6000 affected by the project). The Bank is supervising this project more closely, however, and has passed on to the relevant Government authorities the key recommendations of the Butcher Report. The response thus far has been quite encouraging, including the number of visits to the project area by senior officials of the DGWRD, some of which have even been "incognito" so as to get a more accurate picture of true community sentiments. As reflected in the written response to a letter from the Bank of June 21, the Government appears to be becoming more sensitive to the legitimate concerns of those affected by this project;
- (b) One important development has been an expansion of the land set aside in nearby areas for the resettlement of affected households, which has been increased from 45 up to 100 hectares. In response to a GOI request, the Bank has agreed to finance an additional \$300-500,000 for improvements to the road system in these areas. Other facilities, including schools, mosques, and community centers, will be financed and built by DGWRD and the local government. Unfortunately, aquaculture may not be a particularly attractive option for the residents of these areas, since they are located some 9 km. from the reservoir;
- (c) An additional development has been the increased level of compensation being offered, higher by 15% to reflect price increases since the initial offers were made. And, to encourage participation in the transmigration option, additional trips are being provided to the Muko-Muko transmigration site for representatives of the groups affected; and



- (-d) As indicated in the attached Fax from RSI (August 29, 1988), overall implementation of the project is proceeding on schedule, and the impoundment of the reservoir is scheduled for January 12, 1989. Every effort is expected to be made to reach agreement with those who are still resisting resettlement prior to that date.

Attachments: Memo from Butcher to Davis summarizing the recommendations in his report.

Aide Memoire of Mr. Liebenthal from September supervision of Cirata Project.

Fax from RSI of August 29 regarding Kedung Ombo Project developments (and attaching response to Bank letter on Butcher Report issues from DGWRD).

RACalkins



# OFFICE MEMORANDUM

631

DATE: June 28, 1988

TO: Ms. Gloria Davis, Chief, ASTEN

FROM: David Butcher, Consultant, IENED *DB*

EXTENSION: 33236

SUBJECT: Review of Land Acquisition and Resettlement Under Four World Bank Financial Projects in Indonesia

1. Thank you for sending your comments, and those of Bill Partridge, on the Draft of the above report. I have also received oral comments from Vatsal Thakor and written comments from the RSI which I have now incorporated. Please find attached the original and two copies of the final report.

2. The process of land acquisition and resettlement in Indonesia has not generally been carried out to Bank standards in the case of projects displacing rural people. Although plans for resettlement were agreed to by the Bank at the time of appraisal, deficiencies within the plans themselves, together with weakness in implementation, have overall yielded less than satisfactory results. The two urban projects looked at Jabotabek and JSSP are progressing satisfactorily.

## 3. Findings

Specifically I found that:

- a. Rates of compensation for Land acquisition are too low to enable people to purchase equivalent land (especially in rural areas).
- b. The loss of assets incurred by the people, leads to the conclusion that displaced families have subsidized the projects.
- c. The Presidential Instruction (No 9/1973) on implementation of the Land Expropriation Act (No 20/196) specifies that people must be resettled, but most are not.
- d. Various Laws and Decrees are used as the legal basis for land expropriation, but regardless of which are used, the outcome is the same.
- e. The people cannot effectively complain, because the only established body to receive complaints is the Land Release Committee, which also measures their property and sets compensation rates.
- f. At the time of the Mission, 791 families at Kedung Ombo were refusing to accept the compensation offered. Many in the past have been threatened with imprisonment, and some even by death, if they do not accept compensation.



- g. The Legal Aid Society which was trying to help the people resolve the compensation issue has been effectively cut off from their clients.
- h. The poor are unlikely to participate in the aquaculture programs in any great numbers, unless special efforts are made on their behalf.
- i. The long held belief that Transmigration is a resettlement solution for involuntary resettlers in Indonesia, is not true for the majority of people displaced.
- j. Transmigration claims to have resettled 3,500 families from Kedung Ombo; the University carrying out the monitoring claims that only about 360 families have transmigrated.
- k. Transmigration staff are using part of special allocations made for displaced families, for settling people unconnected with the projects.
- l. The aquaculture fishery developed on Saguling lake is very successful but additional resources are required to extend the work to Cirata, and to Kedung Ombo.
- m. While land acquisition and resettlement have been supervised for Cirata, for Kedung Ombo they have not.
- n. Various operational parts of the Bank covering projects in various sectors act independently in respect of land acquisition and resettlement, and do not share experiences or discuss common problems.

#### 4. Recommendations

##### a. For immediate attention

- i. Inform GOI that the Bank knows there is a problem with Kedung Ombo land acquisition, which must be settled peacefully, by
- ii. Speeding up the process to enable genuine people's representatives to visit Muku Muku Transmigration area and Kayen, and report back to other villagers.
- iii. Bring in an NGO, trusted by GOI and villagers, to discuss options open to people, i.e. Transmigration, Kayen area in Boyolali and settling in the reservoir surrounds, and let them choose.
- iv. Make resources available to develop aquaculture on Kedung Ombo reservoir, and provide credit for the poor so they can participate.
- v. Make resources available to extend the contract between LE UNPAD and ICLARM so aquaculture can be developed on Cirata and Kedung Ombo reservoirs.



- vi. Bring in an NGO to assist poor people near Cirata reservoir, to identify opportunities and help the people to develop them.
- vii. Ensure land acquisition and resettlement activities are supervised by Bank staff.

b. For the Future

- i. Request GOI to jointly review land acquisition and involuntary resettlement with the Bank.
- ii. The Bank should consider the incorporation of finance for Land Acquisition and Resettlement under projects in future.
- iii. Suggest that guidelines on land acquisition and resettlement be distributed to all sectors within GOI for inclusion in their management and monitoring plans.
- iv. Before Appraisal of projects necessitating land acquisition in future, GOI should present comprehensive plans specifying which laws and decrees are to be used, what the people's rights are, and what arbitration process will be used in the event of dispute (according to OPN 10.08).
- v. Also for the future, Resettlement Action Plans need to be made more comprehensive, especially for people likely to remain in the project area, and with special provisions for the poor and landless.
- vi. Agencies carrying out monitoring of land acquisition and resettlement need to be independent of implementing agencies. Ideally one agency, possibly the Social Science Research Foundation, should be contracted under a future Bank loan to monitor a number of projects.
- vii. Appoint one staff member in the RSI to be the focal point for land acquisition and involuntary resettlement.
- viii. Genuine people's participation in project planning is needed. Appointees of the GOI do not represent the people.

cc: Mr. G. Schramm (IENED)

DButcher:cuc



AIDE MEMOIRE

CIRATA RESETTLEMENT SUPERVISION MISSION

From September 23 - 26, 1988, Mr. Andres Liebenthal of the World Bank visited Bandung and the Cirata and Saguling areas to review the implementation of the resettlement aspects of the Cirata Hydroelectric Project (Loan 2300-IND). The mission met with Ir. Soepartomo, Deputy Manager, PLN P.I.KITDRO JABAR, Dr. Anwar, Chief of the Environmental Unit and representatives of the Institute of Ecology (UNPAD), ICLARM, the Fisheries Extension Service and the Institute of Hydraulic Engineering (IHE - Dept. of Public Works). The mission acknowledges with thanks the assistance and cooperation it received in the course of its work. What follows is a summary of the mission's findings and recommendations.

Extension of IOE/ICLARM Contract

The mission was informed that P.I.KITDRO JABAR had just sent the supporting documents to PLN Pusat to extend the IOE/ICLARM contract for aquaculture development from January 23 to June 30, 1989. The documents would be submitted to the Bank for review by end October, 1988.

Socioeconomic Aspects

Earlier supervision missions had recommended the use of a non-governmental organization (NGO) to provide assistance in informing and training the poor, so as to enhance their participation in the aquaculture component of the project. In response, PLN had reviewed its options and specifically directed IOE/ICLARM to address these issues. The contractor's approach has been to reduce the cost of nets and feeding regimes through the use and development of local materials and ingredients. The participation of the poor has also been strengthened through training, the organization of fishfarmer's production groups and the formation of a fishfarmer's association which became a unit of the KUD. In addition, the Fisheries Dept. has introduced a licensing system which limits the use of the reservoir for aquaculture to the households which were affected by the creation of the reservoir. As the number of jobs created increases towards its eventual potential of about 10,000 (it is currently about 1200 for Saguling and 50 for Cirata, vs a target of 1500 each) it is expected that most of the poor affected by the projects will have found a job. The planned follow-up survey on the socioeconomic condition of displaced households and effected villages, to be carried out in late 1988, is expected to provide additional information on the progress of these efforts.



### Environmental Aspects

The mission observed with concern the deterioration of the water quality in the Saguling and Cirata reservoirs. At its inlet, the Citarum river had a black appearance with a strong odor of H<sub>2</sub>S. The upper reaches of the reservoir appear to have become the oxidation pond for most of Bandung area sewage.

The large amount of inflowing nutrients has led to a dense population of green algae (Micro cystis), which threatens to choke off the aquaculture. Out of 1125 floating net units in the Saguling reservoir, only about 200 were in operation at the time of the mission. The mission was informed that the severity of the problem was largely due to the severe (one-in-hundred year) drought which has reduced water flows to the lowest levels ever recorded and exceptionally low level of the lake, which even resulted in the shutdown of Saguling plant. On this basis, aquaculture production was expected to recover its earlier levels and continue its expansion with the onset of the rainy season in October. The project had taken advantage of the drought to adapt some of its aquaculture techniques to "worst case" conditions, including the experimental introduction of (micro-cystis eating) Nile tilapia as a complement to the production of common carp.

The water quality analysis carried out as part of the environmental monitoring suggest that the level of heavy metal pollution exceeds government standards for all the metals at least some of the time. However the measurements are highly variable and an analysis of the causes for this variability is a prerequisite towards an accounting of the sources, levels and destination of heavy metals pollution in the reservoirs. Factors which need to be considered include :

- (i) water inflows, outflows and level of the reservoirs
- (ii) water currents and vertical exchanges (including turn overs) within the reservoirs
- (iii) chemical and biological processes within the reservoir, and
- (iv) variation in data quality and the accuracy of measurement.

In view of the hazard posed by reservoir water pollution to the health of the population and the viability of the aquaculture, the mission recommends that PLN commission an analysis of the water quality measurements to identify the causes of variability along the lines described above. In view of its leadership role and wide experience in this area, this analysis should be carried out by IHE with assistance of LE UNPAD.



The above analysis of the causes of water quality variation, along with an identification of the sources of pollution, which is being carried out by NEWJEC in cooperation with LE UNPAD and the IHE, should provide a useful contribution towards a resolution of the pollution problem.

The mission also discussed this issue with Dr. Nabel Makarim of KLH in Jakarta. As a result of this discussion, Dr. Nabel indicated that KLH would take appropriate action to resolve the pollution problem. The form of the appropriate action to be taken would be decided in collaboration with PLN, the fisherman's association, IHE and LE UNPAD at the initiative of KLH.



F/2731/1

1988 AUG 30 AM 7:32  
FACSIMILE TRANSMITTAL FORM  
TELE SECTION

Date : August 29, 1988  
No. of Pages : 8  
From : Dennis L. Purcell, Acting Chief (RSI Jakarta)  
To : World Bank, Washington (Mr. A. Cole, AS3AG)  
Fax No. : F/2731  
Subject : Kedung Onbo Dam Land Acquisition and Resettlement

1. Attached herewith is DGWRD's reply to our letters of June 21 (forwarding material distributed at IGGI Meetings), and August 8 (listing Butcher's observations) for your information.
2. Through this reply we get the following additional information:
  - a) Area remaining to be acquired after July 1988 is 224 ha and money for this acquisition is available in 1988/89 budget.
  - b) Area available for resettlement in 3 villages close to the reservoir has now increased to 100 ha from 45 ha. This should be enough to accommodate about 800 families. To make this area attractive for resettlement to displaced families, DGWRD and local government have decided to build community facilities in these villages. However, this will take time as these facilities are yet to be designed and planned.
  - c) Representatives of displaced families will be sent to Muko-Muko to see for themselves what facilities exist there so that they can promote the concept of transmigration to this area amongst the affected families. Also other transmigration areas are available for K.O. families, if required, or if Muko Muko land is all allocated to other transmigrants.
  - d) Aquaculture may be difficult to develop for benefit of K.O. displaced families because the two villages where they will be resettled are about 9 km away from the reservoir, and
  - e) Some of Butcher's observations are not correct.

FACSIMILE MESSAGE



3. Niaz visited the Dam site last week and learnt that efforts to resolve resettlement issues have been speeded up. Land compensation rates were increased by 15% over 1987 rates. Progress on completion of Dam is good and the Contractor hopes to complete embankment by end October and Spillway by end November 1988. Impoundment of reservoir starts on January 12, 1989 by closing the diversion tunnel, as envisaged in the Dam Construction Contract.

4. We have been requested to finance under the Loan a road linking the three resettlement villages (para 3(b) above) with the reservoir, and three other short access roads (total cost Rp.3,600 million, our share at 74% Rp.2,220 million or \$1.4 million). We feel we should agree to finance this additional work in the interest of improving access to the Dam and communications for the displaced families resettled close to the reservoir. If you have any objection to this please let us know.

5. You may like to give some of the information in this letter to David Butcher.

Regards,

  
Purcell

bcc: Messrs. Sünnes, Struben, Kramer

SMNiaz/seu





**DIREKTORAT JENDERAL PENGAIRAN**

JALAN PATTIMURA NO. 20/PERG. 7 TILP. 776616 (8 SALURAN) TEROMOL POS 89/KBT. — KEMAYORAN BARU

J A K A R T A

TELEK : 47566 HJAIN IA

ALAMAT KAWAT : SITJENAIN

Jakarta, August 28, 1988.-

Our ref. : *HL. 0202-Bk / 853.*

Mr. S.M. Niaz  
Acting Chief, Agricultural Staff  
The World Bank - RSI  
JAKARTA.

27 AUG 1988

Subject : Loan no. 2543-IND : Kedung Ombo Multipurpose  
Dam and Irrigation Project - Land Acquisition  
Resettlement.

Dear Mr. Niaz,

Referring to Mr. Fox's letter to us dated June 21, 1988 and your letter to us dated August 8, 1988, on the above subject, we hereby inform you the followings :

1. Land acquisition and resettlement is indeed a difficult task within the implementation of any project, particularly the construction of Kedung Ombo Dam where we now face a crucial problem.
2. A series of action were already taken since your first letter sent to us to find out proper solution acceptable to the remaining people (about 700 families) who up to now have not yet agreed to the Government's offer for land compensation and resettlement. The Local Government and DGWRD already prepared the following plans :

(of age), 2.1. The people in the 8 desas (Nglanji, Kemusu, Genengsari, Klewor, Ngrakum and Bawu) are given free choice for resettlement in areas near the dam for those above 50 years and transmigration to Muko-Muko area in Bengkulu for the younger people. The areas selected for resettlement are 3 locations in Kabupaten Boyolali namely : Desa Kunti and Desa Pranggong in Kecamatan Andong and Desa Kayen in Kecamatan Juwangi. Total area of the 3 locations is about 100 Ha and each family will be given land of about 1000 m<sup>2</sup> to 1500 m<sup>2</sup> for housing and yard.

2.2. Public facilities such as village road, schools, mosques, community centres and others should be built for the resettlement areas. Such facilities will hopefully attract the people to move to this area. The Local Government and DGWRD agree to finance this. Planning, design and cost estimate for this facilities will be prepared by the Project.

2.3. For those who choose transmigration, the DGWRD and Kanwil Transmigrasi will arrange a trip to Muko-Muko for some of



so that they can act as potential and vocal speakers to promote this program among the remaining people.

At the moment 400 houses are being built at Muko-Muko to accommodate the coming transmigrants, and is expected to complete at the end of November 1988.

If the land compensation could be completed in September 1988 and clearance of houses and other facilities completed in October 1988, the people would be transmigrated in November 1988. The Provincial Government and the DGWRD will include this transmigration into Government - supported transmigration programme, and not as spontaneous transmigration. This is to avoid different treatment given to the two different programs above.

- 2.4. The transmigrants will be given 2 Ha of land i.e. : 0.25 Ha for house and yard, 0.75 Ha for upland crops, and the remaining 1.0 Ha as sawah. This scheme is meant to give the transmigrants better means and opportunity to make better living.
3. On the target and progress of land acquisition as of July 31, 1988, the information is presented in attachment I.
4. Schedule of dam construction in relation to land acquisition and resettlement was already agreed upon between the Local Governments, the Project, and DGWRD in the meeting in Semarang on June 25, 1988 as follows :

Dam Construction	Land Acquisition and resettlement
a. September 1988 : temporary closing of di- version tunnel for instal- lation of fixed wheel gate.	a. September 1988 : completion of land compensa- tion payment *).
b. January 1989 : permanent closing of di- version tunnel for impound- ment.	b. October 1988 : clearance of houses and other facilities, trees etc. at the sites affected by impoundment, and preparation for displace- ment of people.
c. April 1989 : completion of impoundment.	c. November 1988 : resettlement to other areas and transmigration to Beng- kulu.

\*). it was originally scheduled on August 1988.



5. There are several matters in your letter that I would like to comment :

5.1. The process of land acquisition and resettlement has to follow certain procedures. The steps and actions in sequential order are :

- a. dissemination of informations to the people at the area (a) which will be affected by the impoundment.
- b. survey and inventory the land size and ownership.
- c. discuss with land owners on the agreed price of land, houses, trees and other facilities in the said area.
- d. prepare minutes of agreements on the above item (c) and is signed by the people and members of Land Acquisition Committee.
- e. allocate budget in the DIP for provision of amount required for item (c).
- f. pay the land compensation as agreed in item (d).
- g. clear the areas from houses, trees and other facilities, and prepare displacement of people.
- h. move the people from the acquired areas.

5.2. It is therefore not true if it is said in your letter that "..... a delay of several months in compensation payments to the affected families after they have agreed to sell their land makes the purchase of equivalent land more costly for them".

A

A relatively long period of time is required to process from item (d) to item (f).

For those who have not yet agreed the rate of land compensation, no further process for payment can be done.

Same as A  
above

5.3. The rate of land compensation is based on the local price of the land.

The Land Acquisition Committee will have problem if, for the sake of the 700 families, they have to raise the rate, because it will spoil the already completed compensation scheme which accounts for 88% of the whole affected population.

5.4. Threatening of some families by the local government staffs is not true. What really happened was that members of Land Acquisition Committee from time to time tried to talk to those people to conclude the agreement on the land compensation and resettlement, which may be interpreted as threatening the people as stated by Butcher's report.



- 5.5. The transmigration solution for resettlement should be based on a free will. Some reasonable time<sup>s</sup> is required by the Local Government and Kanwil Transmigrasi to make it attractive and acceptable to those people. (See para 2.3. above).
- 5.6. The Provincial Government and DGWRD still keep January 1989 as starting date of reservoir impoundment, (See para 4 above).  
Both agencies try to seek good solution to the above problem so that the schedule can be reached without delay. In the meeting with the Governor on August 20, 1988, I heard that he already prepared alternative plan to support the accomplishment of the schedule without sacrificing the displaced families.
- 5.7. Muko-Muko area is not the only transmigration scheme for the displaced families from Kedung Ombo. We can offer other alternate scheme to resettle them if Muko-Muko has been occupied by other transmigrants by the time of impoundment starts. The more important thing is to convince those people to accept transmigration as the best solution for resettlement.  
The number of families to be transmigrated is subject to the completion of activities mentioned in para 2.3. above.  
The fund required to transmigrate those people is not yet available in DGWRD budget this year. It will either come from additional budget or be financed from the proceeds of loan no. 2543-IND. The Project will discuss this matter with Kanwil Transmigrasi in Semarang upon completion of para 2.3.
- 5.8. The development of aquaculture in the reservoir as a mean to help the resettled families in the vicinity of the reservoir increase their earning depends on various factors, such as :
- their willingness and skill to undertake aquaculture as economic activities. This matter can be improved through extension and training.
  - distance between their houses to the reservoir.  
The Kunti and Pranggon villages are more than 9 km away from the reservoir which will unlikely make aquaculture attractive to them.

*We don't know  
if this will be  
timely.*



F/2731/7

- 5 -

6. We will be happy to provide you with detailed informations from time to time in line with the progress in the field.

Your kind attention on the above matters is highly appreciated.

Yours Sincerely,

Director General of Water  
Resources Development,  
MINISTRY OF PUBLIC WORKS,

  
Ir. Soesandhi Wirosoemarto.

C.C. :

1. Dr. Rustam Didong, Bappenas.
2. Mr. Sakdoen, DOI-II.
3. Mr. Djoko S. Sardjono, DPP, DGWRD.

-----;  
NIAZ.XIV



F72731/8

## ATTACHMENT I

The target and progress of land acquisition as of July 31, 1988.

NO.	TARGET		PROGRESS IN JUNE		PROGRESS IN JULY		TOTAL PROGRESS	
	DESA	HA	HA	PAYMENT (RP.)	HA	PAYMENT (RP.)	HA	PAYMENT (RP.)
1.	Mglanji	88.8607	0.1367	1,863,624.00	1.6995	8,968,438.50	1.8362	10,832,062.50
2.	Komusu	11.2170	0.3362	9,184,182.00	0.0893	2,742,117.00	0.4055	11,926,299.00
3.	Sarinulyo	2.2884	2.2638	18,412,897.00	-	-	2.2638	18,412,897.00
4.	Genengsari	25.1180	0.7787	6,249,789.00	0.6140	5,149,998.00	1.2927	11,399,787.00
5.	Woncharjo	7.6008	7.6008	42,148,995.00	-	-	7.6008	42,148,995.00
6.	Klewor	21.5090	-	-	1.8833	56,149,359.00	1.8833	56,149,359.00
7.	Mgrekum	20.1156	-	-	0.8802	9,404,377.50	0.8802	9,404,377.50
8.	Bawa	4.0930	-	-	0.5520	4,202,793.00	0.5520	4,202,793.00
		240.8027	11.1052	77,858,487.00	5.3983	86,617,083.00	16.5035	164,475,570.00

WIA21.XIV

All the above expenditures are paid from budget (DIP) 1988/1989 allocation of Rp. 12,430,540,000.- of which Rp. 2,918,915,000.- comes from the proceeds of Japanese EXIM BANK Loan. Since the fund is already in the DIP 1988/1989, it will be available to Project up to 31 March 1989 for the remaining area of 224 Ha to be acquired.

Area remaining to be acquired = 240.8 ha  
 Area acquired in June, July '88 = 16.5  
 Balance 224.3



## OFFICE MEMORANDUM

DATE : March 24, 1989

TO : Mr. van der Tak, Consultant

FROM : Gloria Davis, Chief, ASTEN

EXTENSION: 74233

SUBJECT : The Large Dams Paper

1. The above is indeed an interesting and informative paper. But how should one judge the paper, keeping in mind the various audiences? If the paper is intended for a sympathetic audience, then it would be acceptable inasmuch as it sheds light, broadly speaking, on issues and experiences relating to large dams. This audience would also be inclined to accept normative statements and generalizations without empirical analysis. On the other hand, an unsympathetic audience, such as the environmentalists who are questioning the wisdom of financing large dams, will not find the paper very convincing. The paper will not quell the controversy concerning large dams; it could potentially intensify the present controversy because of insufficient factual information and lack of sound analysis.

2. Clearly, the intention of the above paper is to address the concerns of various critics of large dams. From this standpoint, some further thinking and analytical work is warranted to ensure more meaningful and constructive dialogue with the concerned environmentalists. The critics claim that if proper assessments are carried out on all social and environmental impacts, and if proper consideration is given to alternatives which can supply energy and water needs, then the decision would be not to build large dams. Rather, the choice would be to select some other viable alternative for providing services intended by the dam. This is precisely the point the paper should address by providing hard facts based on comprehensive analysis and field experiences.

3. The paper should have taken a number of case studies, focusing on Bank and non-Bank projects including large dams, and carrying out detailed analysis. The case studies could have included projects which had been completed or projects presently being implemented. In each case, the investigation should have examined a number of critical questions: Is the dam a least cost way of providing services (electricity, water supply, and flood control)? Was the investment decision a part of a least-cost program for meeting energy demand based on efficiency price levels? To what extent was the least-cost program reviewed to determine the quality of analysis and objectivity? To what extent was a thorough assessment of the environmental and social impact undertaken? For serious environmental and social impediments (displacement and resettlement, health hazards, water quality, waterlogging and salinization, and loss of biodiversity), were proper provisions made under the project to deal with these issues? Concerning the social and environmental dimension of the project, were various programs adequately designed and costed? In economic analysis, were all social and environmental costs taken into consideration? Was there any government



commitment or participation by the people to deal with social and environmental problems? For projects that have been completed, have there been any serious social and environmental problems? Under ongoing projects, how are social and environmental problems tackled by the Bank?. Finally, within the context of the country, is there an effective policy, institutional, and legal framework to handle social and environmental problems relating to large dams?

4. From the paper, it is unclear to what extent the completion reports of finished projects were studied? For our own knowledge, it would be a good idea to understand what these completion reports show in their assessment of the environment and social areas of the project. Naturally, one is assuming that these aspects were covered in detail during the completion exercise. If, however, the environmental and social aspects were not examined thoroughly in the project completion reports, then some attention should be given to this shortfall and the paper should make specific suggestions for Bank consideration.

5. The paper should also have focussed on the methodology of economic analysis relating to large dams. Is the methodology refined sufficiently to take into account all the social and environmental costs and benefits. If there are gaps, what steps can be taken to improve economic analysis and the quantification of social and environmental costs in project analysis? In the interim period, as the methodology is being refined, how can proper attention be given to all social and environmental costs?

6. Similarly, the paper should comment on Bank guidelines dealing with environmental and social aspects relating to large dams. Are the existing guidelines adequate, and if not, what specific elements should be incorporated in the guidelines? For that matter, is the proposed draft OMS concerning environmental policy for dam and reservoir projects satisfactory?

7. All things considered, the strength of the paper is the chapter on "The Role of Conservation and Alternative Sources of Supply." This chapter demonstrates that despite energy conservation, in the next thirty years there will be a substantial increase in the demand for electricity in the developing countries. Further, it states that hydroelectricity "is a fully proven power source with enormous untapped potential in developing countries, where less than 10% of the technically usable potential has been developed to date." The chapter also states that many developing countries consider the development of hydroelectricity as an important way to become self-sufficient in energy requirements.

8. In addition, the chapter states that nearly all the options for increasing electricity supply involve major environmental concerns. Thermal and nuclear power, which will supply some electricity to meet the increasing demand, have serious environmental problems. The chapter also points out that non-conventional renewable energy will require further technological development and favorable prices to increase production significantly. Therefore, the chapter concludes, hydropower is required to meet the rising demand for energy in developing countries. The chapter argues that since the expansion of hydropower is modest, growing at an annual rate of 4% since 1986, there is ample room to give proper attention to all important social and environmental matters relating to large dams.



9. The above is a convincing argument, which if supported with empirical analysis, as discussed in para. 3 above, would strengthen the main conclusions of the paper, assuming that the analysis supports the hypothesis that, all things considered (i.e., taking in account all economic, social, and environmental impacts relating to large dams), a large dam is often the least-cost solution which is fully justified.

10. We should recommend to the team responsible for the above paper that the study be expanded to include some case studies as suggested above. It would be prudent to do this before initiating any substantial discussions with the critics. If the team is reluctant to do this, then it would be wise for the authors to test the waters, by allowing a few critics to review the document before circulating the paper widely.

cc: Mr. English (ENVPR)

NSharma



**Can Indonesia's Biological Diversity be Protected by Linking  
Economic Development with National Park Management ?  
Three Case Studies from the Outer Islands**

**Michael P. Wells**

**25 March 1989**

**A Report for the World Bank**



# **Can Indonesia's Biological Diversity be Protected by Linking Economic Development with National Park Management ? Three Case Studies from the Outer Islands**

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## **INTRODUCTION**

Large areas of tropical forest have been included in Indonesia's protected area network, including some of the most spectacular and biologically diverse ecosystems on earth. Many of the parks and reserves in this network are experiencing serious and increasing degradation as a result of an expanding agricultural frontier, illegal hunting, fuelwood collection and uncontrolled burning. These threats tend to be concentrated on the outer park boundaries, on the borders of enclaves, and along access roads. With a continuation of current trends, biological diversity in many of Indonesia's conservation areas appears likely to diminish dramatically and irreparably during the next few decades.

Attempts to safeguard tropical forest conservation areas have increasingly focused on people living in communities outside the park boundaries. The principle objective of integrated conservation/development projects (ICDPs) is to provide opportunities for economic development in these communities, while conserving the ecological qualities of the adjacent protected area. ICDPs are based on the premise that a combination of (1) agricultural intensification and diversification, community forestry, economic incentives, and the provision of social services, with (2) traditional conservation activities, has the potential to stabilize land use, contribute to the relief of rural poverty and reduce deforestation rates. Very few ICDPs have been implemented in Indonesia, or elsewhere. The concept has not been thoroughly developed and a number of critical questions on implementation have yet to be answered.

The Directorate General for Forest Protection and Nature Conservation (PHPA) is responsible for administering Indonesia's conservation areas. PHPA is gradually increasing its emphasis on links between conservation and development. The agency has recently formed a Directorate of Extension to work specifically with communities on protected area boundaries. PHPA will also be the implementing agency for the \$6.4 million conservation component of the Forestry Institutions and Conservation Project (FICP), partly funded by a World Bank loan. This conservation component, due to start in 1989, includes consideration of the problems associated with communities on protected area boundaries, with a specific focus on five national parks.

The objective of this report is (1) to review and assess the current status of three of Indonesia's most important tropical forest conservation areas, all in the



Outer Islands, and (2) to evaluate the potential role of ICDPs in the protection of biological diversity at these sites and elsewhere in Indonesia.

The report is based on the findings of a four-week consulting assignment during February/March 1989, which included site visits to Dumoga-Bone, Kerinci-Seblat and Gunung Leuser National Parks (Map 1). Discussions were held with representatives of the Government of Indonesia, NGO's, lenders and donors, and other individuals involved in conservation and development in Indonesia.

## **INDONESIA'S PROTECTED AREA SYSTEM**

The six types of protected area in Indonesia, and the selection criteria adopted by the government, are as follows:

### **Taman Nasional (National Park)**

National parks should be large relatively undisturbed areas of outstanding natural value with high conservation importance and high recreation potential. They should be easily accessible to visitors and provide obvious benefits to the region.

### **Cagar Alam (Nature Reserve)**

Nature reserves are generally small undisturbed fragile habitats of high conservation importance, unique natural sites, rare species' habitat, etc. This is the most restrictive category, with non-manipulative research as the only activity allowed.

### **Suaka Margasatwa (Game Reserve)**

Game reserves are generally medium or large, relatively undisturbed areas of moderate to high conservation importance. The maintenance of optimal habitat for wildlife is the main priority.

### **Taman Wisata (Recreation Park)**

These are small natural or landscaped areas with easy visitor access. They are relatively unimportant from a conservation perspective and are not threatened by visitor activities and recreation-oriented management.



# INDONESIA



**Map 1 Location of National Park Case Studies in Indonesia**



### **Taman Buru (Hunting Reserve)**

Hunting reserves are medium or large, natural or semi-natural habitats with game hunting potential, i.e., sufficient populations of game species, a demand for hunting facilities, and easy access for hunters. These reserves should have little conservation significance or have conservation values that are not threatened by hunting or fishing.

### **Hutan Lindung (Protection Forest)**

Protection forests are medium to large areas of natural or planted forested land on steep or high altitude lands, where forest cover is essential to protect important catchment areas and prevent landslips and erosion. Conservation priorities are not sufficiently high to justify reserve status.

The surface area set aside as Protection Forests (about 30 million ha) and other conservation areas amounts in total to 25% of Indonesia's surface area, and at least 34% of the total forested area. The administration of these enormous areas is the responsibility of the Directorate General for Forest Protection and Nature Conservation (PHPA), within the Ministry of Forestry (formerly PPA, which was part of the Department of Forestry within the Ministry of Agriculture). Another 64 million ha of forest land has been designated as Production or Limited Production Forest, in which commercial logging is permitted.

Indications from a wide variety of sources suggest that many sites within the protected area network have been experiencing widespread disturbance and ecological destruction. Illegal logging, dryland agriculture, burning, hunting, fishing, plant collection and mining are virtually unchecked within many protected area boundaries, and appear to be accelerating in several areas of critical conservation importance. Many protected areas exist in name only, with boundaries either unknown or ignored by local people, and occasionally by local authorities. PHPA currently lacks the capacity to slow or reverse this trend. Several high priority parks and reserves have received significant support from WWF, FAO and other organizations during the last decade or so. Although progress has been made in some of these areas, the overall picture remains extremely bleak.



## **FORESTRY INSTITUTIONS AND CONSERVATION PROJECT**

The Forestry Institutions and Conservation Project (FICP) is partly funded by a \$34 million World Bank loan to the Government of Indonesia. The project includes plans to:

1. Strengthen forestry planning and management (\$24.1 million).
2. Improve watershed conservation measures in the Upper Solo (Wonogiri) watershed in Java (\$23.3 million).
3. Strengthen management of five existing nature conservation areas, including "buffer zone development to preclude exploitation by local inhabitants and technical assistance for developing models for nationwide replication to preserve such areas on a viable basis" (\$6.4 million).

The nature conservation component of the FICP will include strengthening PHPA's capacity to manage five existing nature reserves through technical assistance, staff training and improved facilities. The five reserves are Baluran, Bromo-Tenger (Java), Bali Barat (Bali), Gunung Leuser (Sumatra) and Dumoga Bone (Sulawesi). Gunung Leuser and Dumoga Bone are two of the three case studies considered in this report.

As part of the FICP, the Government of the Netherlands will provide funding for a buffer zone technical advisor for three years, starting in 1989, plus other specialized consultants for several months. To date, no funds have specifically been set aside for ICDPs or buffer zone projects, primarily because neither the concept nor the project designs which have been proposed are considered sufficiently advanced to be operational.

Planning for the FICP was initiated in 1977. In 1980, the concept of protected area buffer zones was explored during a pre-preparation mission. Sites for agro-forestry pilot projects were selected at Gunung Leuser National Park and the proposed Kerinci-Seblat National Park, both in Sumatra. A further mission in 1981 developed a detailed proposal for an FICP component to: / ?

1. Assist in buffer zone planning at the national level and prepare plans for buffer zones in specific national parks. This recommendation has been incorporated in the FICP buffer zone technical advisor's terms of reference.



2. Develop agro-forestry buffer zones at the selected sites at Gunung Leuser and Kerinci-Seblat. These projects were excluded from the final FICP, apparently because:

a. A need was felt for integration with World Bank-funded tree cropping projects on Sumatra.

b. PHPA was not thought to have the capacity to execute a buffer zone project at that time.

c. Local populations and land use patterns had changed significantly, requiring a revised project design and budget.

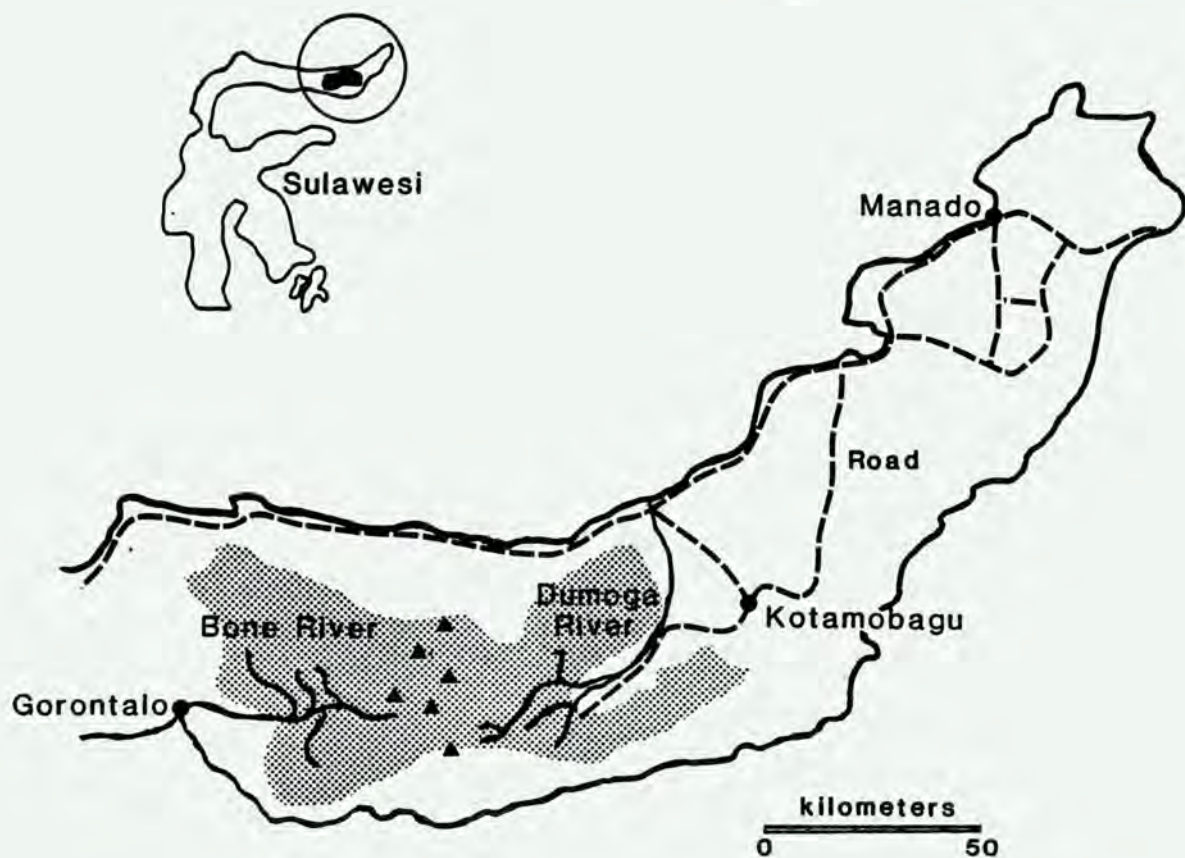
## **NATIONAL PARK SITE REPORTS**

### **DUMOGA-BONE**

Dumoga-Bone National Park (Map 2) is the most important conservation area in northern Sulawesi and ranks as one of the highest conservation priorities in Southeast Asia. The boundaries include three former reserves: Dumoga Wildlife Reserve (93,000 ha); Bone Wildlife Reserve (110,000 ha); and Bulawa Strict Nature Reserve (75,000 ha). Extensive Protection and Production Forests adjoin the northern and southern boundaries. The 300,000 ha National Park consists primarily of closed canopy rain forest between 50-2,000 m among rugged mountains. The central Bulawan mountain range runs north-south and divides the Park into two water catchments, with the main river valleys oriented east-west. The major rivers flowing from the Park boundaries are the Dumoga, flowing east, and the Bone, flowing west. The Park and its surroundings fall entirely within the province of North Sulawesi, within which the Park extends into two Districts (Bolaang-Mongondow and Gorontalo) and 14 Sub-Districts. The district capitals, Kotamobagu to the east (population 35,000) and Gorontalo to the west (population 220,000), are both within one hour of major Park facilities by all-weather road.

The establishment, during 1982-84, and subsequent management of the National Park have been closely linked with the development of the Kosinggolan and Toraut irrigation projects in the Dumoga valley, funded through a World Bank loan (Irrigation XV). As a result, the eastern regions of the Park now protect the upper watershed of the Dumoga river, which is used to irrigate 11,000 ha of rice fields which are cultivated by 8,500 farmers. Most of these farmers are either migrants or transmigrants from Java, Bali or other





**Map 2 Dumoga-Bone National Park**



regions of Sulawesi.

The transmigration schemes in the Dumoga valley are now regarded as among the most successful in Indonesia, integrating people from a wide variety of ethnic backgrounds. Widespread adoption of wetland rice cultivation skills was facilitated by the spontaneous migrants and transmigrants spread throughout the valley. Increased rice production has helped to convert the province of North Sulawesi from a net rice importer to a net exporter. An effective management program is contributing to the provision of a constant water supply by protecting a species-rich forested ecosystem. As a result, the joint funding and coordinated implementation of the National Park and the irrigation project have been widely upheld as a model of integrated conservation and development.

### **The integration of the irrigation schemes and the National Park**

The population of the 30,000 ha Dumoga valley was about 8,000 in 1960. During the following decade about 7,000 transmigrants arrived from Java and Bali. In the 1970's a further 23,000 migrants settled in the valley, attracted by the fertile soils and the improved access provided by the newly-built Dumoga Highway (to Kotamobagu and Manado). By 1980 the population had reached almost 50,000. This rapid expansion of the population and the completion of several large-scale development projects in the Dumoga valley led to a rapid escalation of pressure on the region's natural resources.

The Kosinggolan irrigation scheme was only partly functional in 1980. Interruptions in the water supply were attributed to deforestation of the catchment area. Improved road access, land speculation, absentee landlords and traditional agricultural practices are all thought to have played a role in increasing pressure on the forests. The World Bank was requested to provide a loan for the completion of the Kosinggolan irrigation scheme and the development of the Toraut scheme. Disbursements from the \$60 million loan were made conditional upon the Government halting deforestation of the catchment areas, to ensure a constant water supply for irrigation.

Deforestation was gradually brought to a halt. The Dumoga Reserve was established in 1979. WWF prepared a Park management plan in 1981 and the National Park was officially declared in 1982. More than 400 farmers were evicted from the Park in 1983. This law enforcement action, which had a long



and complex history of careful preparation, eliminated illegal encroachment and cultivation from the irrigation scheme catchment areas. In 1984, 134 of the evicted farmers were resettled outside the Park. Each family was provided with about 2 ha and a house. The estimated resettlement cost was Rp. 1,100,000 per family, about \$240,000 in total.

The Kosinggolan scheme was completed in 1984, irrigating 4,400 ha and benefitting 3,700 farmers. Construction included 56 km of main and secondary canals, 259 km of tertiary and quarternary canals, and 258 km of inspection roads. The Toraut scheme was completed four years later, irrigating 6,600 ha and benefitting 4,800 farmers. Construction included 56 km of main and secondary canals, 330 km of tertiary and quarternary canals, and 355 km of inspection roads.

Average farmer income in the valley had been \$340 in 1980 (\$600 in irrigated areas), with average rice production at less than 2 tons per ha. During the following six years, average income and production levels doubled or tripled.

Economic costs are difficult to assess. The Government incurred costs for interest on the loan, resettlement, extension campaigns, law enforcement actions, and court cases. Those most affected by law enforcement and forest protection measures were the original local inhabitants, migrants, absentee landlords and land speculators. The social costs were high, in particular for those people losing their land who had to return to their home villages. Most of the illegal farmers within the Park had earned profits of 1-3 years crops to partially compensate their losses. A small number had planted cash crops including coconut, cloves and coffee. Their losses may have been substantial.

The ecological gains were considerable. Large areas of moist tropical forest were protected, including species-rich lowland areas. The integrated nature of the project has also served to highlight the ecological links between the forest, water and rice production.

### **Lessons from the integrated project**

The Dumoga-Bone ICDP has achieved a considerable degree of success and it is therefore important to consider the extent to which the economic and ecological benefits which have been obtained might be replicated elsewhere. A



number of factors appear to have contributed to the successful design and implementation of the project:

1. Compilations of systematic field data on illegal settlers (including their place of origin, family size, location, crop types planted, time of arrival and land tenure status) provided an important input to resettlement plans and law enforcement action.

2. The provincial government played a highly supportive role and continues to cooperate effectively with the Park management. During the project implementation, the local government:

a. Established a special task force to end illegal forest encroachment. The military, the police, and the judiciary were all represented.

b. Played a leading role in settling land tenure issues at the Park boundaries.

c. Actively supported Park boundary marking in critical areas previously claimed by agriculturalists.

d. Implemented programs in villages to communicate the message of forest protection linked to irrigation.

e. Improved land registration procedures so that people applying for land certificates near the Park borders were obliged to first obtain approval from the Park authorities.

3. To protect the Park:

a. PHPA began a program of intensive monitoring of the critical catchment areas within the National Park.

b. Forest concessions at the Park borders were cancelled.

c. The loan funds included substantial budgets for patrolling and extension programs to be carried out by teams of Park guards and local government representatives.

d. Court cases led to imprisonment of persistent encroachers.

e. Illegal cultivations within the park were destroyed, and trees planted as a barrier to recultivation.

4. Regular meetings between World Bank project evaluation missions, PHPA, WWF and representatives of many departments in the provincial and district government not only resolved many issues but also kept the threats to the project from continuing deforestation highlighted and the sanction of terminated funding clearly visible.



Some significant negative impacts resulted from a failure to fully appreciate the effects of the complex interactions between the indigenous population and the recently-arrived migrants and transmigrants. The original Dumoga valley inhabitants, accustomed to dryland agriculture and the periodic clearance of forest for new land, did not adapt rapidly to the more intensive and profitable irrigated rice cultivation. While some were forced to sell their land for transmigration projects, others sold their land for very low prices to speculators, absentee landlords, transmigrants and migrants. Local migrants then tended to encroach upon and cultivate areas inside the protected forest.

Local people (as opposed to migrants and transmigrants) should have been specifically considered and included in the project (an emphasis given in more recent Indonesian transmigrations). At minimum, extension campaigns and self-help programs might have helped them resist false expectations of land speculators, pointed out the dangers of forest clearance and cash crop planting in the Park, and speeded up their adaptation to a more intensive form of agriculture.

### **Management of the National Park**

The planning of Dumoga-Bone National Park was given considerable attention. Two management plans were prepared with WWF/IUCN support, the first for 1982-83 and the second, prepared in 1984, for the period 1984-89. A joint mission from WWF/IUCN and PHPA visited the Park in 1986 to review progress and recommend future action.

The 1984 Management Plan includes detailed operational proposals for protection, education, recreation, tourism and research. The proposed zoning model for the Park includes: (1) intensive use (development) zones at the edge of the Park near the irrigation scheme weirs; (2) buffer zones at the borders of the Park with boundary line fuelwood plantations; (3) experimental forest plantations at formerly encroached areas; (4) wilderness zones with nature recreation facilities; and (5) a strictly protected zone.

Potential threats to the Park from road development, mining, the local demand for forest products, and logging in adjoining forests are emphasized in the 1984 Plan. Agricultural encroachment, illegal logging and hunting within the Park were limited, and were not regarded as serious problems. The need for boundary marking in selected areas was emphasized. The 1989 situation



appears largely unchanged from that reported in 1984. The recently-completed Park headquarters facilities are very impressive. Apart from some illegal digging for gold, the threats to the Park do not appear to have escalated dramatically. Only a limited number of the Management Plan recommendations have been put into operation.

### **Potential development initiatives**

In addition to the irrigation schemes, the 1984 Management Plan also discusses a range of potential development activities for implementation at and around the Park boundaries, all aimed at benefitting local farmers and local communities while improving protection of the Park. These proposals, very few of which have been implemented, include the following:

1. To establish 237 km of 15-30 m wide strips of fast-growing tree species at and inside the Park boundaries to act as protective buffer zones, mark the boundaries and provide fuelwood. These strips would be limited to areas where agricultural land directly adjoins the park and where population densities are high. Harvesting rights would be granted to local farmers in exchange for boundary path maintenance responsibilities. Areas of mature undisturbed forest would not be disturbed. No progress has been made on this recommendation, the value and feasibility of which was questioned by the 1986 WWF/IUCN mission.

2. To declare the Production and Protection Forests which adjoin the park as "Out-park forest buffer zones". Regulations would include restrictions on logging close to the Park boundaries. The establishment of rattan, timber and fuel plantations would be promoted. No progress has been made on this recommendation.

3. To establish "Out-park non-forest buffer zones" to include all enclaves as well as the critical area in the Dumoga valley between the park border and the Toraut and Kosinggolan main irrigation canals. Land use, land ownership, the location and size of settlements, legal rights of way and access would all be regulated. No progress has been made on this recommendation. The WWF/IUCN mission endorsed this proposal in principle, although pointing out that it is "too late" for the Motoyangan enclave. The Dumoga valley component of this proposal appears particularly timely and is discussed further below.

4. New specific regulations should be established for: (1) enclaves; (2)



boundary planting strips (In-park buffer zones); and (3) Production and Protection Forests adjoining parks (Out-park forest buffer zones and Out-park non-forest buffer zones), in order to implement proposals 1, 2, and 3. PHPA has issued some guidelines for buffer zone management (discussed below) but they are currently too general to be operational.

5. To organize, in conjunction with proposal 1 above, a program for farmers at the Park boundary - to be known as National Park Neighbors. The program would have conservation education and agricultural extension components, and be aimed at encouraging farmers to share responsibility for protection and development of the Park.

6. To promote rattan plantations in secondary forest areas, particularly within the Park and adjoining privately-owned lands. Although there has been little progress in this area, the Government of the Netherlands is now considering funding a 1989 proposal for rattan development in the Dumoga-Bone region. Raw rattan exports were banned by the Government of Indonesia in 1985 in an attempt to stimulate domestic processing and marketing.

7. To consider a large-scale development project on the Park's southwestern boundary. The Gorontalo area west of the Park has received no benefits comparable to the Dumoga valley irrigation schemes on the eastern boundary. This area has a much longer history of intensive cultivation and the city of Gorontalo on the Bone river became an important harbor during the Dutch colonial period. More recently, the relatively dry climate has slowed agricultural growth in the area west of the National Park. Deforestation has apparently led to the drying out of the Gorontalo-Limboto lake, the surrounding plains and extensive agricultural areas which were formerly irrigated. In 1984 the Gorontalo-Limboto lake had an area of 1,500 ha and maximum depth of 2.5 m, compared to 7,500 ha and 12-16 m 50 years earlier. Traditionally significant fish and shrimp industries have diminished dramatically. Reforestation and greening schemes have had very low success rates in the area. In the city of Gorontalo there has been an increase in the number and intensity of floods, and siltation deposits now prevent large ships from entering the harbor. There is apparently a labor surplus in the area.

The 130,000 ha Bone river catchment area is largely covered in primary forest included in the National Park. The river carries large volumes of 'unused' water directly into the sea. Present volumes of water vary from 12-70 m<sup>3</sup> per



second. An average of 35 m<sup>3</sup> per second would apparently be sufficient to irrigate 10,000 ha or provide 25 megawatts of hydro-electric power. The apparently promising potential of this situation to link conservation and further development at the Park's western boundaries has yet to be fully investigated.

8. The Park has excellent guest house facilities and considerable potential to attract nature tourism, both from overseas and from other parts of Indonesia. Manado has recently increased in importance as a tourist destination and the airport will soon be receiving international flights. A visit to Dumoga-Bone would be complementary to the region's other natural attractions, principally the coral reefs at Bunaken Island and the Tangkoko-Batuangas Nature Reserve. Very little effort has so far been made to promote tourism in connection with the Park.

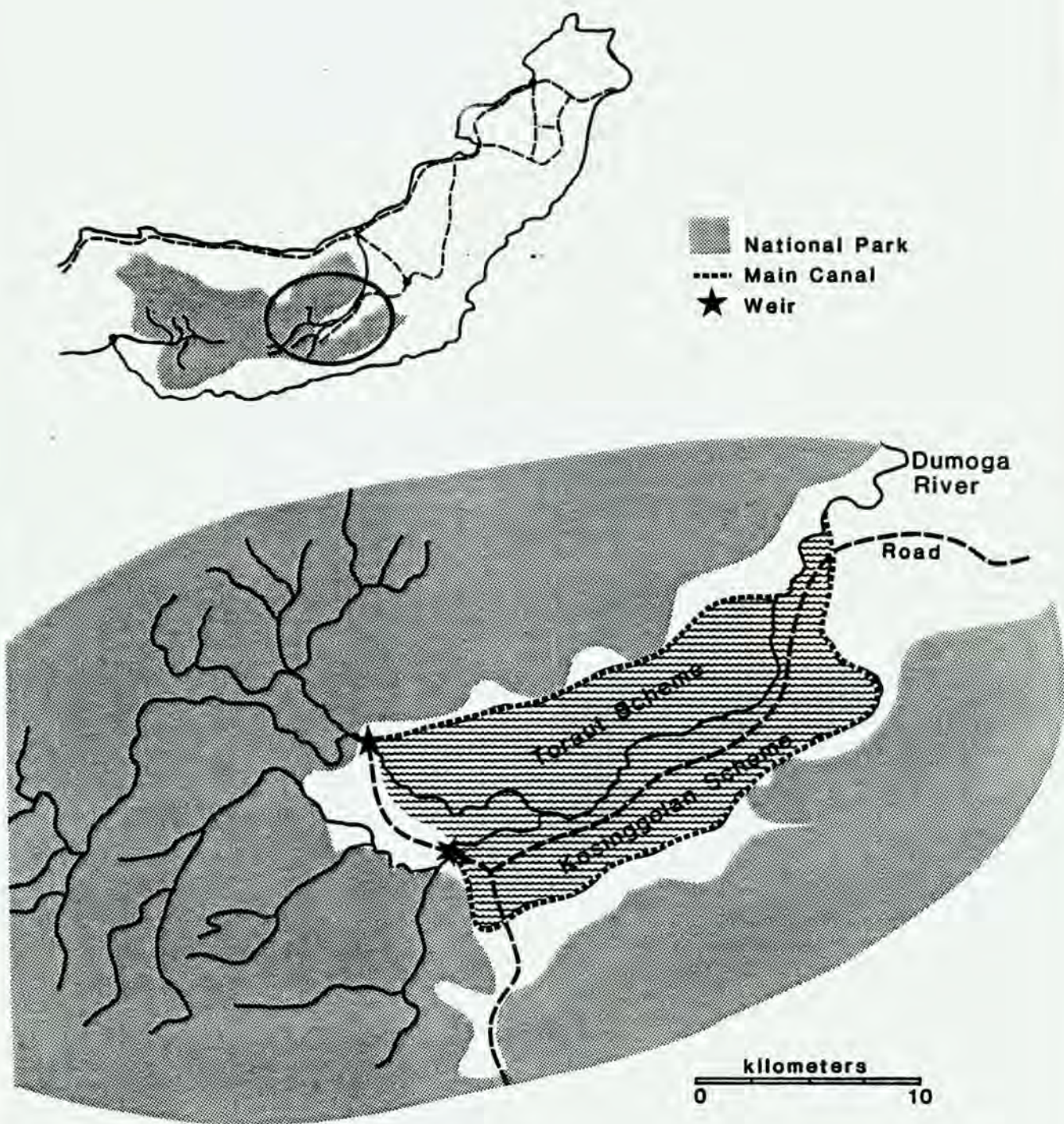
### **Priorities for future development**

1. At a national level, PHPA is starting to develop ideas and methods for establishing buffer zones at protected area boundaries. So far they have little or no practical experience in this area, although several schemes have been proposed on paper. Understandably, most of these have focussed on complex problem areas where encroachment and illegal logging within protected area boundaries have reached critical proportions. However, careful consideration should also be given to establishing buffer zones in areas where the problems are less extreme and where conflicts with local people are less likely.

Such an area can be found on the lower slopes of the Dumoga valley between the park border and the Toraut and Kosinggolan main irrigation canals (Map 3). This strip of land is of considerable importance to the irrigation schemes and should be stabilized as soon as possible. The area is close to the Park headquarters and to the main irrigation weirs. It is clearly visible to the project's many official and unofficial visitors and, if managed as an effective buffer zone, has the potential to exert a strong positive demonstration effect. It also represents an opportunity for PHPA to experiment with different buffer zone regulations (discussed further below), and to provide training and experience for staff in a relatively benign environment with a supportive and cooperative local government.

2. The Bone river system should be assessed as a potential source of water for irrigation, drinking water and/or hydro-electric power, possibly in combination with rehabilitation of the degrading Gorontalo-Limboto plains. A





**Map 3 The Dumoga Valley Irrigation Schemes**



project on a similar scale to the Dumoga valley irrigation schemes could conceivably bring considerable development benefits to a troubled region while reinforcing the economic arguments for protecting the ecologically-valuable forests in the western portion of the National Park. Should such a project prove viable, the model on which to base implementation would be conveniently close at hand.

3. PHPA staff at Dumoga Bone have neither the mandate nor the expertise to evaluate and implement the development ideas from the 1984 Management Plan discussed above. This problem is partly a function of PHPA's traditional orientation towards technical forestry and conservation (and is discussed below in the context of program needs). Modifications in orientation, staffing and expertise at the local as well as the national institutional levels would be prerequisites to effective action.

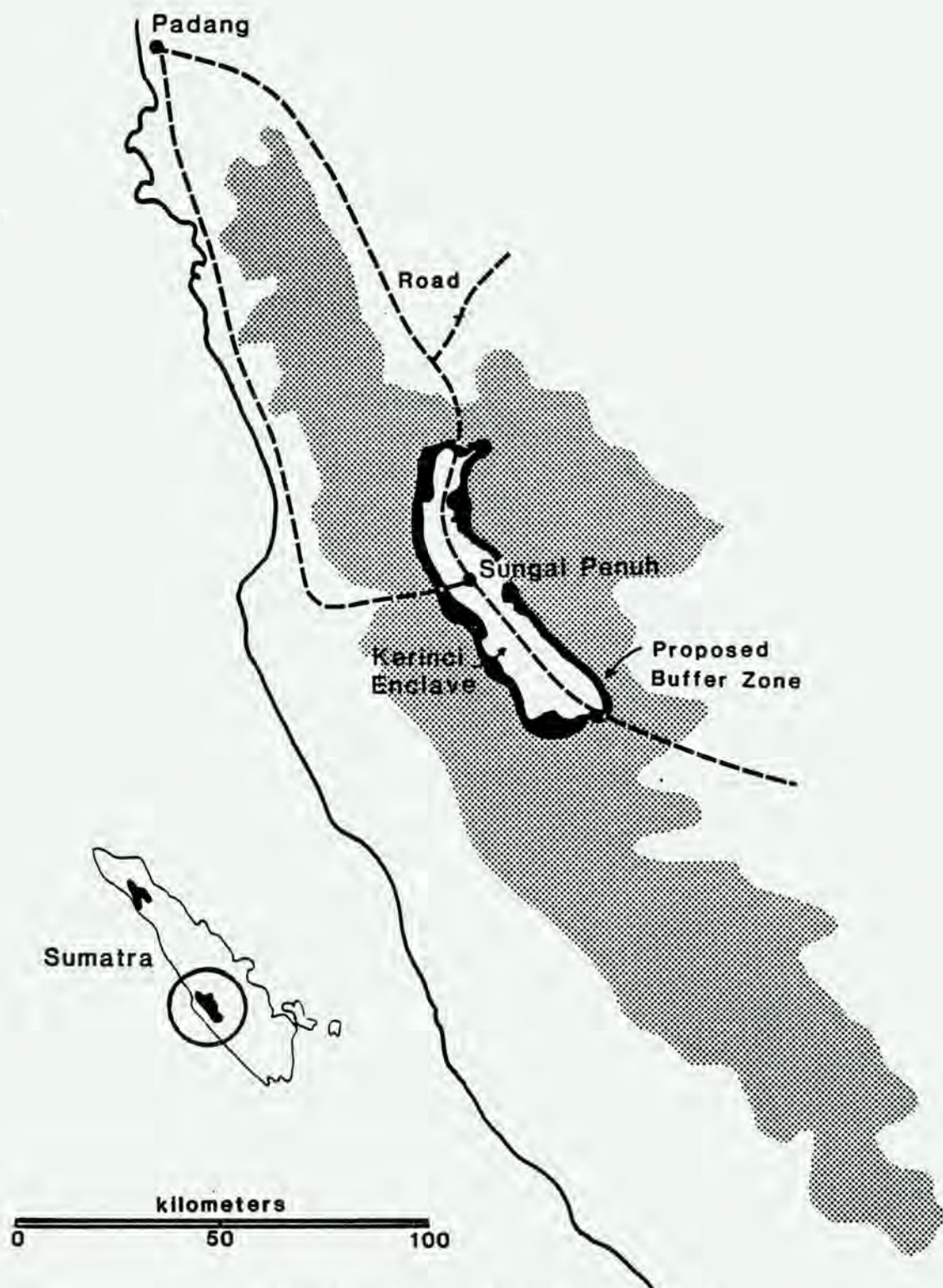
### KERINCI-SEBLAT

Kerinci-Seblat covers almost 1,500,000 ha in the southern half of Sumatra along the island's major mountain range, the Bukit Barisan (Map 4). The area is staffed by PHPA as a single unit, although it is not yet officially a national park. The boundaries mostly follow existing reserves or Protection Forests. The forests of Kerinci-Seblat protect the upper watersheds of South Sumatra's largest rivers, the Musi and the Batang Hari. The 1981 Management Plan estimates that about 7 million ha of agricultural land and 3.5 million people are dependent upon the hydrological regime protected by the Park.

The Park reaches into four provinces: West Sumatra (376,000 ha); Jambi (588,000 ha); Bengkulu (311,000 ha); and South Sumatra (210,000 ha). An enclave of almost 140,000 ha is situated within the Park boundaries in the Kerinci District of Jambi province. This 70 km valley is inhabited by about 270,000 people and its population is estimated to be increasing by 3.6% each year. The park headquarters is located inside the enclave at Sungai Penuh, the District's main town with a population of about 50,000. From the enclave two all-weather roads give access to Padang, either north or west (a 6-8 hour drive). Another route lead to Jambi in the east. Travel times across the Park or to its remote boundaries are considerable.

The Kerinci-Seblat forests grow on volcanic soils and range from lowland formations, dominated by *Dipterocarpaceae* and *Leguminosae*, through to





**Map 4 Kerinci-Seblat National Park**



upper montane and Alpine scrub above 1500 m. Kerinci-Seblat is of major zoological importance and contains a long list of rare and endangered animals. A major biogeographic division occurs in Sumatra just south of Lake Toba where there is a break in the Barisan mountain chain. As a result, a number of species which do not occur in Gunung Leuser National Park are found in Kerinci-Seblat. Mammals in this category include tapir, tarsier, black-handed gibbon, langur (2 species), Sumatran hare, pencil-tailed tree shrew, bamboo rat, three species of porcupine, stink badger, otter civet, marbled cat and flat headed cat. The extremely rare Sumatran rhinoceros is also found in Kerinci.

Most parts of Kerinci-Seblat are relatively inaccessible and have little agricultural potential. Although agricultural encroachment and illegal logging take place at numerous points around the outer perimeter, the Kerinci enclave and its access roads are the areas under greatest pressure.

### **The Kerinci enclave**

Almost the entire population of the enclave is engaged in agriculture. The valley is close to self-sufficient in rice, which is cultivated on about 20,000 ha, producing about 4.5 tons per ha. The climate and the fertile soil favor cultivation of coffee and cinnamon, both of which are major exports. The crop from the privately-owned 3,000 ha Kayu Aro tea estate is also exported. Other cultivations include corn, tobacco and a variety of vegetables. Fruit trees, particularly durian and mangosteen, grow well throughout the valley.

The soils of the valley and surrounding hills are fertile, slightly acid humic loams. In the early 1980's the cultivated area of the Kerinci region was composed of 17% wetland rice, 6% ladangs, and 77% perennials (mostly cinnamon with some coffee). Land classified as growing perennials includes areas of secondary growth on abandoned ladangs. Following clear-felling and burning of the forest, dryland rice and other annuals are cultivated for between one and three years. When soil fertility declines, cash crops such as coffee and cinnamon are planted. In some instances coffee is cultivated initially for several years until soil fertility declines, and then cinnamon is introduced.

Cinnamon bark is exported while the wood is used as the valley's primary source of firewood. The Kerinci enclave accounts for about two-thirds of Sumatra's cinnamon production. Trees are cut after 8-15 years, with older ones producing higher quality bark. Traditionally an entire plantation is harvested at



one cutting. The area planted with cinnamon increased by 13%, from 36,700 ha in 1984 to 41,600 ha in 1988. However the harvest increased dramatically over the same period, as indicated by the District's bark production data<sup>1</sup>:

<u>Year</u>	<u>Production</u> (tons)	<u>Total Value</u> (Rp. millions)	<u>Price</u> (Rp. thousands/ton)
1984	2,415	1,412	585,000
1985	3,073	2,141	697,000
1986	4,125	4,916	1,192,000
1987	9,462	15,207	1,607,000
1988	10,502	19,934	1,898,000

The "abundant" supply of cinnamon for fuelwood is currently cited by the Park authorities as a factor limiting deforestation within the enclave. However, the dramatic increase in harvest levels (presumably in response to the price escalation) suggests that the standing stock may be diminishing rapidly (earlier production data would clarify this issue). The roadside price of fuelwood continues to rise, despite the increased volume of available fuelwood that has presumably accompanied the growth in bark production.

The area under coffee cultivation remained between 18-20,000 ha throughout the 1980's, although prices have fluctuated considerably during the last five years:

<u>Year</u>	<u>Production</u> (tons)	<u>Total Value</u> (Rp. millions)	<u>Price</u> (Rp. thousands/ton)
1984	1,057	1,234	1,167,000
1985	937	1,315	1,403,000
1986	1,602	4,084	2,549,000
1987	2,727	6,257	2,294,000
1988	2,350	4,726	2,011,000

All around the valley, ladangs and permanent cultivations are spreading into the forest, including some extremely steep slopes. There is ample evidence of frequent land slips. Erosion, siltation and flooding in the valley are already evident and seem certain to increase.

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<sup>1</sup> Source: Trade Department, Kerinci District.



## **Management of the proposed National Park**

A basic management plan for the proposed National Park was prepared with FAO/UNDP support in 1981, although few of the recommendations have been put into operation. The Plan highlighted the Kerinci enclave as the main problem area and reported extensive agricultural encroachment within the protected area at the enclave boundary. The situation in 1989 appears similar, except that encroachment and ecological damage within the enclave has substantially increased. Considerable recent damage inside the Park is also obvious alongside the inland Padang-Sungai Penuh road, north of the enclave.

Only 56 PHPA guards are assigned to the entire Park. Of these, 21 are stationed at 15 guardposts in Kerinci District, which includes the enclave. Patrolling is done on foot as there is only one vehicle. There are no radio or telephone links between the guardposts and the Park headquarters. These totally inadequate resources have effectively ruled out any possibility of local PHPA personnel being able to contain the expanding encroachment and ecological damage taking place at the enclave borders and elsewhere in the Park.

## **Proposed development Initiatives**

The 1981 Plan gives high priority to the establishment of buffer zones on the perimeter of the enclave and in certain areas along the outer Park boundary. So far this has not been done. The Plan proposed that the buffer zone surrounding the enclave should occupy an area of land between the original Protection Forest boundary and the boundary proposed for the Park (Map 4). Cinnamon plantations were proposed as the only permanent crop providing adequate soil cover on the slopes surrounding the enclave, although timber and fuelwood plantations were also suggested.

This proposal effectively concedes a zone within the protected area that has already been lost to illegal logging and agricultural encroachment. A new boundary would be established on the edge of the encroached area, thereby creating an agricultural buffer zone which lies within the Park boundaries. This buffer zone would then fall entirely under PHPA jurisdiction.

This approach has implications well beyond Kerinci-Seblat. It may be appropriate in certain conservation areas throughout the tropics, where significant encroachment has already taken place within legally-established but



unenforceable protected area boundaries.

For such an approach to have a reasonable chance of success:

1. Land use within the zone would have to be stabilized, with agriculture and small-scale plantations limited to the few suitable flat areas. Vegetation cover would have to be re-established on the steep slopes which are most susceptible to erosion.

2. Farmers would need to acquire the means of boosting productivity, requiring an effective agricultural extension program.

3. Effective enforcement would need to commence at the new protected area boundary to prevent a continuation of current encroachment trends.

Despite overwhelming constraints, senior local Park officials appear highly knowledgeable and competent, and can report some worthwhile achievements which provide a promising basis for future action:

1. A complete census of people living within the proposed buffer zone at the edge of the enclave was carried out in 1987 as a joint exercise of PHPA and local army units. They found 6,290 families (21,129 people) cultivating 11,508 ha. Also documented were the places of origin of the people, their levels of education, the location of their crops, the first year of cultivation, and the types of crops grown. The comprehensive survey maps developed from the census data represent a valuable data base for the detailed planning of buffer zone management.

2. A constructive relationship is evident between the Park authorities, local government officials (including the four Provincial Governors), and other inhabitants of the enclave (despite reports of six people having been killed by tigers inside the Park during 1988). For example, there appears to be a clear and widespread understanding that those people farming within the Park boundaries are doing so illegally, and will eventually have to leave. Plans have been prepared to resettle small numbers of families who are currently farming within the boundaries to an area outside the Park during 1990-1.

3. Preliminary steps have been taken towards developing the tourism potential of the Park, particularly on the northern borders of the enclave in the



spectacular Lake Gunung Tjueh region. Two guest houses have been built within the forest and there are plans to use trained elephants to take visitors into the forest. Should resources become available, Park officials plan to obtain the elephants from the Elephant Training Centre at Way Kambas National Park in southern Sumatra. They have identified an area within the proposed buffer zone, currently used illegally to cultivate rice, which could be converted to grasslands to support the elephants. A potential alternative site for resettling the rice farmers outside the Park is under evaluation in conjunction with the local government.

4. Senior Park officials have supported and provided input to a number of proposals for Park and/or buffer zone development during the last ten years<sup>2</sup>, including this study. To date, none of these ICDP initiatives has resulted in any tangible support or benefit to the Park. However, various sites for pilot studies have been considered, and careful thought given to the implementation of such projects. Cooperation seems assured from the local government, from the Ministry of Agriculture, and from the local office of the Directorate General for Reforestation and Land Rehabilitation (DGRLR), within the Ministry of Forestry.

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<sup>2</sup> 1981: De Wulf, R. (FAO), D. Supomo (PHPA) & K. Rauf (PHPA). Kerinci-Seblat Proposed National Park: preliminary management plan 1982-1987. UNDP/FAO National Parks Development Project, Bogor.

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1985: R. Blouch (WWF) and S. Siregar (PHPA - Kerinci). A proposal for buffer zone development in the Kerinci enclave, Kerinci-Seblat National Park. To the Directorate General of Reforestation and Land Rehabilitation, Department of Forestry.

1986: J. M. Belsky & S.F. Siebert (Cornell University). Farmers' land use strategies and soil conservation in the Kerinci Uplands of Sumatra, Indonesia. For a Fulbright Collaborative Research award.

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1988 (updated 1989): C. Santiapillai (WWF) & S. Siregar (PHPA - Kerinci). Kerinci Seblat National Park: problems, progress and prospects. To WWF-Indonesia and WWF-International.



## Buffer zone proposals for the Kerinci enclave

The enclave buffer zone proposals generally envision project execution by Kerinci-Seblat PHPA personnel, in cooperation with the local government, the Department of Agriculture and DGRLR. Most of the studies propose that farmers be paid a wage and be provided with materials in exchange for rights to all crops. Permits would be required to cut trees. Written contracts between PHPA and individual farmers have been proposed as a basis for enforcing this arrangement.

The proposed enclave buffer zone area covers about 50,000 ha in total. It consists primarily of abandoned ladangs grown over with secondary forest and alang-alang grass, or cinnamon trees mixed with cultivations of coffee, potatoes, corn, chili peppers and a variety of other vegetables. Reforestation attempts on abandoned ladangs have concentrated upon *Pinus merkusii* (which is indigenous to Kerinci) and apparently had low success rates; local DGRLR personnel have recently planted 300 ha of *Albizia falcataria* on steep abandoned slopes above one of the enclave access roads.

Most of the proposals for enclave buffer zone development emphasize the role of agro-forestry systems, supplemented by fuelwood plantations and fast-growing tree species as boundary markers. A variety of combinations of species have been suggested for specific pilot project sites. Widely proposed tree species include *Pinus merkusi*, cinnamon *Cinnamomum burmanii*, surian *Toona sureni*, durian *Durio spp.*, and avocado *Persea americana*.

Agro-forestry is certainly not a new concept for this area. It is evident from visiting the enclave, including the proposed buffer zone area, that farmers currently employ a wide variety of complex agro-forestry arrangements. Many of these arrangements involve simultaneous inter-cropping of several different tree and crop species. It seems reasonable to assume that local farmers possess a considerable and diverse body of knowledge concerning agro-forestry in Kerinci. Buffer zone pilot projects should therefore be designed to take advantage of this expertise. The temptation to dictate tree/crop combinations which may make little sense to the intended beneficiaries should be carefully avoided.

One of the problems with the existing proposals derives from their heavy emphasis on the technical aspects of establishing sustainable land use practices in the proposed buffer zone area. Superficial treatment is given to the



significant social, cultural and institutional issues which are likely to arise in connection with any attempt by government agencies to cooperate in a new venture intended to: (1) elicit behavioral changes in subsistence farmers; and (2) obtain the farmers' support for a protected area which threatens their immediate livelihood.

For example, the 1981 FAO/World Bank report explains clearly how many tape measures and compasses would be required by project teams, and how far apart seedlings of various species should be planted; however, it offers little discussion or direction on:

1. How the different government agencies might be expected to agree on objectives or resolve their differences.
2. Whether or how local communities will participate in project design and planning.
3. Whether or how PHPA should modify its policies, operating procedures, staffing arrangements and general orientation at national and local levels in order to initiate and manage buffer zone programs - which are totally outside their traditional mandate and areas of expertise.

The other proposals suffer from similar scope limitations. These problems are discussed below in the context of their implications for project design and implementation.

### **Priorities for future development**

1. Kerinci-Seblat proposed National Park is an extensive tropical moist forest area of outstanding ecological importance. The future viability of the Park is threatened principally by agricultural encroachment and illegal logging at the borders of the Kerinci enclave and along the enclave access roads inside the Park. The Park has received virtually no attention or support from outside during the decade since the original management plan was prepared. Park protection and enforcement of regulations are ineffective, due in part to lack of staff and vehicles. Continuation of current trends seems likely to lead to an acceleration of ecological destruction and the loss of an important watershed protection function in the near future.



This area should therefore be given the highest conservation priority. Serious consideration should be given to including Kerinci-Seblat in the nature conservation component of the forthcoming World Bank-financed Forestry Institutions and Conservation Project.

2. Several plans have been advanced for the establishment of a buffer zone on the perimeter of the Kerinci enclave inside the Park. These proposals suffer from deficiencies in project design and none have so far been implemented, although extensive baseline data has been collected. Potential pilot project sites and promising tree/crop species have been identified. The very small but efficient Park PHPA unit has developed a positive relationship with the local government and appears to have the capability to perform a significant role in project execution - given appropriate resources, authority, and technical and policy guidance.

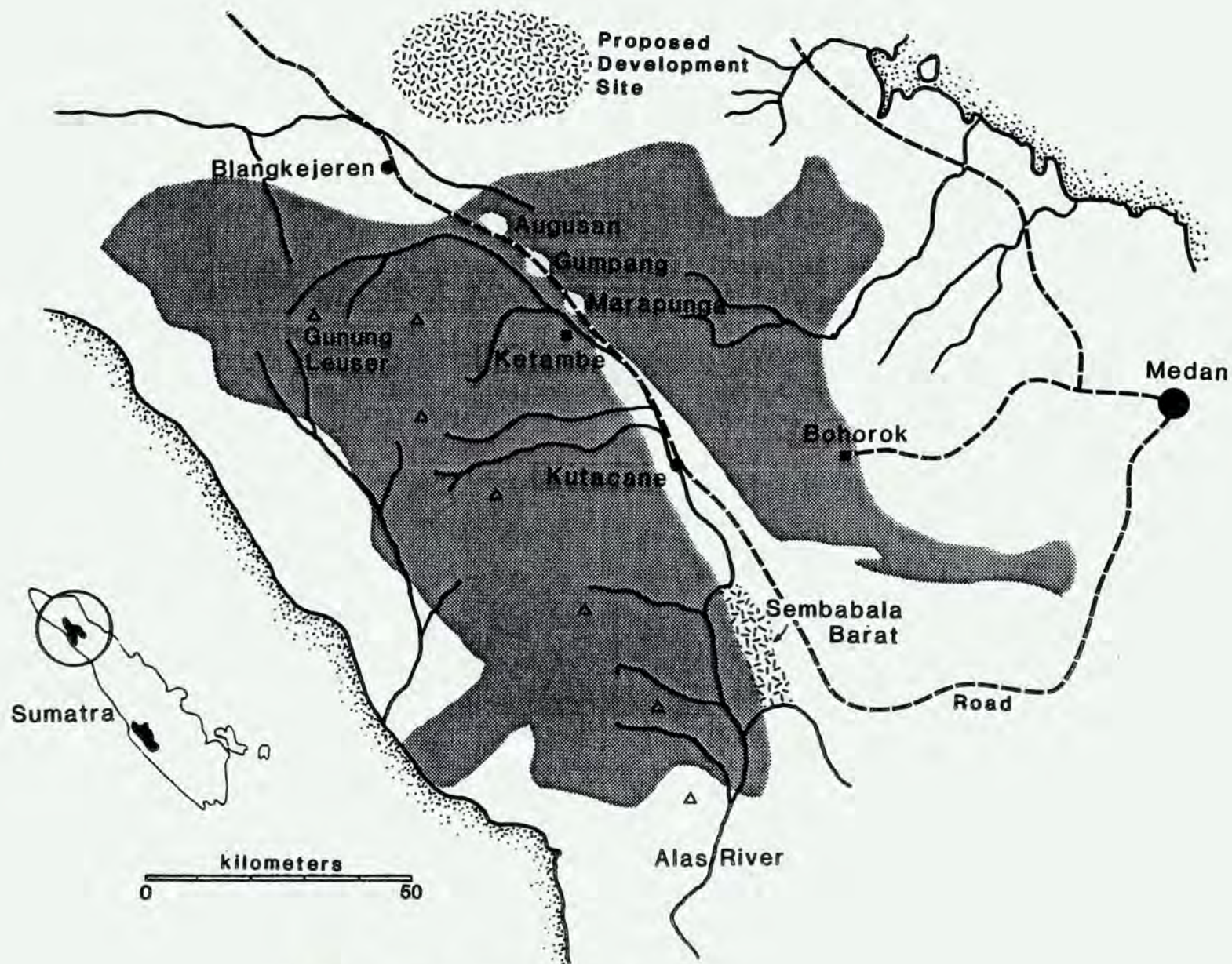
Kerinci-Seblat appears to represent an appropriate site for a series of buffer zone pilot projects. Significant amounts of baseline data has already been collected, considerable thought has been given to the necessary project components, and the local government and other agencies seem ready to cooperate. Further work is required to strengthen project design, and to improve and update cost estimates.

## GUNUNG LEUSER

Gunung Leuser became Indonesia's first national park in 1980. Five reserve areas were combined to create the 900,000 ha National Park, which can reasonably be considered as one of the most important tropical moist forest areas in the world (Map 5). The Park is one of the last refuges for many threatened and endangered species requiring tropical rain forest habitat. A wide variety of habitat types are represented, from coastal swamps through to alpine vegetation on Sumatra's highest mountain, Gunung Leuser. Mountainous areas predominate, however, and there are relatively few lowland areas. The species-rich lowlands tend to be the most important areas for the conservation of biodiversity and genetic resources. They are also the areas most seriously threatened by illegal hunting, logging and agricultural expansion.

About two-thirds of the Park lies in the Aceh Selatan and Aceh Tenggara Districts of Aceh Province, and the remainder in Langkat District, North Sumatra. The Park headquarters is located in the Alas River Valley at Kutacane,





Map 5 Gunung Leuser National Park



the capital of Aceh Tenggara. Kutacane is 6-8 hours by road from Medan, the commercial center of northern Sumatra. The Alas River, which flows through the middle of the Park, is part of one of Sumatra's largest river systems. The Alas Valley is a large expanse of flat, arable land reaching into the southern part of the National Park. It covers about 100,000 ha, is flanked by mountains reaching 1,500-3,000 m, and had a rapidly-growing population of about 130,000 in 1980. The valley is linked to the town and region of Blangkejeren in the north by an all-weather road. This road runs north-south and follows the Alas River for 52 km through the northern part of the Park. Three enclaves are located inside the Park along this road.

Increasingly serious encroachment and deforestation problems threaten the continued viability of the Gunung Leuser National Park. These problems are particularly acute in two areas: (1) along the Kutacane-Blangkejeren road within the Park; and (2) on the east and west slopes of the lower Alas Valley. The nature and extent of this deteriorating situation has been thoroughly documented and reported on several occasions since the original Park Management Plan was drafted in 1978.

### **The Kutacane-Blangkejeren road**

The forests of the upper catchment area for the Alas River have been under increasing pressure from illegal logging and agricultural use, particularly since improvements to the Kutacane-Blangkejeren road were carried out (with USAID funding) between 1976-1981. Improved access has attracted many new settlers to the enclaves and to areas all along the road through the Park. The widening band of deforested land now evident along this road has become a barrier to movement for many wildlife species and has essentially bisected the Park.

In 1980, the three enclaves (Augusan, Gumpang and Marpunga) were occupied by about 200 families, less than 1,000 people, and were excluded from the new National Park. A 1987 census found 642 families living in the enclaves and a further 444 families living in the Park along the road, a total of almost 6,000 people. Coffee, kemiri<sup>3</sup> and cloves covered about half of the cultivated area cleared by these people.

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<sup>3</sup> Kemiri: *Aleurites molucanna*, a fast-growing tree which produces an oil-rich nut (candlenut) used in food preparation and exported for the manufacture of paint, varnishes and certain pharmaceuticals.



Extensive logging and agriculture has been taking place along the road and within the Park, frequently on extremely steep slopes. Considerable illegal activity is obvious from the road, with no attempt being made at concealment. Firewood is sold at the roadside and there appears to be no shortage of chain saws. No observation or enforcement of Park regulations is evident. PHPA officials reporting illegal practices to the police or to local government authorities have apparently been subject to physical intimidation. Illegal logging trails, poorly-draining roadsides and denuded hillsides have all contributed to increasing soil erosion, landslides, heavy silt loads in rivers, and floods following heavy rains.

The Ketambe Forest Research Station was established in 1971 on the west bank of the Alas river inside the National Park. It has received international recognition as a center for tropical rainforest research and represents the only operational natural forest research station in Indonesia (and one of very few in the tropics). Illegal logging within the Ketambe forest has now reached such a scale that there is a possibility the research will be terminated and the site abandoned in the near future.

### **The lower Alas Valley**

This region owes its long history of settlement to a flat band of fertile alluvial soils suitable for irrigated rice cultivation along the banks of the Alas river. Rice irrigation in the Alas Valley is dependent upon the condition of the upper watershed catchment further north in the Park. In the lower valley, the area capable of supporting rice cultivation near the river has long been fully occupied. Garden crops and fruit trees are cultivated further from the river, and then ladang on the steeper slopes (many of which are within the Park boundaries). Kemiri is the predominant tree crop, followed by coffee, cloves and nutmeg.

The original inhabitants of the Alas valley are members of the Alas tribe. Their neighbors to the north, in the area of Blangkejeren, belong to the Gayo tribe. Within the last few decades, immigration from the south has resulted in an influx of Karo Batak people and, to a lesser extent, people from Toba, Mandailing, Singkil, Java and elsewhere. The mainly Christian Bataks now outnumber the original Alas people, who are Muslim.

The entire lower Alas Valley as well as the Blangkejeren region to the north



of the Park falls within the boundaries of Aceh Tenggara District. Aceh Tenggara consists mainly of steep hills and mountains which are largely unsuitable for food production. Current land use is 5% agriculture, 15% Production Forest, 17% Protection Forest, 50% National Park, and 14% other uses. Thus at least 82% of the District has been set aside and is unavailable for agricultural use. The apparently strong antipathy shown by the local government towards the National Park is somewhat easier to understand in the context of these figures. There is an acute shortage of land suitable for agriculture in the District.

The east side of the lower Alas Valley has been heavily deforested and agricultural encroachment is overrunning the lower slopes within the National Park. The west side of the valley has been less seriously affected by logging and agricultural encroachment. This is probably because there is no bridge for vehicles to connect the relatively isolated west bank with the main road to the Karo plains and to Medan on the east bank.

### **Management of the National Park**

A detailed Management Plan was prepared for the proposed Gunung Leuser National Park in 1978, with the support of WWF. In 1980 a WWF representative reported on management problems confronting the Park. Since that time the Park has received considerable attention from outside as well as periodic external funding and equipment, including vehicles.

The 1978 Management Plan included detailed proposals for boundary establishment and park protection, and made further suggestions concerning education, recreation, tourism and research. Very few of these recommendations appear to have been implemented. Both the Management Plan and the 1980 WWF report clearly identified the major threats to the Park. There has been little or no constructive action in the last decade to mitigate these threats and the situation has now deteriorated dramatically.

The 1980 WWF report made a number of observations which appear to be equally valid today:

1. PHPA management is weak and ineffectual due to: (1) a lack of sufficient trained personnel; (2) insufficient equipment and financial support; (3) inadequately defined Park boundaries which in many areas are marked poorly, if at all.



2. There is considerable hostility among local people towards the Park and PPA.

3. There is an urgent need for a buffer zone to protect the Park boundary along the east bank of the Alas River.

4. The potential danger to the Park posed by the improvements to the Kutacane-Blangkejeren road is pointed out.

PHPA currently employs 36 people at the Park headquarters. There are 58 guards stationed at 12 posts in the lower Alas valley. A further 121 guards are posted in other areas of the Park. Although the National Park officially has three vehicles, only one is in operation. Several guardposts in the Alas valley are unmanned, apparently because employees are reluctant to occupy remote locations. Two PHPA guest houses on the main road near Ketambe Forest, built at a cost of about \$15,000, have been abandoned and fallen into disrepair.

Senior officials of the National Park have recently participated in local discussions concerning a potential regional development project for Aceh Tenggara which could have profound implications for the future of the Park. The preliminary ideas for this project are discussed below.

One of the few successes at Gunung Leuser can be seen at Bohorok, on the Park's western boundary two hours drive from Medan. The orang-utan rehabilitation center at the edge of the Park has become an important attraction for both Indonesian and foreign visitors. Guest houses and small restaurants in the area appear to be thriving and an impressive visitor center is nearing completion. Encroachment problems in the area are limited.

### **Potential buffer zones**

A zoning plan for the National Park was prepared by PHPA in Bogor during 1987, designating strict reserve areas, wilderness areas and buffer zones. The PHPA-proposed buffer zones are located on the (relatively undisturbed) western slopes of the lower Alas valley and on either side of the Kutacane-Blangkejeren road. All of the buffer zones are to be located inside the Park boundaries. Instructions or guidelines on implementing these proposals have yet to be issued.



The original proposals for buffer zones in the 1978 Management Plan and the 1980 WWF report were followed up and considerably expanded in the 1981 FAO/World Bank report. The project proposed in this report would "provide assistance in replanting superior strains of kemiri and coffee on abandoned ladang, provide wages (until the new crops produce), planting stock, tools, fertilizers and pesticides". Project activities would be limited to abandoned or existing ladang outside the Park boundaries. Written agreements between farmers and PPA would specify: (1) the area to be developed; (2) the wages and materials to be provided to farmers; (3) the farmers' responsibility to maintain crops; (4) farmers' harvest rights; and (5) the sanction of termination should Park encroachment be detected.

The 1981 report suggested pilot project sites at: (1) three villages on the west side of the Alas valley; (2) the enclaves on the Kutacane-Blangkejeren road; and (3) near Blangkejeren. These sites "would become centres for development where a small nursery and village office would be constructed and an extension service established to supervise development". Kemiri, coffee and durian again figure prominently as proposed tree crops. There would be fuelwood plantations at all three sites. Considerable technical details were provided on the spacing of seedlings, the exact fertilizer quantities, the intensity of weeding operations and the number of man-days required.

As discussed in the Kerinci-Seblat section above, the project design outlined in the 1981 FAO/World Bank report appears to overemphasize the technical aspects of the project. Some fundamental social, cultural and institutional issues are not addressed. The adverse political climate in the Alas valley and the hostile nature of the relationship between PHPA and local people was not mentioned in the report and does not appear to be reflected in the project design.

### **Potential development initiatives**

Preliminary discussions have recently considered the possibility of two ambitious agriculture and resettlement schemes, one to the north and one to the south of the National Park. Both are intended to reduce the acute shortage of agricultural land in Aceh Tenggara. Government agencies, including PHPA, are represented on a committee which has been established to consider this project concept.

To the north, discussion has focussed on irrigating 70,000 ha in the



Blangkejeren region for rice cultivation, drawing water from rivers whose upper watersheds lie inside the Park boundaries. To the south, the conversion to agriculture of a 65,000 ha area of logged Production Forest in Sembabala Barat is being considered. This area, which would not require irrigation, would be used to cultivate maize, corn, peanuts, soya, and candlenut and cocoa trees. Up to 200 families may be resettled from the enclaves along the Kutacane-Blangkejeren road to these new areas.

This project would involve considerable development of infrastructure, including roads, schools, health facilities, etc. North of the Park, access roads would be built to the east and west of Blangkejeren, following routes about 10-15 miles outside the Park's northern boundary.

These development schemes could have fundamental consequences for the future of the National Park, and the project designs will be of critical importance. Uncontrolled or poorly-planned development could rapidly intensify the threats to the Park, which are already serious. On the other hand, these ideas appear to represent a significant opportunity to address the fundamental problems threatening the Park by implementing a large-scale ICDP.

USAID has recently provided \$50,000 for a study of park boundary problems at Gunung Leuser by a team from the University of North Sumatra at Medan, WWF, UNDP and CUSO. The information gathering phase of this study could provide useful baseline data to the proposed agricultural schemes.

### **Priorities for future development**

1. Gunung Leuser National Park is a top priority tropical forest conservation site covering almost one million ha. It faces serious threats in three areas:

a. The Park has been bisected by the recently-improved Kutacane-Blangkejeren road. The lowland forests adjacent to the road are being severely damaged by illegal logging and agricultural encroachment, particularly in the area of three rapidly-expanding enclaves. The Ketambe Research Forest may have to be abandoned due to illegal logging.

b. Lowland forests inside the Park on the lower slopes of the Alas valley are being logged and replaced by dryland agriculture.

c. Encroachment and logging at several points on the outer Park boundary appear to be gradually increasing.



Park PHPA personnel appear to have had no impact on the rate of forest destruction. Although they are underequipped and understaffed, the critical constraint appears to be local resentment towards the Park. This is understandable in Aceh Tenggara District, where 82% of the land area has been set aside for conservation. Any new PHPA initiatives would appear doomed without a fundamental shift in their relationship with the Aceh Tenggara government and with local communities.

Buffer zone areas at the Park boundaries have been tentatively identified. However, Park PHPA personnel appear to have neither the resources nor the expertise to implement these buffer zones, or to initiate any other ICDP components.

2. This scenario suggests that individual marginal interventions, such as establishing pilot projects in buffer zones or providing additional funds and equipment for Park management, will be unlikely to bring about the rapid and fundamental changes which appear necessary if the Park is to be safeguarded.

The proposed agricultural development schemes at Blangkejeren and Sembabala Barat appear to represent the most promising area for action. A large-scale agricultural development scheme, closely linked to improved and upgraded protection of the Park, appears to offer the most promising opportunity to reverse the current destructive trends and provide a viable long-term livelihood for residents of Aceh Tenggara. Dumoga-Bone National Park is an obvious precedent and should serve as a useful model.

A funding source has not yet been identified for this scheme, which is at a very early planning stage. The possibility of funding through a World Bank loan to the Government of Indonesia would appear to merit careful consideration.



## **DEVELOPMENT INITIATIVES LINKED TO PROTECTED AREAS**

The concept of ICDPs encompasses a range of different types of development activities. Some take place at a regional level, others at the level of communities or even individual farms. While some concentrate on lands directly adjoining park or reserve boundaries, others target more distant areas. Some are directly under the jurisdiction of park or reserve management; many require cooperation with other agencies.

The most appropriate development initiatives or ICDP components at a particular site will depend upon:

1. The site location in relation to the protected area boundaries.
2. Current land use practices.
3. Government agency and other institutional jurisdiction.
4. Scope, i.e., the number of target beneficiaries, and whether activities are aimed at a regional, community or an individual farm level.
5. The type of expertise required to design and implement the project.
6. The nature and intensity of the specific threats to the protected area which the initiative aims to mitigate.
7. The agricultural or forestry potential of the selected site.

Four basic categories of ICDP development activities are proposed for Indonesian tropical forests, based on their respective locations relative to the protected area:

1. Buffer zones outside protected area boundaries.
2. Buffer zones inside protected area boundaries.
3. Development projects outside buffer zones.
4. Enclave development projects.

Each of these ICDP categories require a specific set of issues to be considered in project design and execution. The national institution with the responsibility of implementing or coordinating an ICDP program, PHPA in the case of Indonesia, will require the capacity to address the entire range of issues raised in these different categories.

### **Buffer zones outside protected area boundaries**

Buffer zones outside park or reserve boundaries allow the entire area



originally set aside for species conservation to be protected. A major consideration for these buffer zones is that PHPA will not have jurisdiction over the land<sup>4</sup>. The essential process of reaching agreements on future land use at the protected area boundaries is likely to be difficult and time-consuming.

The preceding site reports identified potential sites for buffer zones outside National Park boundaries at:

1. Dumoga-Bone National Park, on the lower slopes of the Dumoga valley between the park border and the Toraut and Kosinggolan main irrigation canals.

2. Gunung Leuser National Park, on the western slopes of the lower Alas valley.

### **Buffer zones inside protected area boundaries**

Buffer zones inside park or reserve boundaries sacrifice land which has previously been set aside for conservation but benefit from being entirely within PHPA jurisdiction. The establishment and, at least in theory, enforcement of specific land use regulations should therefore be considerably easier.

A buffer zone may be established inside park or reserve boundaries when:

1. No land is available outside the protected area boundaries.
2. Logging and agricultural encroachment have already damaged or eliminated the conservation value of land inside the park boundary.

In the latter case, priority should be given to reversing or slowing the advancing agricultural frontier. A persistent focus on the original boundary, which has proven unenforceable and become meaningless, is likely to be unproductive. Establishing a buffer zone inside the park between the edge of the encroached zone and the original boundary may be the best strategy for stabilizing land use and preventing further encroachment. As in all buffer zone projects, rigorous enforcement of the new boundary should accompany an

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<sup>4</sup> PHPA will not have jurisdiction unless the adjacent lands have been designated as Protection Forest, in which case the activities generally contemplated for buffer zones (i.e., agriculture, agro-forestry and small plantations) are currently illegal.



effective development and extension program for the farmers cultivating land inside the original boundary. Specific regulations are likely to be required at a national level before agriculture and tree-cutting within protected area boundaries can be legally approved.

This review has highlighted potential sites for buffer zones inside protected area boundaries at:

1. Gunung Leuser National Park, along the Kutacane-Blangkejeren road and on the eastern slopes of the lower Alas valley.
2. Kerinci-Seblat National Park, on the perimeter of the Kerinci enclave.

### **Development projects linked to protected areas**

Two types of development projects outside buffer zones can be distinguished:

1. Large-scale development projects linked to protected area management. Dumoga-Bone is an excellent example, where the National Park protects the upper watershed of a substantial irrigation scheme.

This review has highlighted potential sites for large-scale agricultural development projects linked to national parks at:

- a. Dumoga-Bone National Park, linking protection of the Bone catchment area in the western half of the Park with agricultural development in the Gorontalo-Limboto plains.
- b. Gunung Leuser National Park, linking protection of the Park's critically threatened areas with agricultural development projects in the Blangkejeren and Sembabala Barat regions.

2. Small-scale rural development projects targeted on villages in the proximity of protected areas, but outside formal buffer zones. These projects are designed to intensify and stabilize land use, and provide alternative sources of forest products in the vicinity of the local community<sup>5</sup>. This category of ICDP may stand alone or be combined with any other. It could include: (1) agriculture,

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<sup>5</sup> This approach is being attempted at several conservation areas in Madagascar, as reported in the author's 1988 report for the World Bank: 'The contribution of integrated conservation/development projects to the protection of Madagascar's biological diversity: a preliminary evaluation'.



agro-forestry or small plantations; (2) road improvements; (3) water, sewage and electrical services; (4) schools, clinics and dispensaries; (5) loans or credit facilities for farmers; (6) incentives to local industries.

This review has highlighted potential sites for small-scale rural development projects outside protected area buffer zones at:

- a. Kerinci-Seblat National Park, near the borders of the Kerinci enclave.
- b. Gunung Leuser National Park, near the external boundaries of the Park (i.e., the eastern, western and northern boundaries).

## **Enclaves**

Enclaves generally pose special problems due to their high population densities located immediately adjacent to or within protected area boundaries. Almost any development initiative directed towards the enclave population has the potential to threaten the forest in the immediate vicinity of the enclave or its access roads. In many cases buffer zones or small-scale rural development projects may be appropriate for enclaves. They merit a separate category, however, due to their frequently unique legal status and shortage of unoccupied land.

Specific enclave problems have been reviewed at Kerinci-Seblat and Gunung Leuser National Parks.

## **Buffer zones in Indonesia - some general observations**

There are currently no operational buffer zones around Indonesia's large forested protected areas in the Outer Islands, although several have been proposed. There has, however, been considerable discussion on the subject.

The National Conservation Plan for Indonesia, prepared in 1981, defines buffer zones as areas peripheral to parks or reserves which have restrictions placed upon their use to give an added layer of protection to the reserve itself, and to compensate villagers for loss of access to protected areas. The Plan suggests that:

1. Regulations for buffer zones and enclaves must be designed to ensure that these areas fulfill a protective role in addition to benefitting local communities:



- a. No permanent dwellings to be built within buffer zones.
- b. Vegetation cover to be maintained on all sloping terrain.
- c. No exotic flora or fauna which are liable to invade the reserve.
- d. Clear delineation of the park and buffer zone boundaries.

and, specifically in enclaves:

- e. No immigration and no land purchases by non-residents.
- f. Access roads to be rigorously patrolled to protect the forest.

2. Buffer zones are not required in all areas, particularly where natural boundaries exist or where local communities have alternative supplies of forest products. Where land adjacent to the reserve is owned by the state or run as a commercial plantation, buffer zones may not be necessary if appropriate agreements can be reached between PHPA and its neighbors.

3. Land designated as a buffer zone, either inside or outside protected areas, usually consists of species-rich lowland areas. It is therefore preferable, where possible, to mitigate village needs for forest access by other methods, such as establishing fuelwood or timber plantations on village lands, increasing agricultural potential through irrigation projects, or by improving marketing facilities with road improvement schemes.

4. The size and shape of buffer zones should be based upon the estimated needs of local people for forest products, particularly fuelwood and tree crops. The buffer zone should be sufficiently large to satisfy these requirements or to generate cash equivalents.

5. There are three types of buffer zone:

a. Traditional use zones, where activities might include hunting and fishing using traditional methods, and the non-destructive collection of such forest products as rattan, bamboo, fruits and honey, nongrowing timber, etc. (likely to be a buffer zone inside protected area boundaries).

b. Fuelwood and timber forests outside reserve boundaries but on state land, managed for domestic village use (a buffer zone outside protected area boundaries).

c. Commercial plantations outside reserve boundaries but on state land, managed for to boost village income (also a buffer zone outside protected area boundaries).

In January 1987, PHPA headquarters in Bogor issued a Tentative Directive which recognizes the need for buffer zones as one of several zones which may



be necessary within a national park. It suggests that, where required, buffer zones should be established within the national park boundaries, so as to be included in the overall management of the park. This document recognizes three buffer zone objectives: (1) reducing or eliminating population pressure on the other park zones; (2) restraining wildlife from leaving the park and entering settled areas; and (3) helping improve the welfare of communities around the national park.

The Directive designates the chief of the national park as responsible for buffer zone management, which should: (1) be consistent with conservation of the national park ecosystem as a whole; and (2) include the participation of the surrounding community, providing them with an opportunity to increase their welfare. No further details were provided on criteria, regulations or implementation.

Outside Indonesia, a recent review and evaluation of tropical forest buffer zone experiences was carried out for IUCN. Very few examples were found where stable and compatible land use systems had been established around a park or reserve in such a way that local people were genuinely reconciled to the conservation function of the area. Nevertheless, many examples of projects where people are beginning to tackle these problems were discovered.

## **SOCIAL FORESTRY**

Social forestry is a term applied to tree planting or natural forest management designed to meet the forestry-related basic needs of rural people. It takes place at the farm or village level and often encompasses adjacent tracts of government-controlled lands. Recognizing that villagers who live in and around forest areas are more likely to protect the forest when they share in the benefits of conservation, social forestry emphasizes wider community participation in forestry activities and decision-making, rather than specific production systems. Equal emphasis is given to increasing the productivity of forest resources and improving the equity of forest resource distribution.

The social forestry approach shares a number of objectives with protected area management plans which incorporate a development component. In particular, ICDPs and social forestry projects both aim to: (1) stabilize land use on forest boundaries; (2) establish incentives for sustainable agriculture and



forestry practices in remote rural communities; and (3) enlist the support of these communities in forest conservation. Social forestry experience in Indonesia is therefore highly relevant to the design and implementation of the different ICDP categories discussed in this report.

### **Ford Foundation social forestry programs**

The Ford Foundation is currently supporting two social forestry programs in Indonesia, one in Java which is relatively well established, and one in the Outer Islands which has begun recently. In Java, most remaining forest lands are under the jurisdiction of the State Forest Corporation (SFC), a semi-autonomous unit of the Ministry of Forestry. SFC is charged with managing state forest lands for soil and water conservation, employment and income for the rural poor, and profitable timber production. In the early 1980's it was recognized that these objectives could not be met unless the many conflicts between the SFC and rural villagers were resolved. These conflicts stemmed from long-standing land disputes and from the increasing demands of the rural population for agricultural land, firewood, and building materials from forest areas.

In 1984 Ford provided a grant to the Ministry of Forestry to document these conflicts through a series of case studies of forest-dependent villages. Based on the results of these studies, which were prepared by recent Indonesian university graduates, SFC began 12 pilot projects in 1985 staffed by SFC personnel and specially trained community organizers. Project staff are assisting farmers to organize forest farmer groups, and working with them to design agroforestry systems for areas of state forest land in need of reforestation.

The pilot projects are being implemented under the direction of a multi-institutional Technical Steering Committee. In addition to officials from the SFC and the Ministry of Forestry, the group includes representatives from university forestry and social science faculties and from Yayasan Bina Swadaya, a national-level Indonesian non-governmental organization<sup>6</sup>. Bina Swadaya has provided training for pilot project staff in methods of community organization and faculty from the Institute Pertanian Bogor are supervising student research

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<sup>6</sup> Yayasan Bina Swadaya and other Indonesian NGOs prefer the term Institute for Community Self-Help, Lembaga Swadaya Masyarakat (LSM), rather than NGO, to avoid the latter's connotation of opposition to the government.



on the pilot projects.

In the second year of pilot project operation SFC officials were sufficiently encouraged to expand the program to 50 additional sites. SFC is internalizing social forestry training and community organizing capability among its own personnel, with continued assistance from Bina Swadaya. Officials anticipate that policies and procedures supporting social forestry can become standard SFC operations within the next few years.

In the Outer Islands, the Directorate General of Forest Utilization in the Ministry of Forestry began to establish four pilot projects in 1986 following a grant from Ford. This program is attempting to organize whole communities for the management of areas of the order of 1,000 ha.

Trained community organizers and line agency staff assigned to the pilot projects are documenting forest exploitation patterns and conflicts, and working with the communities to plan activities aimed at stabilizing forest boundaries. Specifically, communities are being assisted to inventory and map their land use patterns in order to negotiate with forestry agency officials on issues of mutually acceptable boundaries, buffer zones and forest exploitation rights. Initial data gathering is taking place as an integral part of the community organization effort. Bina Swadaya has provided training in community development, and provincial universities are being funded to conduct research as part of the projects.

The Outer Islands program is being monitored at the national level by a Technical Steering Committee which includes representatives from the Ministry of Forestry, other government agencies, Bina Swadaya, Ford and the universities. At the provincial level, projects will be monitored by steering committees which include representatives from the Ministry of Forestry regional office, the provincial forest service, the provincial planning agency, other government agencies, and in some cases, provincial universities, local NGOs and local leaders.

A key aspect of the social forestry programs is the focus on the relevant government agency as the target for change. The goal of this strategy is to assist SFC in learning how to serve its rural clientele more effectively, and in making the necessary changes in policies and procedures. One of the principal objectives of this process is to alter SFC's self-image from that of a unilateral implementor of development to that of an "enabler", assisting rural people in



their own development efforts.

## **Lessons from social forestry programs**

Ford's social forestry programs in Indonesia and elsewhere in Southeast Asia are still at a very early stage of implementation. Some useful interim lessons have begun to emerge, however, several of which are likely to be useful in designing programs and projects for integrating development with conservation at protected area sites:

### **1. DIAGNOSTIC RESEARCH**

Diagnostic research represents a critical first step in the development of any social forestry program. It provides a clearer picture of conditions and problems in the field, especially the interaction between people and the forest. Information and data gathered during the diagnostic research phase becomes the basis on which working groups design and direct the project. The research results also provide a useful basis for monitoring and evaluating the project during implementation.

Applied social science methodologies have had an important role in diagnostic research. These include: rapid rural appraisal techniques such as the socio-technical profile and agroecosystems analysis; project monitoring techniques such as process documentation; and community resource assessment techniques such as case studies, sketch mapping and aerial photograph interpretation. Workshops have been used as a method of bringing a diversity of interests to consensus on the definition of problems, coming up with action plans, and making recommendations for policy changes necessary to implement the plan.

These methodologies have proven to be critical tools for the collection and transmission of field level data on social and economic issues relevant to the projects. While the technical line agencies may have had reliable reporting systems for items that are easily counted or measured - hectares reforested, kilometers of irrigation canals rehabilitated, number of villagers contacted by extension agents, etc. - they have rarely developed systematic methods for collecting qualitative data on the rural areas targeted for development, the process by which projects are implemented, or the ultimate socio-economic impact of their projects.



The graduate student researchers were drawn from a number of disciplines, including forestry, ecology and rural sociology. In Java the research teams spent nine months living in the case study communities. Long-term residence allowed rapport to be built with villagers, who were initially suspicious of outsiders. Oral histories provided a basis for understanding the evolution of land use and community perceptions of the forest. In-depth interviews were conducted with local agency staff, village and religious leaders, and community members of all classes, genders and age groups. Household income and time allocation studies were compiled to examine the way in which access to and dependency upon forest lands varied within communities according to socio-economic status. Detailed analyses of existing agro-forestry systems were also carried out.

## 2. PILOT PROJECTS

Experience has shown that pilot project activities cannot be completed within a short period of time. The lessons can therefore only be learned over several years of implementation. As a result, program expansion must be undertaken slowly, and be based on an accumulation of pilot project experience.

The selection of pilot project sites is extremely important. It must be based on clear criteria, for example where: (1) there is a high level of interaction between the community and the forest; (2) there have been conflicts concerning forest management between the local community and the government; and (3) there appears to be a possibility of compromise between these two parties.

## 3. THE ROLE OF THE WORKING GROUP

Working groups have had a central role in Ford's social forestry programs. The working group is composed of individuals from various agencies and disciplines who come together as individuals to pursue solutions to a commonly-perceived problem. The group sponsors diagnostic research, plans program implementation, and monitors and raises attention to problems encountered once the program is underway.

The working group performs two roles, which are closely linked: (1) that of a political coalition that enables a government line agency to change its way of doing business; and (2) that of a technical advisory board, assisting the agency to plan and implement a research and action program. In Indonesia, successful working groups have operated at national (program) levels and at provincial



(project) levels.

#### 4. THE IMPORTANCE OF COMMUNITY DEVELOPMENT EXPERTISE

In social forestry programs, community organization becomes the top priority in implementation. This represents a new problem for foresters, who up to now have seen their jobs as limited to technical forest management and law enforcement. In social forestry programs and projects, community organization is seen as an expertise in and of itself, developed through training, as well as reinforced by staffing and administrative adjustments.

Non-governmental organizations with extensive experience in community development have played an important role in social forestry programs in Southeast Asia. In Indonesia, Yayasan Bina Swadayan and Yayasan Pembangunan Masyarakat Pedesaan have assisted forestry agencies in preparing field staff for their role as community organizers. Adequate field staff preparation for community development requires training in methods of communication, building farmer groups, planning, monitoring and evaluation.

The community organizer role puts the government forestry agency in the constructive, if unfamiliar, position of approaching the community in a cooperative manner and eliciting their opinions on the types of crops most suited to the local environment.

#### 5. AGROFORESTRY

Introduced or modified agroforestry systems must take account of farmers' previous experience and build upon the knowledge already possessed. The planning of agroforestry systems must balance physical aspects such as soil, rainfall and slope, with social aspects such as community species preferences, labor availability and commodity marketing potential. Good agroforestry systems provide net benefits in the short, medium and long term, or mitigate the effects of transitional costs.

Designing agroforestry systems to meet these criteria was found to be quite difficult, especially on marginal lands. Considerable care is required, to avoid promotion of any single agroforestry system without strong evidence that it fits the conditions and needs of a particular site.



During the first year of the pilot projects, it became apparent that the agroforestry models adopted - combining food crops and fruit trees, and managed primarily by groups of men - were not meeting all of the communities needs for forest land nor were they utilizing all available skills and labor. SFC decided that, in future, a range of management systems should be offered to specific community groups including schools, women and small industrial producers. Some of these groups may focus on specialized production systems such as medicinal herbs, bamboo shoots, fuelwood, fodder and apiculture.

A preliminary economic assessment of agroforestry options identified the possibility of a gradual future shift away from some traditional species towards more fruit trees, medicinal plants and fast-growing fuel, fodder, and timber species. Typologies of agro-ecological zones were to be developed and "menus" of annual and perennial species appropriate to these zones were to be compiled to assist community organizers and communities in their discussions.

## 6. MONITORING AND EVALUATION

Monitoring is an important component of program success. It must be specific, objective and timely. The results must be reported on a routine basis, and evaluation periodically undertaken by an objective outside agency. Meetings between farmers and project field staff, and between field staff and their superiors should be routine.

There is a temptation to measure program success only with technical indicators that can readily be counted. The danger here is that, for example, as soon as tree seedlings start to grow the importance of supporting institutions can be forgotten. The establishment of constructive, self-sufficient farmer groups is likely to be a more useful measure of the potential for long-term program success than first-year species survival rates - which are likely to depend on the local site conditions. Clearly, the number of farmers, hectares, and locations, and the quantities of trees and crops are critical variables in determining long-term program impacts. However, in the short run, qualitative measures are critical, such as the relationship between the field staff and the community, the strength of the forest farmer group, and the attention to women's issues.

## 7. THE PROCESS OF INSTITUTIONAL SOCIALIZATION

To effect an innovation such as a social forestry program constitutes an



enormous institutional challenge for a national forestry agency, not only from conceptual and technical viewpoints, but also in terms of the agency's attitudes and procedures. Social forestry programs mandate changes in policy, administration, and the way the agency perceives its relationship to rural populations. Fitting a new program into an existing government bureaucracy requires a slow and sometimes difficult socialization process.

## **ISSUES FOR INTEGRATED CONSERVATION/DEVELOPMENT PROJECTS**

ICDPs in Indonesia, as elsewhere, are at an early stage of implementation. From a policy perspective, the key questions are: (1) whether ICDPs can achieve their individual objectives; (2) whether they are sustainable; and (3) to what extent they can be replicated on a larger scale. A range of issues need to be carefully considered in project design and then evaluated on the basis of experience before making a full assessment of the role of ICDPs in protecting biological diversity in Indonesia, or in any other country. These issues include:

### **1. THE EFFECTIVENESS OF SMALL-SCALE RURAL DEVELOPMENT**

For at least two decades, international agencies have encountered significant difficulties in attempting to improve the productivity and livelihoods of low-income rural people. Some of the lessons from these rural development experiences are a useful starting point when considering the development component of ICDP's.

According to a recent World Bank (OED) report, the effectiveness of rural development projects depends on their sustainability, i.e., their capacity to generate long-term benefit flows. The longer term viability of many projects will depend upon self-sustained transformation. An emphasis on rapid implementation and the heavy use of expatriate technical assistance have frequently worked at cross-purposes with sustainability. Successful approaches have emphasized: understanding local social and economic systems; enlisting the support, trust and participation of target populations; identifying appropriate local institutional structures; hiring and training competent project personnel; and identifying appropriate technologies for change. These are all gradual processes which resist rapid implementation.

Many proposals for ICDP interventions involve a combination of agricultural



extension services, social services, education, and training. In theory, these measures can all be initiated fairly rapidly. In practice, however, considerable time is likely to be required: (1) for the implementing agency (in this case, PHPA) to develop the institutional capacity to implement, or at least coordinate, these activities; and (2) for the projects to become sufficiently established as to induce farmers on protected area boundaries to intensify and diversify their highly extensive farming methods.

## 2. BALANCING THE ICDP COMPONENTS

All ICDPs should include three fundamental components: (1) conservation, i.e., the protection of flora and fauna within park boundaries through the prohibition of illegal logging, hunting and agricultural encroachment; (2) agricultural development and extension services, to develop alternative sources of income and forest products on adjoining lands; and (3) community development, to facilitate the constructive involvement of local people in all aspects of ICDP design and implementation, and to provide an effective interface between the local population and the implementing government agency.

ICDPs have frequently been proposed in situations where significant encroachment and ecological damage are already taking place within protected area boundaries, accompanied by strong local resentment of the park and its employees. The lower Alas valley and the Kutacane-Blangkejeren road in Gunung Leuser National Park represent examples of this situation. The boundaries of the Kerinci enclave and its access roads through Kerinci-Seblat National Park represent a similar, if currently less critical, example.

In these stressed situations, the timing and balance of the respective ICDP program components are likely to be a major determinant of the project's success or failure. For example, conservation without development will essentially represent a police action and be likely to result in considerable hardship and resentment among local people. This is unlikely to be supported by the government in many areas of Indonesia and, even if carried out, unlikely to enhance the long-term prospects of the protected area as the pressure for agricultural land escalates. The difficulties associated with this type of approach led to the original promotion and emphasis of the ICDP concept.

On the other hand, development without effective park boundary patrolling



and enforcement seems equally doomed to failure. An overemphasis on local development at the expense of conservation is likely to result in a number of threats to conservation: (1) without effective enforcement and the penalization of illegal farming, hunting and logging, there will be little incentive to change current behavior patterns; (2) there is a danger of attracting new migrants to the protected area; (3) people not benefitting directly from the project may continue to utilize the protected forest.

The phasing of the different components of ICDPs must therefore be closely coordinated. In addition, the specific project components must be carefully selected to complement one another. Specific proposals for individual actions could include, for example:

- a. Providing more staff and resources to park management.
- b. Clarifying or possibly redefining boundaries.
- c. Imposing buffer zone land use regulations.
- d. Providing agricultural extension services.
- e. Building roads to benefit remote communities.
- f. Resettling farmers who are inside park boundaries.

Each of these steps may constitute a key element of an ICDP. However, if implemented independently, each has the potential to either waste resources or to lead to acceleration in deforestation, or both. For example, this review has suggested that providing additional resources to PHPA at Gunung Leuser would not improve the efficiency of Park management. Similarly, resettling farmers from inside park boundaries will not result in long-term benefits if no arrangements are made to clarify boundaries and prevent new settlers from filling the vacuum. The dangers from building roads close to protected areas are now well-known, although with careful planning the effects can be mitigated.

The problems facing the national parks are complex. Single action responses are therefore unlikely to be productive, while well-coordinated integrated approaches may produce synergistic benefits.

### 3. PROGRAM AND PROJECT DESIGN

ICDP projects will be designed and implemented under conditions of considerable uncertainty. There is little previous experience to draw on and, even if there were, project design will still need to accommodate social, economic and ecological factors that are highly site-specific.



Any initiative designed to increase the productivity of land must pay careful attention to local agroecological conditions and the technical specifications of potential interventions. However, the history of rural development, the national park site assessments, and the ICDP issues reviewed in this report all strongly suggest that ICDP design in Indonesia should place primary emphasis on institution building, at two levels: (1) within PHPA, and (2) within the local communities which are the targeted beneficiaries of the projects.

The 'blueprint' approach to project design should thus be avoided. This approach is characterized by: (1) an emphasis on facilities, equipment and materials; (2) detailed up-front planning and project specification; (3) rapid implementation schedules; (4) an emphasis on decision-making before, rather than during, project execution; and (5) the development of rigid implementation plans. These features of project design implicitly assume that problems are well understood, that appropriate solutions have been identified, and that project impacts are fairly predictable. These would not be appropriate assumptions on which to base an ICDP.

In contrast, there is a need for an adaptable, experimental approach to sustained capacity building, which will: (1) link the continuing results of applied research and pilot project experience with actions and policy formulation; (2) effectively incorporate the views and values of local communities during project design and implementation; (3) be difficult to appraise using conventional economic analyses; (4) require extensive local management and local decision making during implementation; (5) resist quantified monitoring and evaluation; (6) probably be slow to produce positive results.

Individual ICDPs will require appropriate policy direction, technical expertise, and the management capacity to identify constraints, develop action plans and implement projects. If an effective ICDP program is to be established, PHPA will need considerable support to:

1. Develop specific plans for pilot projects at Outer Island sites such as the Dumoga-Bone, Kerinci-Seblat and Gunung Leuser National Parks.
2. Acquire expertise, and cooperate with universities and NGO's, in:
  - a. Community development.
  - b. Diagnostic research integrated with project design and execution.
  - c. Inter-agency cooperation and negotiation.



- d. Planning and managing small-scale development projects.
- e. Agricultural extension.
- f. ICDP monitoring and evaluation.

#### 4. CAN THE TRADE-OFFS BE MADE EXPLICIT AND BINDING ?

The development components of ICDP's can only be regarded as successful if they reduce the pressures leading to deforestation. There are two ways in which this can happen: (1) by involving local communities in protected area conservation and management; (2) by providing development benefits in exchange for denied access to protected areas.

There is little reason to believe that development activities designed to overcome local production constraints, provide social services, encourage tourism, facilitate marketing, etc., will automatically lead to more intensive agricultural practices, to reduced deforestation, and to more effective conservation by local communities. In fact, there is every reason to believe that the short-term impact could be to further accelerate deforestation, land clearing and agricultural encroachment, with new tools and renewed efficiency.

This raises the question of formalizing the trade-offs of development benefits in return for exclusion from protected areas. Can the roles and responsibilities of the respective parties, usually government representatives on one side and farmers or village communities on the other, become the subject of explicit agreements ?

While ICDP's implicitly assume that communities will accept this trade-off, it is not yet clear how such an arrangement is to be put together and implemented. It may be possible to enter into contracts with individual farmers, villages, districts or provinces. However, these contracts will be worthless unless: (1) boundaries and land tenure have been clarified, and (2) compliance with the terms of the contracts is monitored and ensured by effective enforcement.

#### 5. DISTRIBUTION OF BENEFITS

The economic benefits from ICDP's are very unlikely to be equally distributed:

- a. On a national scale they will favor people who live near areas considered to be high conservation priorities.



b. At specific protected area sites, regions or communities selected as targets for projects will be favored. Other communities in the area will not benefit, at least in the short term, but will still presumably be excluded from protected area lands.

c. Within communities, benefits such as improved health care and education opportunities may be spread widely; agricultural interventions, however, are likely to favor certain families and individuals. Landowners are likely to gain relative to the landless, men relative to women, etc.

While these inequalities are probably unavoidable to some extent, it is important to recognize that they exist and to carefully monitor their impact on project conservation goals. At the village level, for example, individuals and families who do not benefit directly from agricultural intensification and diversification are likely to remain marginalized and continue to be forced to cultivate steep slopes or clear new areas within the forest, contrary to the intent of the project. The extent to which gains for certain members of a community flow through to other individuals would appear highly relevant to the success or failure of individual projects.

There is a substantial risk that a successful development program linked to (or in the vicinity of) a protected area may attract an inflow of migrants who, not unreasonably, wish to share the improved opportunities. If ICDPs do become attraction zones rather than buffer zones, pressure on the park or reserve boundaries is likely to increase, contrary to the objectives of the project. This possibility reinforces the importance of:

a. Clarifying and enforcing land tenure rights within and adjacent to protected areas.

b. Assessing the impact of ICDPs on both the regional economy and the protected area. Building or improving roads, for example, can bring considerable economic benefits to local communities; however, they can also make new areas of forest readily accessible to settlers.

## 6. THE PROBLEM OF DEFINING ICDP BOUNDARIES

Buffer zone components of ICDPs generally propose to target their activities within 1-2 km of the protected area boundaries, while larger-scale agricultural development projects can reach 5-50 km from the boundaries. This raises the question of how far the spatial scale of ICDPs should extend. In this context, the



local community scale may prove, in certain respects, to be inadequate. For example:

a. If the agricultural and forestry production gains in a community stimulated by an ICDP prove insufficient to assure local food security, a regional perspective will be required to identify and develop high potential agricultural land on a regional, rather than a local scale. The proposed agricultural development schemes in Aceh Tenggara outside Gunung Leuser National Park are an example.

b. Fuelwood collection areas for urban consumers frequently stretch well beyond town perimeters, reaching out along access roads to distant forests. These distances are likely to increase as both rural and urban populations grow and deforestation continues to accelerate. Protected areas are thus increasingly likely to come under pressure as potential wood supply areas for distant towns.

c. ICDP development components usually plan the diversification of local agriculture to include the production of cash crops for local sale. Other plans include the development of apiculture, aquaculture, and other new products for sale. Proposals for these initiatives tend to be based almost entirely on the consideration of production rather than marketing criteria. An evaluation of the effective demand for new products at a regional level should accompany consideration of how to overcome production obstacles.

The spatial boundaries of ICDPs should be based on an analysis of the processes which link economic development to park boundaries, rather than any particular physical distance. While there is a very strong case for initiating ICDPs on a local community scale, a failure to consider the links with the regional economy, extending well beyond the protected area boundaries, may lead to unforeseen results jeopardizing the project goals.

## 7. THE NEED FOR ENFORCEMENT

There is a clear and urgent need for clarification and effective enforcement of protected area boundaries by sufficient numbers of well-equipped and adequately supported guards or agents who will be responsible for preventing encroachment, and empowered accordingly. Enforcement is ineffective at present in many areas.

Some areas obviously require more urgent action than others. Where population pressure is high and the agricultural frontier is close to, or within,



protected area boundaries, ICDP's which do not emphasize immediate, widespread and effective enforcement may have little biological diversity left to protect by the time their project achieves its development goals. In other cases, there may be a window of several years to establish development and educational programs aimed at reducing deforestation pressure.

An immediate emphasis on enforcement at critically-threatened sites is likely to bring hardship and conflict, and must be accompanied by an educational effort that will at least explain to affected people where reserves are, what their purpose is, and the sanctions against illegal use. In Indonesia the support of provincial or district government authorities would be an essential prerequisite to these steps.

## 8. THE SUFFICIENCY OF GAINS FROM ICDP INTERVENTIONS

A primary ICDP objective is to assist farmers to increase production from a given land area, based on the implicit assumption that food and fuelwood security can be assured and the pressure to clear further forest land thereby reduced.

There is currently little basis of experience to predict the likely success of these initiatives, either in boosting the production of crops and trees or in reducing the demand for new land. From a production perspective, some caution is therefore necessary before it can be assumed that increased yields will act as a sufficient incentive to prevent agriculturalists from clearing more land.

As early as possible in ICDP planning, estimates should be made of the potential crop and tree production increases anticipated from interventions, and the extent to which total production increases are likely to meet local demand on the periphery of protected areas - given reasonable assumptions concerning population growth. Without the information to make these estimates, it is difficult to assess the potential long-term effectiveness of community-level interventions.

Many of the marginal and remote lands adjacent to protected area boundaries have limited potential for agricultural intensification due to ecological constraints, e.g., highly acidic or low-nutrient soils. In such cases, continual subsidies may be required to sustain local economic benefits.



## **9. SUSTAINABILITY**

It is not clear what the life of an ICDP should be. Ideally, a project should become self-financing under the control of the local community and the park authorities as soon as possible, with minimal needs for external inputs of materials or expertise. Until PHPA internalizes the capacity to manage or coordinate ICDPs at different locations, however, the need for special projects, as opposed to routine management, is unlikely to diminish. This seems unlikely to be feasible on a large scale within at least a decade. The implication is that funding agencies should be prepared for a long-term investment.

## **10. REPLICABILITY**

The replicability of ICDP's in Indonesia, as elsewhere, is an open question at this point as there are simply insufficient models from which to generalize. At this stage it seems highly unlikely that a particular technical solution or agricultural innovation will be widely replicable. It seems much more likely that successful approaches to organizing, planning and staffing a national program and individual projects will provide more useful models.

The successful Dumoga-Bone National Park project has been discussed at length. This project can certainly provide lessons to other large scale agricultural development projects linked to protected areas. The two other possible projects referred to in this report could be appropriate areas to attempt such a replication: agricultural development around Blangkejeren and in Sembabala Barat in the Gunung Leuser region; and irrigation in the Gorontalo area west of Dumoga-Bone.

For projects on a smaller scale, valuable lessons can be learned from the Ford Foundation's social forestry program. A social forestry approach to buffer zone development and small-scale pilot projects at the Outer Island National Park sites would appear highly promising.

## **CONCLUSIONS**

The successful integration of development with conservation on the periphery of protected areas has the potential for making a significant long-term contribution to the protection of biological diversity. There is little evidence



available to assess whether integrated conservation/development projects (ICDPs) can achieve their objectives, however, because there are few successful models, either in Indonesia or elsewhere. The lessons learned in rural development programs suggest a cautious approach and ICDPs seem unlikely to bring significant sustained benefits and reduce deforestation pressures in less than 5-10 years. In some areas ICDPs are likely to be unsuccessful if population growth continues at current rates.

This review and assessment of the current status and the threats facing three Outer Island National Parks has suggested several opportunities to initiate development projects linked to protected area conservation. The three National Parks all contain extensive areas of moist tropical forest and exceptional species diversity. Their future prospects vary considerably, however. While Dumoga-Bone appears relatively secure, Kerinci-Seblat is coming under increasingly serious pressure, and Gunung Leuser - probably the most important conservation area in Southeast Asia - appears to be facing a critical situation which demands decisive action.

Two of these Parks, Gunung Leuser and Dumoga-Bone, have been included in the forthcoming conservation component of the Forestry Institutions and Conservation Project (FICP), which is partially funded by the World Bank. There is a strong case for expanding this component to include the third Park reviewed, Kerinci-Seblat. At present, the FICP does not specifically include funding for development projects linked to Park protection.

The potential development projects highlighted by this review merit further analysis and funding consideration. Some are pilot projects aimed at communities on Park boundaries, while others are on a considerably larger regional scale. The lessons emerging from the Ford Foundation's social forestry program will be particularly relevant to the former, while the integrated project at Dumoga-Bone can provide a basic model for the latter.

Any initiative designed to increase the productivity of land must pay careful attention to local agroecological conditions and the technical specifications of potential interventions. However, the findings of this report strongly suggest that ICDP design in Indonesia should place primary emphasis on institution building, at two levels: (1) within PHPA, the agency responsible for Park administration and for implementing the conservation component of the FICP; and (2) within the local communities which are the targeted beneficiaries of the projects.



PHPA is the obvious agency to implement or coordinate ICDPs at key national park sites in Indonesia. However, PHPA currently lacks the mandate, expertise and resources required for this role. Insufficient resources, hostile local communities and unsympathetic provincial and district governments have eroded PHPA's capacity to play an effective enforcement role in many conservation areas. The personnel assigned to national parks are generally underequipped, insufficient in number, and lacking expertise in agricultural extension, agro-forestry, or community development - all of which are key ICDP elements.

Senior PHPA officials are aware of the need to modify the institution's orientation, standard operating procedures and staffing policies if boundary development projects are to be introduced and tested. Such changes will require significant commitment internally, and considerable support in terms of resources and expertise from outside. Individual ICDPs will require appropriate policy direction, technical expertise, and the management capacity to identify constraints, develop action plans and implement projects. Specifically, if an effective ICDP program is to be established, PHPA will need considerable support to:

1. Develop specific plans for pilot projects at Outer Island sites such as Dumoga-Bone, Kerinci-Seblat and Gunung Leuser National Parks.
2. Acquire expertise, and cooperate with universities and NGO's, in:
  - a. Community development.
  - b. Diagnostic research integrated with project design and execution.
  - c. Inter-agency cooperation and negotiation.
  - d. Planning and managing small-scale development projects.
  - e. Agricultural extension.
  - f. ICDP monitoring and evaluation.

Many of Indonesia's protected areas are currently suffering serious levels of encroachment and deforestation. A continuation of current trends would result in severe losses of biological diversity from several critical ecosystems within the next one to two decades. The modest scale and slow maturation time of most ICDPs suggest that they can have only limited short-term effects on this trend. It is therefore essential that an intensive enforcement effort be launched to protect the most critical ecosystems. Increased enforcement must be accompanied, if not preceded, by an effective educational campaign to inform



local communities on the position of protected area boundaries, their purpose, and the sanctions against illegal entry.

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For Comments  
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DRAFT PAPER FOR ASIA REGION SECTOR WATERSHED REVIEW  
LAND TENURE ISSUES IN WATERSHED DEVELOPMENT

Augusta Molnar  
ASTEN, x 72012



## Executive Summary

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## 1.0. Executive Summary

1.01. This review of land tenure and watershed development is a first step in developing a knowledge base and analytical framework that is adequate to meet the needs of watershed development planners grappling with the issue of land tenure for the development of private, communal, and public lands in South and South East Asia. There is a poor understanding in the Bank and outside of the role that land tenure plays in influencing the land user's decision to adopt soil and moisture conservation technologies on privately-owned land and to engage actively in increasing the ecological stability and productivity of communally and publicly-owned lands. This leads to a range of problems in the design and implementation of watershed development programs, such as:

- 1) Land tenure in the project area may be falsely blamed for the low adoption rates for SWC technologies, when in fact other factors were the culprits, and planners may either underutilize project funds by not targetting extension messages and inputs to cultivators without secure titles to the land they occupy OR planners may fail to invest the required time and resources in addressing the more important factors at play;
- 2) The potential success of measures to improve existing land tenure arrangements may be poorly understood and planners may fail to include measures to change tenurial arrangements that are key to encourage high adoption of improved land-use practices, and/or fail to include alternative measures to mitigate the potentially-negative effects of existing tenure arrangements; OR
- 3) Planners may inappropriately include titling, land redistribution, issuing long-term use certificates and other tenure-directed components on the assumption that these will increase adoption rates, when in fact these are unlikely to have the desired impact on improved land-use.

## Principle Conclusions

1.02. The findings of this preliminary assessment are that:

- 1) Land tenure arrangements do have an important influence on the land user's decision making to adopt or reject soil and moisture conservation technologies. In the Bank's on-going projects, however, there has been little sound analysis of the relationship between tenure and SWC technology adoption rates, with the result that land tenure arrangements have been overly blamed for non-adoption and/or projects have targetted extension to securely-titled cultivators without any sound justification for this strategy. One key problem has been the lack of a clear typology of tenurial arrangements in project sites which could serve as a basis for evaluating their influence on land-use decisions.
- 2) There are a number of interesting experiments in on-going watershed development projects in the region to strengthen the land user's rights on privately and publicly-owned lands (including communally-owned lands) that deserve more careful analysis and documentation to provide future direction to watershed programs. These experiments include: a) extension of long-term leases to individual cultivators on public lands for agriculture, pasture development



or agro-forestry; b) strengthening of local institutions and the rights of local users over public lands (including communal lands) to encourage more sustainable management and utilization of these lands; and c) titling components in privately-cultivated lands under ambiguous or public ownership to provide cultivators a long-term incentive for sustained land use.

3) One exiting development in watershed project is the increasing attention given to generating a technological menu of SWC practices that are more tenure-neutral, because the cost of establishment is lower, and the returns are greater, can be achieved more quickly (and, on public lands, accrue on a more regular basis). This development is a very important one, but it requires that there be more, detailed analysis of the range of farming and household economic systems in the watershed areas to devise menus which are adequate to local needs, particularly when these are multiple, (including fodder production as well as SWC benefits, for example), yet not overly-tax the labor and capital resources of marginal households.

4) There are a number of on-going projects which could serve as good test cases to monitor the effect of land tenure and the impact of particular components included in projects to change existing tenurial arrangements. Test cases include:

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## 2.0. Introduction

2.01. The promotion of soil and moisture conservation technologies on degraded lands in watershed areas leads the planner into a number of important, socio-economic issues, one of which is land tenure, the tenurial arrangements (legal ownership and rights of use and access) which affect the use and status of those degraded lands.

2.02. Why is tenure important? The tenure question is partly an equity question. Under existing land ownership patterns, do a majority of the population have reasonable access to land resources as a productive asset? If not, is a land reform policy needed to create a more equitable situation in the absence of alternative employment opportunities? The tenure question is also important for evaluating the sustainability of the land resource. The tenurial status of a parcel of land can affect the strength of incentives for the user or users of that land to adopt improved soil and moisture conservation technologies. This is true for privately-owned lands, communally-owned lands, or publicly-owned lands. In combination these two questions can yield conflicting answers. Latin America specialists argue, for instance, that while landholding patterns in that region are often highly inequitable -- with concentrations of large holdings among a small number of people -- some of these holdings are extensively managed largely as pastoral enterprises. Land redistribution would likely lead to agricultural intensification and significant increases in soil erosion (Crosson cited in Anderson and Thampapillai, 1988).

2.03. In the current watershed development projects, a number of soil and moisture conservation technologies are being promoted. These include:

- 1) physical earthworks, such as bench terraces, gully plugs, and water diversion channels and drainage channels;
- 2) vegetative contour barriers, such as vetiver grass, fodder grasses, or mixed conservation hedges of shrubs, grass, and trees;
- 3) agro-forestry technologies that provide a long-rotation crop for steep, fragile soils; and
- 4) silvo-pastoral or pastoral technologies that provide ground cover, fodder, and, in some technological models, forest products.

2.04. One question that is asked, particularly in the Asian watersheds which are characterized by extreme degrees of animal and human population pressure, is: to what extent do the present tenurial arrangements affect the adoption rates of the above types of technology? As yet, there are few hard and fast rules about the extent to which their adoption is affected by the tenurial status of the lands on which they are being promoted. One fast rule is that cultivators or groups of land users who do not have secure rights over the long-term will be less likely or unlikely to adopt technologies which have a long time lag before they begin to generate benefits or, stated in another way, which require a high level of investment without a commensurately-high, short-term return.



2.05. Considerable thinking has been done on this subject, applying what is known in general about the relationship between tenure and land-use practices to what is known about the returns from the above types of technologies. The rule of thumb has been that bench terracing and agro-forestry technologies, both of which require a long lag period before benefits will be generated, will not be adopted by cultivators on lands with less secure tenurial arrangements. Planners have generally advocated the implementation of specific measures designed to strengthen the tenurial status of cultivators or users of degraded private, communal and publicly-owned lands. Since vegetative contour technologies have a shorter time lag before benefits begin to flow, it has been assumed that there will be less need to strengthen tenurial rights on degraded lands for which such technologies are promoted. (See chapter by Magrath modelling comparative cost-benefits from bunding and vegetative conservation measures).

2.06. There is virtually no systematic data collected, however, as to what the experience has been in different countries and with different programs regarding the adoption of soil and moisture conservation practices on lands under different types of tenurial arrangements. The current experience in Bank-assisted watershed development projects and others is that the question of land tenure and the adoption of soil and moisture conservation technologies is highly complex, that as yet the level of understanding is too low to generate reliable predictions regarding the adoption rates of the above technologies in different countries and regions, and that the experience in specific projects is not being sufficiently analysed in a comparative manner to help build a body of theory on which to design potential interventions.

2.07. Arguments presented to explain field observations that certain tenurial arrangements appear to weaken the incentives for adoption of soil and moisture conservation technologies have been inconclusive, because they tend to be overly-general, lumping several different tenure categories into one, and because the effects of tenure have not been separated from the effects of other possible disincentives. For example, some data has been collected comparing land-use strategies on owner-operated and tenant-operated lands (for example, Manning, 198-, Kalikonto Project, 1986, Tampabolan, 1989). Since tenancy includes a broad range of possible rights and obligations between tenant and owner, this data leads to little useful information for predicting or evaluating the nature of the disincentives that tenancy per se might have for adoption of improved technologies. Because there is also a gap in the knowledge of what are the actual costs and benefits of different technologies -- particularly from the perspective of different categories of users, resource-rich/resource-poor, remotely-located/market-accessible, etc.--, the evaluation of the role of land tenure becomes ever more impossible, since the lack of adoption may indicate simply an inappropriate technology, rather than a tenure-linked disincentive for its adoption.

2.08. This chapter tries to unravel the question of land tenure and its effect of the adoption of soil and moisture conservation technologies. It does not make hard predictions about this relationship, but tries to provide a framework which assists project designers and implementers with the decision-making task of deciding whether measures are needed to alter present tenurial arrangements, which measures are most likely to have the desired impact, and if



measures to change tenure will not be effective, to help them identify other measures which will mitigate the negative effects of present tenurial arrangements for each type of land (private, communal, and public).

2.09. A key point that underlies this chapter is that land tenure categories do not neatly divide into private, communal, and public lands from the perspective of the users. Tenure categories fall instead on a continuum from most privatized to least privatized in terms of legal ownership, rights of access, and rights of use (including rights to develop a resource). Private lands can become communal resources for specific purposes in specific seasons and communal and public lands can become privatized (Wade 1988, National Academy of Sciences, 1985). Three common means in Asia that privatization is affected on communal or public lands is through issuance of fixed-term/fixed-use leases to individuals or corporate/cooperative groups, or by establishing privately-owned trees or crops (this may be considered encroachment). Nor are tenurial rights stationary over time. Every change in land-use and in the overall economy affects the tenurial status of land. Introducing a new technology for soil and moisture conservation on a wide scale in cropped lands, for instance, will inevitably lead to an adjustment in the private tenure arrangements over those lands. Owners may lease out fewer parcels, or reallocate their leases in a new way. Introducing a measure to change tenurial arrangements in a positive way to provide greater incentives for adoption of soil and moisture conservation technologies may be ineffective, if these arrangements change again in response to the the new technologies promoted (Cornista, 198-).

2.10. The watershed development planner must understand:

- 1) how tenurial arrangements affect the adoption of soil and moisture conservation technologies, and as a corrolary, what information must be collected about tenure at the design stage;
- 2) what the impact has been of measures to change these tenurial arrangements in on-going or past projects (which often consist of strengthening the rights of the existing users of degraded lands);
- 3) how adoption rates should be monitored and evaluated during program implementation in regard to the effect of tenure; and
- 4) where measures to change tenurial arrangements are not appropriate, what alternative measures should be adopted and/or what types of technologies are most tenure-neutral and therefore more appropriate for promotion under such circumstances.

2.11. The paper has been divided into three sections: one on the situation in regard to privately-owned lands, one on the situation in regard to private cultivators occupying publicly-owned lands, and one on the situation in regard to communal and public lands. I have purposely lumped communal and public lands in one general category because the dynamics of common property resource management are applicable to both categories in the densely populated countries selected for analysis. In other words, both categories of lands are used extensively by the surrounding population. While the legal rights of use and



access may be greater in the communal than the public lands, in both cases, the appropriate measure for encouraging soil and moisture conservation on degraded lands is likely to be one of strengthening existing use rights, except for the allocation of specific lands as biosphere reserves.

#### Selection of Comparative Cases in the Region - Population Pressure as a Common Factor

2.12. While there is great diversity in the Asia region, one common characteristic of the region with great importance for land tenure issues is the high population pressure on scarce land resources. In order to conceptually limit the boundaries of the review, the cases selected have all been projects in countries or regions of those countries with high population pressure. The choice of cases has been fairly evenly divided among projects with interventions on privately-owned lands (Java, India, Thailand), on public lands under private cultivation (Philippines, Thailand), and on state forest and community lands (Java, India, Nepal, Philippines).

2.13. The importance of population pressure for land-use allocations is sometimes deceiving for upland areas of these countries, due to the fact that statistics for upland and lowland areas are not strictly comparable. Upland areas usually have a much higher proportion of land area that is not cultivated than is the case in lowland areas of the same country, and population statistics therefore show an appearance of less pressure on upland resources, when in fact this may not be the case. A researcher working on Thailand has tried to better compare the degree of pressure by calculating persons/km<sup>2</sup> of cultivated land only (Cohen, 198-). Under this scenario, the pressure in Thailand can be seen to exceed 500 persons/km<sup>2</sup> in 58 out of 64 districts of 7 northern provinces (1963). Comparative figures for other uplands would be 559 - 1024 persons/km<sup>2</sup> of upland Java, 530 persons/km<sup>2</sup> for Nepal uplands, and 215 km<sup>2</sup> in the Philippine uplands. Given the generally-lower average productivity of upland fields, this is a striking picture.

#### ANALYTIC FRAMEWORK

##### An Explanation of Figure 1, 2 and 3.

2.14. Figures 1, 2 and 3 provide a schematic summary of the points raised in the body of this paper. Figure 1 summarizes the experimental approaches on-going in watershed projects in the region to change the tenurial status of degraded lands and thereby encourage conservation. Figure 2 summarizes alternative approaches which do not change the existing tenure arrangements, but seek to increase adoption rates on lands under different tenures. As stated above, tenure must be seen as a continuum, rather than strictly separated into private, communal, or public ownership. The figures follow this principle. Land categories on the left side of the figures are more private and those to the right more public.

2.15. Figure 3 summarizes the present level of understanding about the attributes of tenure that affect the adoption of conservation practices on degraded lands under different tenurial status. As a rule of thumb, categories of land tenure which measure high on all attributes are those for which



MEASURES TO STRENGTHEN TENURIAL RIGHTS INCREASE INCENTIVES IMPROVED LAND USE  
(AND WHAT PROJECTS HAVE APPLIED THEM)  
BY TENURE TYPE

Type of measure and where tried	Category of Holder and Tenurial Status of Land Both Privately and State-Owned										Community-owned grazing/forest land	State owned revenue lands	Forest Dept Owned undermarked land	Forest Dept Owned production lands	Reserve areas (including parks)
	Private owner operator-titled	Private owner operator untitled	Leased in relative	Leased in fixed rent	Lease in sharecrop	Leased into absentee owner	Private cultivator public lands								
Issues private land title certificate to cultivator		Yogyard II-Java Nesi-Java					West Bengal Group Farm Forestry Thailand Program Philippines under 18% slope								
Land consolidation	Meknes AG Sector	Project - Morocco	<u>Dual Effect to Increase and Decrease Incentive</u> Decreases amount of leasing out and increases owner- operator category where not clear political will or good implementation tenant-owner relations worsen and long-term strategies are not taken												
Land reform		Very difficult to implement													
Written tenant agreements			Not effective in most countries in encouraging long term tenant strategies unless clear political will												
Stewardship/limited-use leases							CVRP - Philippines HASO - Thailand Red Sous - China Jyanisu - China		Tree tenure in India - excluding West Bengal						
Taungya leases for forest lands							Perum Perhutani - Ford Foundation Java					Perum Perhutani/ Ford Foundation Java			
Recognize communal informal rights								NSEP - India Indian Social Forestry	NSFP - India	Integrated Watershed Development Projects - India Proposed					
Transfer control over resource to local users								NSF - India China Afforestation		Hilla Forestry II - Nepal Sulchomajri Model - Haryana Hill Forest Program Nepal - ADB					
Recognize tribal rights to:															
- Produce															
- Share of timber															
- Land under forest															
Sharing of produce between Forest Dept and local population living adjacent to resource								India Social Forestry Original Wood Lots	Models of	India Social Forestry Programs in Various States					
Tree tenure for women cultivators	In Africa used to give women incentive to plant trees on husband's lands														
Reallocation of lands to local user groups as cooperatives through leases or titling									NWDB program to female NGOs landless NGOs						
Give population more control over small forest-based non- timber and processing industries									NGO efforts on NWDB- allocated wastelands - India	Isolated NGO efforts in all study countries. Has not been tried in most programs as yet.					



Figure 2: TYPES OF TECHNOLOGIES AND ALTERNATIVE MEASURES TO INCREASE THE INCENTIVES TO ADOPT IMPROVED LAND-USE PRACTICES BY CATEGORY OF LAND

Types of measure	Category of Holder and Tenural Status of Lands (Both Privately and State-Owned)						Community-owned grazing/forest land	State owned revenue lands	Forest Dept Owned undermarked land	Production Forest	Reserve land (including parks)	
	Private owner operator-titled	Private owner operator untitled	Leased in relative	Leased in fixed rent	Lease in sharecrop	Leased into absentee owner						
Promote agroforestry and conservation models with quick returns and low cost technologies and high returns compared to previous models	←-----		Yogyakarta RD. II - Java -----				-----→	New India forestry models promoted	Indigenes buffer zone concept -----			
	←-----		UACP - Java -----				-----→					
	←-----		IWOP - India and NSFP - India -----				-----→					
	←-----		W. Bengal Group Farm Forestry - India -----				-----→					
	←-----		CURP - Philippines -----				-----→					
			Has not been tried until very recently as a strategy for different tenure types									
Improve extension to owners leasing out regarding sustainable land-use			BFD Program - Philippines									
			HACP/Citanouy Projects - Java									
			Kalikonto Project - Java									
Promote role of project implementers as middlemen helping patrons and tenant clients choose options			BFD Program - Philippines									
			CURP - Philippines									
Provide subsidies on inputs and labor	←-----	Javanese watershed projects try this as tenure neutral strategy -----						-----→				
Reward communities with CPRM with access to small irrigation programs										Sukhomajrh Model India (Haryana)		



FIGURE 3. ATTRIBUTES OF PARTICULAR TENURIAL ARRANGEMENTS RELEVANT TO ADOPTION OF SOIL AND MOISTURE CONSERVATION TECHNOLOGIES AND PROPOSED INTERVENTIONS

TENURE CATEGORY	GUARANTEED LONG-TERM TO LAND SECURITY	ACCESS ACCESS TO CREDIT/CAPITAL	ABILITY OF USER TO MAKE DEVELOPMENT DECISIONS	ABILITY TO PROTECT LAND FROM OTHERS	PERCENTAGE OF RETURNS TO USER OF LAND	ABILITY TO TRANSFER RIGHTS OF OWNERSHIP	POSSIBLE INTERVENTIONS	POSSIBLE NEGATIVE REPERCUSSIONS OF INTERVENTIONS
Privately-Owned With Title	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	Land Consolidation to Create Economic Holding Sizes Subsidies	Difficult to implement unless adequate number of size classes for exchange among farmers
Privately-Owned Without Title	MEDIUM	MEDIUM	HIGH	HIGH	HIGH	MEDIUM	Titling Component Alternative Credit Programs that do not Require Collateral Land Consolidation, Subsidies	Difficult to implement quickly or effectively As yet, there are good models but not widespread of alternative credit packages in Asia
Leased In from Relative	LOW	MEDIUM	MEDIUM	HIGH	MEDIUM	LOW	Land Redistribution Subsidies of Inputs Alternative Credit Programs Promote Technologies with higher returns	Difficult to implement, may lead to eviction of before redistribution is made effective
Fixed Renter from Unrelated Owner	LOW	HIGH IF OWNER CONTRIBUTES	LOW	MEDIUM/HIGH	MEDIUM	LOW	Land Redistribution Written Tenants Agreements Subsidies Alternative Credit programs Extension directed to owner to convince him of value of new Promote Technologies with higher returns	Can lead to eviction by owner to protect rights Can lead to eviction by owner to protect rights
Sharecropper from Resident Owner	LOW	LOW (MED. IF OWNER CONTRIBUTES)	LOW	HIGH	LOW TO MEDIUM	LOW	Land redistribution Written Tenant Agreements Promote Technologies with higher returns Provide strong subsidies for land development Extension directed to Owner Local staff act as mediators between owner and tenant	See problems identified in items above See problems identified in items above
Sharecropper from Absentee Owner	LOW	LOW IN GENERAL	LOW	HIGH	LOW	LOW	Land Redistribution Written Tenant Agreements Provide subsidies and access to credit long-term (Extension directed to owner likely to be ineffective)	
Private Cultivator On Public Lands	LOW	LOW	HIGH	DEPENDS	HIGH IF NOT PAYING RENT TO PSEUDO-LANDOWNER	LOW	Titling component Local staff act as mediators between pseudo-owner and cultivator Limited-used Stewardship leases Subsidies Alternative Credit Programs	
Perum Perhutani model of longer taungya leases- Java	MED	HIGH	MEDIUM/HIGH	LOW/MEDIUM	HIGH	LOW AT PRESENT	Titling component possible Introduce tree crops with products that are more easily protected than fruits (e.g., oilseeds)	
Forest Associations (FOSAs) Philippines	MEDIUM	HIGH	LOW	MEDIUM	HIGH	LOW AT PRESENT	Allow annual cropping as well as trees Introduce tree-crop species as well as forestry species	
Local Grazier on Village Commons Land	HIGH	LOW	LOW	DEPENDS ON MANAGEMENT SYSTEM	DEPENDS ON MANAGEMENT SYSTEM	DEPENDS ON MANAGEMENT	Strengthen local user's groups Strengthen local protection systems	
Local grazier on State Revenue Lands	LOW	LOW	LOW	LOW	DEPENDS ON MANAGEMENT SYSTEM	DEPENDS ON MANAGEMENT	Privatize this land Lease to set of graziers or users Provide capital for developing resource to users Give control to local user's groups	
Tree tenure lessee on State Revenue Land (INDIA)	MEDIUM	LOW	HIGH	LOW	HIGH	LOW	Privatize the land or expand lease terms Provide access to capital to develop resource Give control to a group rather than individual Give tenure to community as CPR	
Cost-sharing of forests giv- ing User protection duties (WEST BENGAL, INDIA)	HIGH	HIGH	LOW	HIGH	HIGH (COULD BE HIGHER IF PRODUCTS EXPANDED)	HIGH WITHIN VILLAGE		
Recognizing customary rights over forests	HIGH	LOW	DEPENDS ON FOR. DEPT./VILLAGE RELATIONSHIP	HIGH	CAN BE HIGH	HIGH WITHIN VILLAGE	Introduce technologies with many intermediate yields Develop local control of NTFP collection, sale, marketing Strengthen local user's groups Provide capital to develop resource Give leases to customary users for exploiting and managing resource (This is Maryana's Sukhomajri model of Watershed Dev.)  Has not been tried except in Pacific islands like PNG	



incentives to adoption SWC is highest. Measures to mitigate tenurial constraints ( titling untitled lands or recognizing informal community rights) address particular "low" attributes. Measures such as alternative credit programs or subsidy components have the effect of compensating for the weakness of certain attributes in particular tenure categories ( for renters with little access to credit, such programs can enable them to adopt SWC technologies).

2.16. The last two columns in Figure 3 suggest possible interventions to increase adoption rates of SWC technologies and outline potentially negative repercussions that can result from poor implementation of these interventions. The next section will examine the situation on privately-owned lands -- those six categories to the left of the continuum in Figures 1 and 2.

### 3.0. The Role of Tenurial Arrangements on Adoption on Privately-Owned lands

3.01. The main findings of this review for soil and moisture conservation measures on private lands are that:

- 1) as has been argued in the other chapters of this sector review, the economics of many interventions have not been clearly determined, with the result that the technologies promoted may not generate adequate incentives on land under secure tenure, and certainly are problematic for land without secure tenure,
- 2) the broad categories of tenure on private lands that have been examined to evaluate the role of tenure in adoption rates are not conceptually adequate to draw valid conclusions,
- 3) the extension of technologies appropriate to a farmer's tenurial status may be more likely to improve conditions in the watershed than implementing government policies of land redistribution or land consolidation, and
- 4) the effect of titling programs on the adoption of improved practices has not been adequately studied, but preliminary indications are that this is important for the promotion of tree-planting on privately-cultivated land.

### Conceptual Framework for this Section

3.02. The most common tenure distinction that has been made in project analysis for the purpose of evaluating the incentive structure on private lands is that between owner-operated and tenant-operated lands. The argument has been that owner-operators are much more likely to adopt soil and moisture conservation measures on their cultivated land, because of their greater tenure security. As a general statement, this argument is sound, but it is much too general for evaluating project results or project strategies. Figure 1 and 2 identify six general categories of tenure on privately-owned lands found in the case study countries that have different characteristics pertinent to the cultivator's interest in SWC or land improvements. As can be seen in Figure 3, the private cultivator with title has the most attributes for adopting SWC measures and the sharecropper on land with an absentee owner the least.



3.03. As will become clear in the following section, tenure is not simply a question of guaranteed, long-term access to land. Other attributes of secure tenure that are of interest include: access to credit/capital, ability of the user to make decisions regarding development of the land, ability to protect the land from others, the percentage of returns that accrue to the user, and the ability of the user to transfer rights of access to others once land improvements have been made (or partially made). Any or all of these factors may be the reason for a land user's non-adoption of SWC technologies, and different measures to address land tenure can affect any or all of these attributes. As will be clear on public lands, long-term access may be less of an issue to groups of users than other attributes, such as right to develop lands or returns that accrue to individual users.

3.04. What does land tenure literature and past experience in watershed projects bring to bear on our understanding of the relationship between tenure and SWC adoption on different categories of land.

#### A. Privately-Owned and Operated Land -- With and Without Title

3.04. All tenure attributes are greatest for cultivators on owner-operated lands with formal title. One problem faced in watershed projects is that while some owner-cultivators in a project area hold formal title certificates to their lands, a large percentage do not. The fees and transactions costs of formally transferring title to heirs at the time of inheritance are expensive in many countries in Asia and as a result many inheritors only obtain formal certificates of land transfer when they wish to sell their land, when they need proof of ownership to use the land as collateral, or when their claim is disputed by another heir. For some marginal farmers, obtaining a certificate of ownership may be too costly, regardless of their need for such a document. In some areas, such as the Yogyakarta province of Java, lands allocated to private owners may not have been formally titled when the state assumed control over lands formerly under the jurisdiction of traditional rulers.

3.05. A number of watershed projects have included titling components as incentives for farmer participation in programs. There is little solid evaluation data to assess the value of these components in meeting project objectives. One study was undertaken in Thailand by the Bank that has found the relationship between title and farmer adoption to be subtle. Rather than land security, this study in N.E. Thailand found, credit may be the main concern of the cultivator seeking title (Feder, 1988). The Thailand study argues strongly for titling components in projects that espouse SWC and other land improvements in order to give farmers access to capital and in order to enable farmers to transfer title and improvements to heirs. In the absence of comparative studies in other countries it is difficult to extend these recommendations outside of this region of Thailand. Both sense of tenure security and need for titles to increase access to credit can vary from one situation to another. Thailand is somewhat unusual in having an efficient and widespread rural credit system. In other countries, such as India and Java, where rural credit programs have provided subsidized, but limited credit, the market has been monopolized by larger farmers and few marginal and small farmers have gotten formal credit, regardless of whether or not they had titles to the land they cultivated. To make the situation more complicated, some analysts of the Thai experience argue



that the rural credit system in Thailand is efficient only because of the still-limited number of upland farmers with formal title. The lesson for the project designer is that it is important to understand what aspects of formal title are most important to the upland farmer, and to expect the answer to vary considerably within countries as well as within the Asia region.

### Comparative Studies of SWC Adoption and Tenurial Categories

3.06. There is only one comprehensive study of land tenure in upland areas and its impact on long-term investment strategies. This was carried out in Haiti by the Land Tenure Center at the University of Wisconsin. Two conclusions emerged from this study that are relevant to understanding farmer strategies on privately-owned lands with and without title: 1) cultivators might be more willing to develop untitled plots allocated to them on state lands than to plant trees on privately-owned plots under some degree of ownership dispute from other family members, and 2) decisions to plant trees (the study's example of a long-term strategy) depended not simply on the tenure of the plot to be developed but the tenure of that plot in light of the status of the rest of the holding. The implications of this for project designers is that it is not enough to categorize types of ownership in the watershed and predict adoption on that basis, but the patterns of landholding and combinations of ownership must be understood, before predictions of a farmer's likely strategy are possible.

### Titling Components

3.07. What has been the success of titling components introduced to increase the cultivator's incentive to adopt SWC measures? To combat perceptions of tenure insecurity that act as a disincentive to adopters and to provide cultivators with access to formal credit, a number of watershed development programs have included titling components facilitating surveying procedures and issuance of certificates in order to speed up the process and reduce the transaction costs to the cultivator. These interventions can be effective when efficiently implemented. Two examples in Asia region are the National Estate Crop scheme and the Yogyakarta RD I and II project in Indonesia.

3.08. In both cases these components were included with two objectives: to provide cultivators with an incentives to adopt long-term cropping strategies and to provide them with title as collateral for government credit schemes. The Yogyakarta project addresses the special problem that at the death of the former sultan, landowners were concerned that their land rights would not continue to be upheld under Indonesia law. The titling under the NES scheme has seemed to provide a strong incentive to farmers for participation in the tree-crop scheme. Little data has yet emerged from the Yogyakarta project on the effect of titling, largely because of the difficulty in implementing this component. With a lack of institutional capacity, procedures were delayed and surveying efforts have been concentrated on nearby homegarden plots to the exclusion of the majority of dryland plots where most of the land rehabilitation measures are being promoted. In support of the component's value, however, one report asserts that titling of homegardens has encouraged some cultivators with formal credit to invest as well in their dryland plots. (Dirk's consultant report, source?)



3.09. Other projects without titling components have operated on the assumption that adoption will be limited to owner-cultivators and in projects such as Upland Agriculture and Conservation (UACP), technologies have been targetted exclusively to titled lands. Evaluation of the soundness of this assumption in UACP and other projects in Java has been made difficult by the poor land records available to the project staff. Village records available for project implementation are based on surveys by the National Land Bureau which do not reflect the real situation, given the numerous, subsequent estate divisions without formal title transfer and the proliferation of a host of complicated share and lease arrangements. As a result, project staff can neither evaluate whether the subsidies for upgrading and establishing bench terraces have been given to the owners or the cultivators of a plot when these are different, nor can they evaluate whether land tenure is as important a precondition for adoption of measures as has been assumed in the literature since actual categories of holdings do not correspond with that in the available records.

#### B. Leasing-in and Sharecropping Arrangements

3.10. Where land is cultivated by someone other than the owner on a leasing-in or sharecropping arrangement, there is in principle less certainty that that individual will be assured the returns from his or her investment, particularly if that investment is a long-term one. This is particularly true for tree planting, which has a longer investment time frame than terracing or contour hedging and which may be perceived as higher risk.<sup>1</sup> While a small proportion of leasing-in arrangements are made on the basis of written agreements and the rights of each party are clearly and legally specified, the majority of such arrangements are informal and, where land reform legislation is active, may be kept short-term to protect the owner from losing his land to the cultivator. It has been argued that rehabilitation of private uplands is impossible without somehow providing better guarantees to cultivators than those pertaining under the existing leasing-in or sharecropping arrangements. To this end, countries have recommended or enacted programs of land consolidation to reduce the number of uneconomic holdings and the need for such a wide proliferation of leasing out, particularly by smallholders, programs of land redistribution to title land to the tiller, and programs providing written agreements to formalize the rights of lessee and lessor.

#### The Pros and Cons of Land Redistribution and Land Consolidation

3.11. The most important aspect of land redistribution or land consolidation programs is that these are notoriously difficult to implement without the requisite political will, bureaucratic support to carry out surveying and paper work. These programs are also extremely slow to implement, because of the lag time involved in identifying areas to be redistributed or consolidated, in

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<sup>1</sup>. For tree-planting on private land, it is important to distinguish tenure security from the potential effect of legislation regulating private tree planting and felling. In India, a main disincentive to planting of trees that are not exotics, like eucalyptus, is that native species cannot be felled without a permit from the forest department.



surveying plots, and in carrying out the necessary paperwork to provide certificates of title to the new owners. At the same time, there is limited evidence as to their effect on the adoption of more sustainable land-use. One positive example of land consolidation is that carried out as part of a Bank-assisted agriculture project in Morocco (Meknes Ag. sector project), to create more viable holding sizes for agricultural development and land stabilization (WB Project Completion report, 1987, Adams and Seddon, 1983). The success of this program is linked in the PCR to the identification of an adequate number of land classes, so that farmers in watersheds with many different qualities and types of land were in agreement with the decisions made to exchange their lands for other, less fragmented parcels. This component was instrumental in leading to higher productivity in the project area and the maximization of returns from promoted technologies.

3.12. Even when land consolidation programs or land redistribution programs are implemented effectively, the difficulty often faced is that tenurial arrangements are fluid -- i.e. they adjust to new and changing circumstances. Once land redistribution or land consolidation programs are carried out, in areas of dense population pressure, there is no assurance that the new tenurial arrangements will remain effective over the long-term. Owners may still find it profitable to rent out or lease out their parcels, or due to constraints they face in obtaining inputs to farm the land themselves, they may eventually be forced to lease out land, as has become a standard practice in Indonesia on Java (Soetoro and Collier, 1977).

3.12. Land redistribution or land consolidation options should not be avoided, when planning programs. Indeed, questions of equity and long-term equitable development of a region may require such reforms. But the planner should not assume that this will automatically increase adoption rates for SWC technologies, without carefully examining the situation. Further, when poorly implemented, these programs can be a disincentive to adoption, because the relations between owner and cultivator on leased lands not yet brought under reforms are likely to deteriorate, leading to a shortening of the lease and disincentive of either party to adopt a long-term land-use strategy. Written tenant agreements are particularly problematic to make operational, since many tenants fail to apply for such contracts, for fear of severing relations with their lessors (Khasnabis and Chakravarty, 1982). This is an area for which more study is clearly needed, to allow governments and donors to undertake viable, long-term planning.

#### C. Sub-categories of Lease or Sharehold

3.13. What complicates the evaluation of the need for tenure strengthening measures for watershed stabilization is the wide range of arrangements contained in the category of lease or sharehold, all of which have a different incentive structure for land rehabilitation. Taking the examples of India, Java, and Thailand, the evidence is that even where tenancy rights have been legislated, actual arrangement may not follow legal procedures. This is the case even in India, where there has been a fairly active land reform policy and holdings are well-surveyed (Cohen, 198-, Pant, 198-, and Hart, 1986). There is a wide range of variation within Asia regarding the terms of the rental or sharecrop agreement. Fixed rent agreements tend to be the more secure and provide a



greater incentive to the cultivator. In addition such agreements tend to be made with more resource-rich cultivators, who are more likely to have resources to invest in land improvements. Singh argues for India that the adoption of HYV has been equally high for fixed renters and owner-cultivators in the green revolution areas, but less for sharecroppers (Singh, 1988).

3.14. Sharecropping arrangements tend to be less secure than fixed rent arrangements, but within this category there is a wide continuum. One commonly identified disincentive for the sharecropper is the lack of access to inputs and formal credit systems, and the fact that the majority of lessors leave the provision of inputs largely to the cultivator. In South India, there is evidence that sharecroppers and cultivators may adopt the same level of physical inputs, but the labor input by sharecroppers is lower, due to lack of resources. This would argue for the need to provide subsidies, if sharecroppers are to participate in a program of land improvement (Pant, 1981).

#### Provision of Inputs

3.15. Any generalizations must be qualified by the fact that there are a substantial number of owners who do provide inputs. There seem to be two patterns recorded for rural India for provision of inputs by owners which would affect the incentive structure for land rehabilitation. In the first, less-common instance, owner provide inputs to a cultivator practicing a high-return, high-investment strategy to maximize returns and modernize the agricultural strategies. For this arrangement, there could be considerable incentive for terracing or contour hedge/grass establishment if the owner is convinced of its utility. In the second, more-prevalent model, inputs are provided only because the sharecropper is quite poor and cannot supply his own, and in this case, only minimum-return, traditional agriculture is practiced. In this type of situation, it is unlikely that there will be an incentive for either party to adopt improved practices (Khasnabis and Chakravarty, 1982).

#### D. Leasing or Sharing to Relatives

3.15. Sharecropping arrangements can be quite skewed towards the landowner in situations of acute land pressure, such as on Java. In Thailand uplands, there is a tradition of key money, under which owners auction the rights to gain access to a sharecropped plot and is paid a sum in addition to any share terms. This greatly lowers the share of returns that accrues to the cultivator. In studies of Thailand and Java, however, researchers have found that 1) a high percentage of renters and sharecroppers are personally related to the owners (more than 50% in parts of Thailand) and 2) that the terms of the lease are much more favorable to these individuals (key money is not required of relatives in Thailand and shares are greater in Java) (Cohen, 198-, ?, -). These arrangements may be extended to recently married couples as a form of start-up loan, even on lands they should eventually inherit. When evaluating adoption rates of sharecroppers and owners, such relatives would fall in the category of sharecroppers, even though they might have strong incentives to adopt long-term, land-improvement measures.

#### E. Absentee Ownership and Leasing Arrangements



3.16. There is also a distinct difference in the incentives for sharecroppers or tenants to undertake improvements depending upon whether the owner is resident in the area or residing outside the area. Absentee ownership is on the increase in all these countries, as more rural landowners migrate permanently to the cities and as urban residents seek to invest their capital in land. It is not a homogenous category in any of the countries studied. Absentee owners tend to opt for the least risky, least management-intensive land-use options. Increasingly, absentee holdings are farmed by hired laborers rather than by tenants. Indian environmentalists have documented the increasing adoption of block plantations of trees by absentee owners as a low maintenance strategy that frees the owner from problems of labor market constraints and leasing out arrangements (Bandhopadhyay, 1985). As a contrast in the same country, however, there are cases where land rights of tenants are well-recognized, and absentee owners cannot evict lessees and may end up allowing most land-management decisions to be made by the user.

3.17. As a contrasting example, on Java and in Thailand, leasing by absentee owners may be widespread, but will generally entail a lower level of land investment and less security of tenant rights, since the owner is not bound by local social pressures. For absentee, urban owners whose only interest in land is its sale value, it will be very difficult to convince owners of the value of soil and moisture conservation measures, particularly if they are afraid that land improvements will weaken their ownership rights.

#### Informal Mediation between Owner and Cultivator by Extension Agents

3.18. In lieu of land titling, redistribution or consolidation, non-governmental organizations in the Philippines have been successful with the extension of vegetative conservation techniques (Sloping Area Land Technology (SALT)) and agroforestry technologies to lessees (or fictional lessees on public lands) by including informal mediation as an extension strategy. Project staff encourage landowner and tenant to establish informal guarantees that the tenant will benefit as long as he makes no claims to the government to gain control of the land (Seymour, 1985). On Java, village leadership plays a key role (Cynthia Mackie, personal communication). If the headman chooses to actively promote a soil and water conservation technology, this could ideally be used to encourage landowners to allow tenants to take up longer-term strategies. No data could be found to this possibility, but the Upland Agriculture and Conservation Project has in general placed strong emphasis on the need for extension that fosters conservation awareness among landowners, both resident and absentee.

#### Strategies to Increase Adoption Rates on Less-Secure, Private Lands

3.19. In the watershed projects evaluated in Java, one of the rapidly developing strategies to provide greater incentives for adoption of soil and moisture conservation measures is the identification of technological recommendations that provide better economic returns to the smaller farmers with less access to inputs and credit, who are strongly oriented towards off-farm as well as on-farm employment opportunities. These farmers traditionally invest much less in dryland plots than in sawah or home-and-mixed gardens, particularly when these plots are distant from their homestead and therefore difficult to protect



and time-consuming to reach. The farming system research teams (KEPAS) are promoting soil and water conservation measures that include establishment of fodder grasses as a contour row or terrace stabilizer (KEPAS, 1983). This provides a stronger incentive to cultivators to participate in the program, particularly where soils are less fertile and improved measures do not greatly increase crop yields. This type of strategy is also applicable to cultivators with less secure tenure -- tenant farmers, renters, untitled owners -- since overall returns are higher and inputs less capital-dependent.

3.20. The Dutch-financed, Kalikonto project in Eastern Java has a relatively long experience in watershed development. This project has increasing put emphasis on components that increase the overall income-generating opportunities in the watersheds, whether on the targeted fragile lands or not, rather than exclusively focusing its activities on treatment of degraded lands, per se. This project has begun focusing on cropping systems with a higher return for mixed and home gardens, on the premise that this may encourage adoption of more agro-forestry in other dryland plots and that this may provide enough income to re-orient some marginal farmers towards heavier agricultural investment and less dependence on off-farm employment strategies.

3.21. Non-government organization efforts in watershed development in India are also increasing attention on generating an improved menu of technological options for rainfed plots in the uplands. Organizations such as Samanvita and Agragame, in the tribal districts of Orissa, are promoting agro-forestry models that provide an increased and steady source of income from tree crops intercropped with seasonal crops. These NGOs are supplementing technical extension advice with support to improve farmers' marketing strategies for their produce, to increase the returns to the farmer. The Sloping Area Land Technology (SALT) models being implemented in the Philippines in Central Visayas and elsewhere also have a strong focus on quick-return conservation techniques, such as planting of vegetative contours that generate valuable and continuous supplies of fuel and fodder, as well as stabilizing agricultural lands. The research being conducted by the farming system research group in Java (KEPAS) for watershed projects increasing stresses the key role that fodder generation plays as an incentive for the adoption of vegetative soil conservation. In the Indian Deccan villages where vetiver hedges have traditionally been used as field boundaries, farmers benefit not only from the leveling of their fields, but also cut the hedges fortnightly as fodder for their cattle (John Greenfield, WB presentation).

### Summary

3.22. As Figures 1,2, and 3, show for privately-owned lands, the project designer has a number of options for encouraging private cultivators with different tenurial arrangements to adopt SWC measures. Any components designed to change existing tenurial arrangements must be designed with a clear idea of the deficiencies in the present system that affect potential adoption rates, a clear idea of the implementation requirements of any measure, and a clear understanding of the alternatives being tested in other programs.



#### 4.0. Measures to Increase the Incentives for Private Cultivators on Publicly-Owned Lands

4.01. Where cultivators have laid claim to publicly-owned lands for agriculture, tree planting, or private pasture, the policies for watershed development have either sought to evict these claimants, to initiate a process of private land titling, or provided them limited-use contracts/stewardship contracts to these lands while resting ownership of these lands with the State. There has been mixed experience regarding how effective these contracts are as an incentive to more sustainable cultivation practices in these lands. The evidence to date suggests that these contracts can be effective when provided for an adequate length of time and when the terms of the contract provide the cultivator with rights of transfer and potential use of the contract as collateral. The effective programs issuing these contracts have been those that included:

- 1) adequate support services in the form of good technical extension,
- 2) adequate information dissemination about the contracts, and
- 3) informal mediation among potential claimants of the lands in question.

#### Stewardship or Limited-Use Contracts on State-Owned Lands

4.01. In South East Asian countries (Philippines, Thailand) where large tracts of steep land under state ownership (usually under the jurisdiction of the forest department) has been converted to shifting or permanent agriculture in response to increasing population pressure, issuing fixed-term, limited-use contracts to individual cultivators has been a popular strategy to:

- 1) control further in migration,
- 2) provide an incentive for more sustainable practices (agriculture, agroforestry, or pasture development), and
- 3) keep such fragile lands under the jurisdiction of the government so that more control can ideally be placed on permitted land use.

The evidence available up until now suggests that such contracts only provide tenure security when given for an adequately-long time period so that farmers are willing to try long-term strategies that entail considerable risk, such as agroforestry (Philippines, China) (Tingfu and Zhen, 1988). In the Jyansu provincial project in China, the terms for pasture leases have been increased several times by the government in response to the lessee's dissatisfaction with the tenure of the lease. At present, the lease is a 99-year use contract, renewable on the basis of sound utilization during the original tenure of the lease and completely transferable to heirs. On the basis of the Philippines environmental study (FFARM), the Department of Environment and Resources in the Philippines has recommended that the 25-year, renewable stewardship contract for public lands be extended to a 50-year period, with the option to convert this certificate to a bona fide land title if sustainable land-use practices are adopted by the cultivator during the tenure of the lease (World Bank FFARM, 1989).

4.02. It is important not to draw too many comparative conclusions about the effectiveness of stewardship contracts in encouraging more sustained land-use



practices. As mentioned in the section on private land tenure, a cultivator's perception of secure rights is very subtle and depends upon the social and political climate of that country. In Northeast Thailand, for instance, a study of stewardship contracts found that the tenure security aspect of the contracts was not very important to the cultivators, since they had long-standing occupancy rights in these lands and did not feel threatened with eviction. These cultivators were dissatisfied with the contracts because their primary interest was proof of ownership that could be used for collateral or for legal transfer of their rights (sale or inheritance) (Feder, 1988).

4.03. One general principle in land tenure literature that is applicable to stewardships for public lands is that punitive measures to ensure proper land-use patterns are much less effective than rewards (Australian source, 197-). This is one part of the rationale behind the suggestion in the Philippines that cultivators have an option to establish formal title to lands under stewardship agreements if they have maintained a sustainable land-use.

4.04. When evaluating the limited-use contract, it is important to bear in mind that title to land serves several purposes -- security of ownership, recognized right of occupancy, proof of ownership for use as collateral, and the legal right to transfer ownership through inheritance or sale. Cultivators on public lands may value a stewardship contract only if it also emulates these four aspects of a land title. There is no example of a stewardship program that has been effective where the only value of stewardship was the recognized right of occupancy. In part this is due to the fact that cultivators have equal interest in the other two aspects of titling; in part, this is due to the fact that cultivators only believe the government is serious in allocating rights when these two aspects are present. And, in many situations, cultivators may already have greater faith in their customary rights of occupancy due to their investment in working the soil or their length of occupancy.

4.05. Many studies stress the importance of providing adequate information to clients about the stewardship contracts when these are being promoted (Feder, FFARM, Hoare). As mentioned above, programs carried out by the Bureau of Forest Development in the Philippines relied upon mediation between individuals claiming rights to the same lands (commonly referred to as a 'pseudo-landlord/tenant' situation) (Seymour). Mediation has led to informal guarantees by pseudo owners that cultivators will benefit from land improvements. This mediation is less threatening to the existing power brokers, yet seems to be simultaneously increasing benefits to cultivators, who can now adopt more sustainable practices.

4.06. The failure of the tree tenure program in India is a good example of the failure to provide adequate rights in lands allocated. A program was tried initially in West Bengal to encourage farmers to plant trees on marginal lands that had been allocated to them on 99-year, unlimited-use leases as part of a land reform scheme. This program, locally dubbed "group farm forestry" because of the joint responsibility taken by blocks of farmers for protection, was extremely successful (WB supervision reports, Molnar, 1986, Shah, 1986). Other states, who did not have active, land reform programs, tried to emulate the scheme by giving landless cultivators plots of government land to be used for specifically for tree-planting. The initial lease period was for the life of



the plantation. This program has been a nearly total failure in the other States. Cultivators are suspicious of what they see as an "overly-short lease" and fear the forest department is trying to establish plantations with cheap labor, and will terminate the lease before they can benefit. Powerful landowners have laid claim to relatively fertile lands distributed under the scheme. Cultivators have no collateral, so are limited to a few government loans for very restricted choices of inputs. Unlike the certificates in West Bengal, the leaseholds are only for tree planting, and cultivators have been forbidden to intercrop with cereals, for fear powerful villagers will lay claim to the better wastelands if agriculture is permitted. Nor are the leases transferable, if the cultivator decides to migrate or seek other employment at a future point in time (National Social Forestry Project MTR, 1988).

4.07. It is important to recognize that effective stewardship contracts do not necessarily ensure that the problems of insecure tenure found on private lands will not be replicated on lands under stewardship agreements. Recent studies of the Philippines (Cornista, ?) indicate that the complex tenurial arrangements found in the lowlands are being replicated in the uplands, extending to the informal trading of stewardship contracts and establishment of owner-tenant relations. While the importance of stewardship contracts as a means of increasing the incentives for sustained land management should not be underplayed, the need for better technological options will always remain. Technological recommendations for contour hedges, fodder production, agro-forestry, and improved cropping patterns must be tailored to a range of tenurial arrangements, so that a majority of farmers in the watershed can take advantage of these improvements.



## 5.0. Common Property Resource Management Strategies on Publicly-Owned Lands

5.1. Watershed development projects are increasingly taking an interest in stabilizing the uncultivated, public lands that are under forest department or government jurisdiction. Often these lands are important for supplying fuel and fodder needs of the local population, and are under considerable pressure from high human and animal population. The general consensus is that under high population pressure, it is almost impossible to manage state lands by excluding local people. Projects are therefore exploring a variety of systems for involving local people in the management of these as well as common lands. In the past evaluations of the Bank's experience in South Asia in this regard -- promoting common property resource management (hereafter CPRM) on village lands, state revenue lands, and forest lands -- have generally been pessimistic. The conclusion has been that such strategies are bound to fail due to the extreme heterogeneity of the communities and their control by a small group of elites, the breakdown of indigenous systems in the face of population pressure and market orientation, the privatization of many so-called Common Property Resources (CPRs), and the lack of equity in distribution systems for products.

5.2. In the past few years, the tide of opinion has begun to change. More cases of positive experiences in CPRM are being documented on both communal and state-owned lands and projects are becoming much more sophisticated in their approach to and understanding of the dynamics of CPRM. (For example, the recent paper by Magrath, which questions existing economic theories of nonexclusive resource allocation). What is striking about the new literature on CPRM is that the principles for effective management that are being distilled now are in direct contradiction to the basic elements of CPRM strategies promoted in early forestry and watershed development projects. For India and Nepal, the successful CPRM interventions have had the following characteristics:

- 1) management should rest with a local, organic users' group, building on both customary and formal institutional arrangements (regulating long-term access, use and protection of the resource);
- 2) there should be publicly-acknowledged rights and duties of the users for the CPRs in question (in terms of Figure 3, ability of the users to make development or utilization decisions),
- 3) a regular flow of outputs that are valued by the users is needed, i.e. an at least annual flow of produce, not merely a one-time harvest (in terms of Figure 3, this is the percentage of returns accruing to the user or group of users);
- 4) a distribution system is needed that reaches a diverse population but does not exclude the interests of the powerbrokers in that community (in terms of Figure 3, percentage of returns to different categories of users), and



5) a protection system that has clear, easily enforced rules of compliance (in terms of Figure 3, this would be the ability to protect the land from outsiders).<sup>2</sup>

5.3. It is interesting to observe that all of these are absent from the originally promoted social forestry models for Indian woodlot establishment. In this case, management was given to an artificial, political body with no customary management responsibilities, rights and duties were not known to the majority of users (i.e. formal agreements with the FD were only shared among a few key village leaders), only a one-time harvest was anticipated, distribution was skewed away from local power-brokers, and the protection system was alien to local customs and difficult to enforce by local people. Figure 4 compares the extent to which different project models have adhered to the criteria outlined in the paragraph above. Even outside South Asia, the more successful models have incorporated characteristics that fit some of these general principles of viable CPRM. While this is not to say that we have solved the problem of CPRM and sustained management of state lands in upland catchments, it indicates that we are beginning to clarify the basic principles and learn how to apply them to individual circumstances.

5.04. We can compare the results of Figure 4 with those of Figure 3. In terms of the attributes that have been identified earlier for privately cultivated lands (long-term access to land, access to capital, ability to make development decisions, ability to protect land from others, ability to transfer ownership, and percentage of returns to user of land), only ability of transfer is not dealt with explicitly by the criteria mentioned above. However, even this aspect is often included in effective CPRM. Local management by an organic set of users often carries with it the guarantee of transfer of rights over those resources to future members of the group (heirs), unless community rights are preempted by leasing of public lands for industrial purposes, other development purposes, or to a formal cooperative for development. A major lesson that we have learned from the South Asia CPRM experience is that effective systems of CPRM do not generally provide equal returns to all users. That is to say, distribution of benefits tends to be skewed toward the elite and vested power-brokers. Effective systems are those that provide substantial benefits to both resource-rich and resource-poor individuals, not necessarily equal benefits to both and that systems must grow out of the particular socio-political context of the project area in which they are to be encouraged, rather than fit an ideal type of CPRM.

#### Some Definitional Issues for CPRM

5.05. Before evaluating the measures that have been tried in different categories of public lands (as outlined in Figure 1 and 2 at the beginning of the paper), it is relevant to diverge into a discussion of some definitional issues for understanding CPRM. Just as land tenure issues on private lands have been confused by the mixing of discrete tenure categories when examining incentive structures for adoption of conservation practices, so discussions of

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<sup>2</sup>. Results of an informal workshop on Common Property Resource Management, New Delhi, India, February 1989.



tenure on public lands have been confused by the lack of clarity regarding the definition of common property resource management. In this paper, common property resource management extends to all categories of public lands as well as to the management of private lands by communities under particular circumstances. CPRM can occur on agriculture fields that are fallow and used by the villagers for common grazing purposes. CPRM can occur on state forest lands that are under forest department jurisdiction and used to produce commercial wood for government revenue and to meet national needs.

5.06. As Wade has documented for South India (SOURCE), agricultural fields are considered private land during the period of seasonal cultivation, but after harvesting of crops become common, village grazing lands which are regulated under a system of village management until the next planting period. State forest lands under timber stands can be CPRs insofar as they are used in a regulated fashion by villagers for grazing purposes and extraction of dead or fallen fuelwood and timber. Likewise common lands can include private property. In Kashmir, trees traditionally planted on village commons are considered the property of the planter, although fallen wood and leaves belong to the villagers collectively. As Cernea has documented for Pakistan, village "commons" can belong to all residents or be the exclusive property of the landed families in the areas with traditional grazing rights (Cernea, 1985). In Bhutan and Nepal, high pastures shared by different winter and summer herders are privately owned by a particular set of herders only by season, not year round (Source, 198-).

5.07. There are three aspects of CPRM which require analysis when trying to identify a potential strategy for watershed development on public or communal lands. One is the legal aspect: what is the formal, legal status of rights in a particular resource and how do the legal rights relate to actual use of the resource? A second is the institutional aspect: what are the formal and informal institutions that govern use, access, management, and development of that resource. Third is the potential productivity of the resource: what are the range and kinds of products that can be generated in this resource for local or national needs?

#### A Legal Framework for CPRM Analysis

5.08. One means of securing a group's ability to protect common property resources, develop them, and increase their returns from such resources is to strengthen their legal rights of access, use, and control over management decisions vis-a-vis other users, the state owners, or government authorities given jurisdiction over these resources. For this reason, legal rights and rules governing tenure and use of common property resources have become a key issue to be examined in the design of watershed management projects.

5.09. Few countries have a consistent set of rights and obligations for different users of such resources. There can be conflicting rights over a CPR that may each be valid from a different legal standpoint. Where customary rights pertain to a piece of land, these may be equal to or have precedence over the formal rights prescribed in written law. When designing measures to encourage CPRM, it is important to correctly analyse the inter-relation of conflicting tenurial claims to a piece of land and for different purposes. A common mistake in analysing the legal basis for land-use and management is to

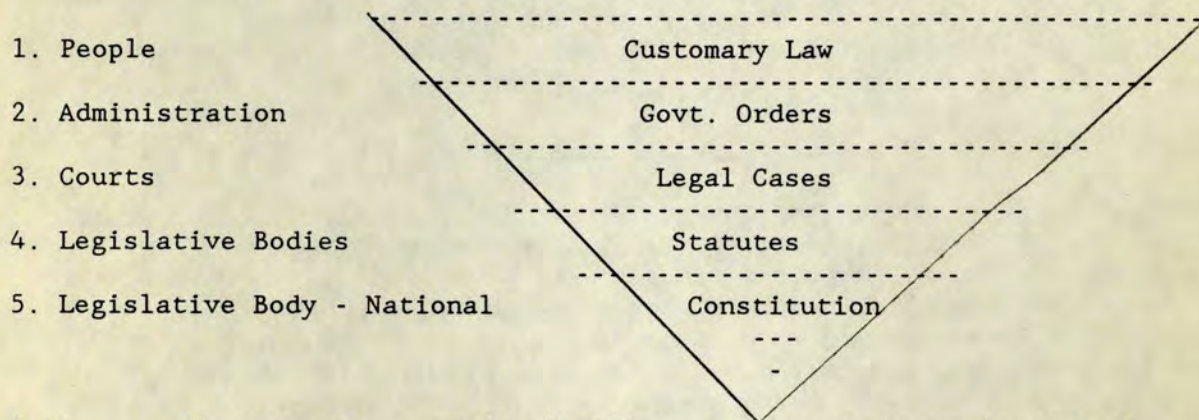


limit the analysis of the legal situation to only certain aspects of CPR management. Where the desired intervention to strengthen management by a community of users is a legal one, the correct point of legal intervention must be well understood.

### A Legal Typology<sup>3</sup>

5.10. Tenurial rights governing the use of a piece of land can be legally present at any of five distinct levels -- 1) customary or traditional rights at the social custom level (e.g. village grazing rights, tribal forest rights), 2) administrative orders regarding use of lands (e.g., forest department rules concerning collection of headload fees or forest closure orders), 3) court rulings regarding existing legislation, 4) state and national legislative statutes regarding the rights over lands (e.g., the Indian Forest Conservation Act), and 5) constitutional law regarding citizens rights in land. Conflicts over use rights occur because there is a discrepancy in the rights at two or more different levels. To identify the proper measure to strengthen CPRM, it is often necessary to identify the key areas of conflicting claims and take legal or policy steps to alleviate this conflict. It is important to understand at what levels the conflicts rest and to identify the measure to address that conflict. At each level outlined above, the solution will be different. The solution to weak CPRM may rest upon the formal recognition of existing customary rights (local level 1), or may require changing forest department regulations (Administrative level 2), or there may need for a formal change in the state forest legislation (State Law level 4).

Figure 4: A Legal Typology of Tenurial Rights



5.11. For example, a study of village grazing patterns in central Rajasthan, India revealed an evolving conflict resulting from the claims of traditional village users of the grazing lands, of panchayat officials entrusted with responsibility for these lands as the smallest unit of state administration, and of private individuals who had encroached upon these lands

<sup>3</sup>. Chatrapatti Singh, presentation on legal issues at a Methodology Workshop on Common Property Resource Management, New Delhi, India, February 1989 (Sponsored by USAID, WB, and Development Alternatives (India)).



over time. When these disputes led to court cases, there was a range of variation in their resolution. While the more common ruling was to give decision-making power to the panchayat, recent rulings had upheld the traditional rights of villagers to retain control of these lands for grazing. Thus, villagers were gradually losing control of grazing lands to panchayats and private individuals not due to a lack of tenurial rights, but their lack of awareness that the courts had a precedent for ruling in their favor if they sued the panchayat. The solution to weakening CPRM in this instance could be encouraging villagers to take such cases to court and simultaneously disseminating information through the media to judges trying such cases about the legal precedents established.

5.12. The dilemma of community woodlots in the Indian social forestry programs stem in part from the differing perspectives of the government implementing the program and the local population regarding tenurial rights over the woodlot and the responsibilities stemming from those. When a panchayat gave permission to the forest department to establish a woodlot on a village grazing land, with an agreement that the forest department would recover its costs at the time of harvesting, everyone saw the agreement differently. To the panchayat, it was much like renting the land out to the forest department on a 50/50 share basis, since cost recovery usually led to this division of profits. To the local village, it meant a loss of grazing land to the panchayat and forest department, with no assured returns to the village. To the villager admonished by the forester for grazing his cattle inside the enclosure, it was evidence of the forest department's assumption of tenure over the land, even if on behalf of the environmental needs of the villager. To the forester, it was panchayat and village land, and the people were responsible for protection. Thus no local sense of responsibility for protection or plantation maintenance developed in the intended direction of sustained CPRM. Rather than reinforcing local village conceptions of common grazing land management, which had been undermined by population pressure, the woodlot model introduced a new arrangement for which no one had clear responsibility.

#### CPRM Measures that have been adopted in Different Categories of Public Land

5.13. What then, are the measures that have been successfully used in projects to enhance common property resource management? Recommended measures to strengthen tenure security in public lands to encourage sustained CPRM include: 1) formally recognizing local people's rights of access to public lands, sometimes with written agreements (woodlot agreements in the Indian National Social Forestry Project, forestry management plans in the Hills Community Forestry Project in Nepal), 2) transferring control over resources to local groups of users or political authorities, 3) instituting systems of joint management and cost-sharing of final product between local users and government agencies, and 4) extending leases to cooperatives or associations for forest or pasture development (Forestry Stewardship Associations in the Philippines). Alternative measures to provide incentives for CPRM include 1) designing technologies for forest and pasture land development that yield locally-valued, regular produce (Indian models, Perum Perhutani taungya model on Java), 2) linking provision of small irrigation structures with catchment protection by local users (Haryana state experience in India), and 3) supporting the



participation of tribal groups and other traditional forest users in forest-based small-scale enterprises, including in their control .

#### Interventions in State-Owned Forest Lands

5.15. State-owned forest lands fall into several different categories from the perspective of traditional common property resource rights.

- a) undemarcated forest lands to which people often have traditional use rights for subsistence products.
- b) production forests, which are lands allocated for timber production, and generally more restricted to local people,
- c) reserve forests, including parks and reserves, which are closed to local people (although tribals may have customary and conflicting claims to these areas),
- d) forest lands of all categories which have been put under shifting or permanent agriculture,
- e) forest lands allocated on concession or lease to industries, cooperatives, associations, etc. (pulp industries in India, forestry associations granted stewardship contracts in the Philippines, village resource societies with grass leases in Haryana, India)

5.16. For the ex-colonial countries, it is important to note that forest land demarcation tends to follow patterns set up during the colonial administration (Java and India), with the result that many customary rights have been revoked in law and others remain ambiguous. The situation is complicated in India by the fact that some areas of India remained princely states up to independence and in these areas, customary rights were never legally overridden at independence.

#### Transferring Control over Resources to Local Communities

5.17. In Nepal, where few forests have been demarcated or reserved, the policy for improved forest management in the hills, and more recently in the Terai, is to transfer control for local protection and management to communities over two categories of government forest lands: those rehabilitated through plantation (PF) and those already-forested lands near villages (PPF). In many areas of Nepal, this policy is simply legalizing an already existing, traditional system of common property management, and thereby providing more encouragement for its sustained continuance. The present policy reverses an earlier one (1957), which had transferred control over all forest areas to the state in an attempt to arrest deforestation resulting from rapid population growth. Initially, management was transferred to the local administrative council, the panchayat, with a forest committee organized to handle the management of the forest area. In the follow-on project in the Hills, the Bank is recommending the transfer of forest to a more organic, user's group -- the village or villages with traditional rights of access to the forest for their subsistence needs. The role of the forest department is intended to shift from one of manager to one of advisor -- assisting the local community in developing a sustainable management plan for the existing or newly-created forest and providing technical guidance on silvicultural matters.



### Cost-Sharing Model of Community/Forest Department Management

5.16. A modified system of transfer of resource control is being tried with great success on a broad scale in West Bengal, India. There, the forest department on its own initiative has been experimenting with a cost-sharing model for producing timber in natural but degraded, sal forests with local cooperation. Nearby villagers are contacted by local foresters and an agreement reached that in exchange for protection of the growing timber, these villagers will be employed in singling operations to cut all but the main shoot from degraded sal stands, receiving concessional prices for the discarded stems. They are given a fixed share (25%) of the final harvest, distributed in cash to each villager, and have access to the forest for supplying their needs from fallen wood, grass, and sal leaves (which can be a major source of income when sold in local markets). This model has been so successful that now about 62,000 hectares of regenerating sal forest is being managed in this fashion. Several other state forest departments, including Haryana, are trying to get approval to adopt a similar model.

### Increased Rights Over Produce from Forest Lands

5.17. This is matched by a general trend in the social forestry plantation areas under forest department tenure to substantially increase local rights over produce from newly-established forests. In all the states with these programs, the government orders regarding the concessionary rights of local communities have been revised to provide increasing amounts of produce to surrounding areas -- either through the panchayat on auction or by allowing more collection of intermediate produce. In addition, there is experimentation with new technologies that are not only more directed toward environmental impacts rather than timber production, but which also provide a range of forest products needed by the poor and marginal villagers. Emphasis is being placed on silvipastoral plantation models, which generate grass for staff-feeding of animals as well as trees. More use is being made of shrubs and hedges that stabilize the soil as well as provide a regular source of medium-quality, but continually accessible supply of household fuel (MTR of NSFP).

### Increased Tenure Rights in the Taungya Model of Afforestation

5.18. In response to a very low success rate in afforestating production forest lands in Java (under the jurisdiction of the forest corporation, Perum Perhutani), the government in cooperation with Ford Foundation has been experimenting with a model that the corporation has recently decided to adopt on a broad scale -- a model to increase tenure rights of forest laborers working in afforestation schemes under a taungya or, as it is called in Indonesia, tumpang sari system. Under the revised model, individuals are allocated plots for a longer time period than the original three years, and are allowed to plant intercrops of grasses and fruit-bearing trees between rows of timber and pulp species for their own profit in addition to initial seasonal crops planted before closure of canopy. The system from the cultivator's perspective is somewhere in between a stewardship contract and a cost-sharing model a la West Bengal.



5.19. As can be seen in the chart in Figure 3, there are a number of elements of this revised scheme that emulate the principles emerging for successful CPRM in South Asia. There is a sustained flow of benefits from the initial planting of seasonal crops, rows of fodder grass, and eventual harvesting of fruit. On a pilot basis, the plots have been strongly targetted to marginal villagers, but on a broad scale, it is likely there will be considerable opposition from better-off villagers if they are de facto excluded from access to plots. Rights and responsibilities are clearly defined for the plot holder and the foresters. In some areas, there has been an increase in rights over nearby non-production forests, since foresters have stopped enforcing restrictions on gathering minor forest produce from these forests in villages where the new scheme is in effect. This appears to be a conscious effort to change the relationship between village and forest department, and this has strengthened villager faith in the program.

5.20. One of the issues raised by the scheme is what villager rights of access should be to other forest lands. Should the government consider the income-generating potential of other forest lands outside of parks and reserves, or continue its present policy of exclusion, except under the limited tumpang sari plots? A recent paper by Michael Wells argues for the former in forest areas adjacent to parks and reserves, so that these areas can realistically serve as a buffer zone of protection.

#### Leases to Cooperatives and Associations in Forest Land

5.21. There are two models for extending leases to cooperatives and associations in the case studies examined. One is in Philippines, in the Central Visayas regional development project in which groups of upland residents who had been illegally exploiting forest lands for timber in areas of extensive in-migration have been given legal stewardship over these lands for afforestation purposes. The residents of the area are organized into associations under the project by the forestry extension staff and the project staff. They establish nurseries for afforestation and plant up forest lands with timber and fuel species, over which they have exclusive rights of harvest within the terms of the 25-year, renewable lease. Initially, the associations are allowed to harvest the remaining timber on these lands in a controlled manner to generate income in the early stages of the association. Since most association member have some land under agriculture, the project also provides tree crop seedlings to association members to encourage more sustainable use of their agriculture land, along with application of the SALT technologies promoted in other project sites. These associations are quite new, and as yet there is not clear information to judge their future viability. These models desire careful study, however, as an alternative to private or village management.

5.22. The second model comes from Haryana state in India. A Ford-assisted program for the degraded watershed catchment areas near the capital city, Chandigarh, developed small-scale water harvesting structures for irrigation in combination with the creation of Village Resource Management Societies to protect the upper catchment and the flow of water into the harvesting structure. The lands in the upper catchment are state forest lands. In some areas, these had been given on lease to corporations for grass harvesting. In the new model, some of these village resource management societies purchased lease rights from



the forest department for harvesting the grasses. These were used both for rope-making and as fodder for local dairy cattle. Given the proximity of these watersheds to the capital city, there was a good market for milk and dairy products, and villagers had a strong incentive to protect the catchment for grass production. An analysis of these societies has shown that in many of the sites, the water harvesting benefits are quite small, because of the limited irrigation potential of the structures, and that the benefits from grass are much higher. The findings of the analysis are that while the irrigation structures provided an initial incentive for group management and mobilization for catchment protection, it is the grass management that leads to substantial benefits and sustained protection of the watershed. (Stewart, 1989)

#### Water Harvesting as an Incentive for CPRM

5.23. One effective measure to encourage local participation in resource management has been tried in 150 villages in Haryana, India. Based on an intensive pilot program initiated in a watershed outside Chandigarh, the state capital, this model involves the protection of the upper catchment in combination with the construction of a small water harvesting structure for limited irrigation. The villagers in the watershed have formed a society (Village Resource Management Society) which regulates water rights and use of the upper watershed. Where grass production is viable, societies have taken leases for government forest lands in the catchments as managed these areas as productive grass lands. What is interesting in this experiment is that, even though the irrigation facilities created are limited and do not reach the majority of villagers, these serve as a strong incentive for protection of the catchment by all villagers, including those without irrigation facilities. This is the case even where the returns from grasses and resulting fodder production are actually greater than from the water. Following the principle that rewards are more effective than punitive measures to encourage sustainable land-use, it would seem that providing residents of watersheds with effective CPRM priority for small, irrigation schemes can be a strong incentive for CPRM.

#### Facilitate People's Participation in Small-Scale Forest-Based Enterprises

5.24. Recently, a growing interest has developed in the potential to increase the income-generating potential and thereby the sustainability of forest lands through support to local people for small-scale, forest-based enterprises. In areas of natural forest, which traditionally supply a range of non-timber forest products (NTFP), more attention to the income-generating potential of these forests for local people is recommended. This includes both their income from collection and sale of products, but also their increased earning potential from providing them better access to markets and encouraging their greater participation in value-adding processing activities. In the villages participating in the cost-sharing model in West Bengal for sal forest rehabilitation, women have begun to earn substantial income from NTFP. This has not been a focus of the program up until now, however, with the result that there has been no attempt to maximize exploitation of the forests or increase their income-earning potential by assisting them with processing industries for what they have collected.



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5.25. A similar approach is being recommended for forest areas on the island of Java in several projects. For the areas under taungya afforestation schemes, project staff are promoting higher return products like oilseeds that can be locally processed by cultivators, and which are less easy to steal than the fruits now grown in these, often distant plots. A number of social forestry projects in India have placed increasing attention on NTFP, such as medicinal plants, but focus has been on growing these products, not on the best channels for marketing or processing them to generate maximum income to local people. One innovative NGO in Delhi has started an experimental, industrial estate, which will support a small village from enterprises drawing on raw materials produced in a nearby plantation on government revenue land. The buffer zone concept proposed in the WB report on preserving biological diversity in natural park management in Indonesia's outer islands is another example of such an approach. As is noted in Figure 2, this measure has as yet been largely ignored in devising strategies for effective CPRM.

#### Overall Land-Use Strategies and the Importance of CPRM

5.26 Reserve forest areas are often under pressure from shifting cultivators, nomadic and sedentary graziers, timber contractors, poachers, tribal hunters and gatherers, and commercial extractors and traders of minor forest products. Measures to strengthen tenure security of surrounding populations in public lands have been intended to provide incentives to this population to help to sustain this resource, to help protect this resource from over-exploitation by competing users, and to add to the supply of forest and fodder products needed in the local and national economy. There is considerable public debate in the countries studied regarding the optimal land-use solutions for degraded public lands or those in danger of degradation. The more radical environmentalists argue for protection of designated, natural forest areas from exploitation for commercial or industrial needs. In all the cases examined in this review, watershed development requires a combination of these options, depending upon the status of public lands and the overall pattern of land-use in the watershed as a whole. As on private lands, there is considerable competition among users of public lands. This is true for what are designated as "buffer" areas, as well as areas designated by the government as "closed" to the local people. Given the extreme population pressure on public resources in Asian countries with high population pressure, there is little likelihood that simply "closing" resources will be effective. Even in areas with biosphere reserves, the only effective approach seems to be one that concentrates on



meeting the needs of the surrounding population for income, employment, forest products, and livestock fodder. (Wells, 1989)

### Tribals and Land Tenure

5.27. One complex and controversial issue in public land management is the extent to which tribals residing near traditionally-important forest reserves should have rights of the rights of access and control to these resources. Until now, most Bank projects have concentrated their interventions outside areas inhabited by tribals and have not tackled this issue in any comprehensive fashion. Some social forestry programs in India have included rehabilitation of forests traditionally exploited by tribals. These programs have acknowledged tribal right of access to forests for produce traditionally collected by them, but have not made any attempt to recognize their customary rights to land classified as under forest. The Indian forest legislation at state and national level has been given precedence over the rights held by tribal groups through customary law. Indian forestry programs have guaranteed tribal groups access to non-timber forest produce (NTFP) as a policy (though this has not always resulted in practice due to the control of marketing and processing of commercially valuable products by outsiders). Tribal communities have been given shares of the final timber harvest (W. Bengal model, social security scheme in Gujarat). In both cases, this has not been an acknowledgement of any customary land rights, but instead, attention to their social welfare and income needs as well as an implicit compensation for their labor input in plantation maintenance and protection.

5.28. It is important that the Bank take a long, hard look at this issue in terms of watershed development policy and project design. The guidelines on indigenous peoples and development expressly state that "the Bank will not assist development projects that knowingly involve encroachment on traditional territories being used or occupied by tribal, people, unless adequate safeguards are provided. In South East Asia, the question of tribal rights to forest lands is most marked in areas of low population pressure (outer islands of Indonesia, Papua New Guinea), and has been raised in the Philippines for the islands where tribal communities exercised traditional adat rights over lands, now under conflicting pressure for conservation and from non-tribal immigration.

## 6.0. Conclusions and Implications for Watershed Development

### Implications of the Review for Future Project Design

6.01. The following recommendations have emerged from the review of land tenure:

- 1) Our understanding of the relationship between land tenure and the adoption of soil and moisture conservation practices by individuals and groups of watershed residents would be greatly strengthened if more analysis was made of the economics of these measures for different categories of tenure and for upland households with differing economic strategies (on and off-farm).



2) Measures to strengthen land tenure rights can be effective incentives for the adoption of soil and moisture conservation practices. They must be adopted, however, within a favorable political climate with an adequate bureaucratic capacity to implement the desired programs.

3) Planners must be clear as to what they wish to achieve through measures to strengthen tenurial rights: security that the cultivator will reap the benefits of his/her labor, access to credit and services for which collateral is a pre-requisite, or guaranteed access to particular products from the land concerned. Strengthening tenurial rights may be the only way to provide these to the cultivator. Alternative interventions -- credit sources that do not require land as collateral, changing legislation regarding rights to products from the concerned lands, or providing cash subsidies as an incentive to investment are all potentially sound interventions where tenure security is not the only issue.

4) The policy framework for establishing tenurial rights for government-owned lands is not yet adequate to encourage sustainable utilization of these lands in any of the countries studied. There are often conflicting claims over a particular land resource, which hinders effective management. The degree of access that should be provided to local watershed residents has not been clearly analysed in light of local needs for grazing, forest products, and employment. Tenurial rights for tribal residents of watershed areas are particularly controversial. Considerably more work in defining the Bank's own policy recommendations -- similar to that done in the Philippines in the FFARM study -- needs to be done by the Bank in the region as a precondition to watershed development.

5) More study is needed of the past experience in encouraging cultivators with different tenurial status to adopt soil and moisture conservation practices in watershed development projects. In particular, it would be valuable to analyse the Moroccan experience with land consolidation (Meknes Ag. Sector II), the Yogyakarta land titling component (Yogyakarta RD II), the adoption of improved measures by tenurial status for a small sample in the Upland Agriculture project in Java, and to conduct a special study of land tenure as an incentive for private land development in the proposed watershed development project in India.

6) There appears to be a greater potential for encouraging sustainable common property resource management on different categories of publicly-owned lands than has been recognized in past evaluations. Some general principles have emerged from the Bank's experiences that can be applied with some confidence in future project and which deserve further testing in on-going and future project evaluation.

7) One point that seems clear from the cases analysed in this review is that the pressure on public resources is such that it is impossible to close these lands to local communities, except for small areas designated as biosphere reserves. Either these lands should be privatized and individual users encouraged to adopt sustainable land-use practices, or they must be managed with different degrees of involvement of the local population.



## OFFICE MEMORANDUM

bill

DATE : July 19, 1989

TO : See Distribution

FROM : <sup>ch</sup> A. Molnar, ASTEN

EXTENSION: 72012

SUBJECT : Land Tenure Chapter in "Review of Watershed Improvement"

A white cover report on watershed improvement has recently been completed by an Asia regional task force coordinated by ASTAG, ASTEN, and ENVPR and is currently being reviewed internally by the division chiefs of those departments.

I would like to get your input specifically on the chapter on land tenure. The chapter is intended to provide an overall framework for understanding land tenure issues in watershed improvement projects. I will revise this chapter with the results of on-going case studies in India and Philippines, and possibly Thailand are available, also need further feedback on the operational implication of what is written. I will be on leave until mid-August, but would like to tentatively schedule a meeting for 10 A.M. on Thursday, August ~~16~~ <sup>17</sup>, to discuss these issues in regard to the chapter.

I have enclosed a copy of the land tenure chapter along with the strategy section of the main report. I will send a memo on my return as a reminder with information on meeting location.

cc: w/attachment: <sup>33446</sup> Holstein (INURD), <sup>33281</sup> Naronha (ENVOS), <sup>(on mission)</sup> Butcher (IENES)

cc: w/o attachment: <sup>78100</sup> McGrath (ENVPR), Doolette (ASTAG), Davis, Partridge (ASTEN).

AMolnar



VI. LAND TENURE ISSUES IN WATERSHED DEVELOPMENT

Augusta Molnar

A. Introduction

6.1 The promotion of soil and moisture conservation technologies on degraded lands in watershed areas leads the planner into a number of important, socio-economic issues, one of which is land tenure, that is, the tenurial arrangements (legal ownership and rights of use and access) which affect the use of those degraded ~~lands~~ <sup>lands</sup>.

Study Outline

6.2 The review addressed the question of land tenure and its effect on the adoption of soil and moisture conservation technologies, based on the literature on land tenure and some case studies from watershed development experience. Rather than making predictions about this relationship, instead the report provides a framework for analyzing a project area to determine whether measures are needed to alter present tenurial arrangements, if so which measures are most likely to have the desired impact, and if measures to change tenure will not be effective, to identify other measures which will mitigate the negative effects of present tenurial arrangements for three broad types of land (private, communal, and public).

6.3 The paper has been divided into three sections each addressing the situations in regard to private lands, private cultivators occupying public lands, and communal and public lands. Communal and public lands are addressed together because the dynamics of common property resource management are applicable to both land classes in the densely populated countries selected for analysis. In other words, both categories of lands are used extensively by the surrounding population, often in addition to or in competition with forest contractors, corporate or cooperative leaseholders, the forest department, or illegal loggers. While the legal rights of use and access may be greater for the local people in the communal than the public lands, in both cases, the appropriate measure for encouraging soil and moisture conservation on degraded lands is likely to be one of strengthening existing use rights, except for special circumstances such as biosphere reserves or ancestral lands restored to tribal groups.

6.4 Selection of Comparative Cases in the Region - Population Pressure as a Common Factor. While there is great diversity in the Asia region, one common characteristic of great significance for land tenure issues is high population pressure on scarce land resources. In order to capture this and conceptually limit the boundaries of the review, the cases selected have all been projects in regions with high population pressure. There is considerable competing demands on public lands from local populations, government agencies, industrial concerns, developers, and individuals extracting products for illegal sale (logs, fuelwood, etc.). For local people living near a forest still having tree cover, the resource can be both a source of products central to the household economy and a potential source of employment from forest itself or related enterprises. The choice of cases has been fairly evenly



divided among projects with interventions on private lands (Java, India, Thailand), on public lands under private cultivation (Philippines, Thailand), and on state forest and community lands (Java, India, Nepal, Philippines).

6.5 The importance of population pressure for influencing land-use allocations is somewhat misleading for upland areas of these countries because statistics for upland and lowland areas are not strictly comparable. Upland areas have a much higher proportion of non-arable land than adjacent lowland areas, and hence population statistics give an appearance of less pressure on upland resources, which in fact may not reflect reality. This was adjusted in Thailand by calculating persons/km<sup>2</sup> of cultivated land only (Cohen, 1983). This way pressure in Thailand can be seen to exceed 500 persons/km<sup>2</sup> in 58 out of 64 districts of 7 northern provinces. Comparative figures for other uplands would be 559 - 1024 persons/km<sup>2</sup> for upland Java, 530 persons/km<sup>2</sup> for Nepal uplands, and 215 km<sup>2</sup> in the Philippine uplands. Given the generally lower productivity of upland soils this is a striking picture.

#### The Relevance of Tenure

6.6 In this context land tenure is important in respect of equity, productivity, and sustainability. The equity issue centers on whether or not the majority of the rural population have reasonably assured access to land as a production resource and if not is a land reform policy needed to create a more equitable situation in the absence of alternative employment opportunities. The question of productivity of the land resource has to do with the ultimate profitability of present and improved farming systems and the extent to which tenurial arrangements permit this potential to be exploited. Tenure is relevant, too, in respect of the sustainability of the land resource either as it stands or when it is rehabilitated. The tenurial status of a parcel of land can affect the strengthen of incentives for the user of that land to adopt improved soil and moisture conservation technologies. This is true for private, communal, or publicly-owned lands. In combination these questions of equity, productivity and sustainability can yield conflicting answers. Some researchers in Latin America argue, for example, that while landholding patterns in that region are often highly inequitable, with concentrations of large holdings among a small number of people, some of these holdings are extensively managed largely as pastoral enterprises, and land redistribution would likely lead to agriculture intensification, and significant increases in soil erosion (Crosson cited in Anderson and Thampapillai, 1988). Others argue for Central America that while land redistribution might lead to more equitable holdings and less pressure on landless or near landless to clear tropical forest land, ultimately titling to smallholders would drive up land values and lead to land speculation by the wealthy, and sale of plots by the smallholder (Collins and Painter, 1986).

6.7 In the current watershed development projects in the Asia Region, a number of soil and moisture conservation (SWC) technologies are being promoted. These include:

- (a) structural works; such as bench terraces, contour banks, gully plugs, water diversion channels and drainage channels, to manage rainfall run off and sedimentation;



- (b) vegetative barriers on the contour, such as vetiver grass, fodder grasses, or mixed conservation hedges of shrubs, grass, and trees to keep moisture and silt on the site;
- (c) cultural treatments and improved cropping systems to improve farm production in a manner that protects soil and moisture status;
- (d) agro-forestry technologies that provide a long-rotation tree crops for steep, fragile soils; and
- (e) silvo-pastoral or pastoral technologies that provide ground cover, fodder, and forest products.

6.8 A pertinent question in the Asian watersheds concerns the extent to which the present tenurial arrangements affect the adoption rates of the above types of technology. As yet, there are few firm conclusions about the extent to which their adoption is affected by the tenurial status of the lands on which they are being promoted. One conclusion is that cultivators or groups of land users who do not have secure rights over the long-term will be less likely to adopt technologies which have a long time lag before they begin to generate benefits or, stated in another way, which require a high level of investment without a commensurately-high, short-term (1-3 years) return.

#### Tenure or Technology

6.9 This subject has been addressed in development planning by applying what is known in general about the relationship between tenure and land-use practices to what is known about the returns from the above types of technologies. A reasonable assumption has been made that bench terracing and agro-forestry technologies both of which are costly and disruptive and require a long lag period before benefits will be generated, will not be adopted by cultivators on lands with less secure tenurial arrangements. Planners have generally advocated the implementation of specific measures designed to strengthen the tenurial status of cultivators or users of degraded private, communal and publicly-owned lands. Since vegetative and cultural technologies are lower cost and have a shorter time lag before benefits begin to flow, it has been assumed that there will be less need to strengthen tenurial rights on degraded lands for which such technologies are promoted (Chapter IV).

6.10 While there are a number of preliminary inferences based on field observations that can be drawn from case studies of the current experience in Bank-assisted and other watershed development project in Asia regarding the relationship between land tenure and the adoption of the above-mentioned technologies there is a serious lack of systematic or quantitative study of the effect of land tenure patterns or land tenure interventions on adoption rates of these treatments in these projects.

6.11 Field observations that certain tenurial arrangements appear to weaken the incentives for adoption of soil and moisture conservation technologies are difficult to explain for two reasons. Firstly, they tend to be overly-general, lumping several different tenure categories into one, and secondly because the effects of tenure have not been separated from the effects of other possible disincentives. For example, data have been col-



lected comparing land-use strategies on owner-operated and tenant-operated lands (Wiradi, 1984, Kalikonto Project, 1986, Tampabolan, 1989). However, the broad category of tenant-operated lands includes a considerable range of possible rights and obligations between tenant and owner. This data therefore lead to little useful information for predicting or evaluating the nature of disincentives unless the tenancy category can be disaggregated into more meaningful units of analysis. Combined with this is a lack of information about the actual costs and benefits of different technologies, particularly from the perspective of different categories of users such as resource-rich/resource-poor, remotely-located/market-accessible, etc. The lack of adoption attributed by the analyst to tenurial constraints may simply indicate an inappropriate technology, rather than a tenure-linked disincentive for its adoption.

#### Tenure Status is Neither Clear Cut nor Static

6.12 Land tenure categories do not neatly divide into private, communal, and public lands from the perspective of the users. Tenure categories fall instead on a continuum from most privatized to least privatized in terms of legal ownership, rights of access, and rights of use including rights to develop a resource. Private lands can become communal resources for specific purposes in specific seasons and communal and public lands can become privatized (Wade 1988, National Academy of Sciences, 1986). Nor are tenurial rights stationary over time. Every change in land-use and in the overall economy affects the tenurial status of land. Introducing a new technology for soil and moisture conservation on a wide scale in private arable lands, for instance, will inevitably lead to an adjustment in the private tenure arrangements over those lands. Owners may lease out fewer parcels or reallocate their leases in a new way. Introducing a measure to change tenurial arrangements in a positive way to provide greater incentives for adoption of soil and moisture conservation technologies may be ineffective, if these arrangements change again in response to the the new technologies promoted (Cornista, 198-). On public lands, without other controls, improving yields will lead to the expulsion of the poorest by the richer users exercising greater control.

6.13 The watershed development planner is required to understand:

- (a) how tenurial arrangements affect the adoption of soil and moisture conservation treatments, and, as a corollary, what information must be collected about tenure at the design stage;
- (b) the linkage to social structure, the number of users of a plot of land, and the differential power of individuals or groups to defend their tenurial status within the social structure;
- (c) what the impact has been of measures to change these tenurial arrangements in on-going or past projects (which often consist of strengthening the rights of the existing users of degraded lands or displacing them);
- (d) what information on adoption rates should be collected during program implementation in regard to the effect of tenure and means of doing this; and



- (e) where measures to change tenurial arrangements are not appropriate, what alternative measures should be adopted and/or what types of technologies are most tenure-neutral and therefore more appropriate for promotion under such circumstances.

6.14 Analytic Framework. The following cases have been examined in this review:

- (a) Yogyakarta Rural Development I Project, Indonesia, (WB/GOI) which included a titling component for private dryland plots to encourage farmers to adopt improved technologies;
- (b) Upland Agriculture and Conservation Project, Indonesia (USAID/WB/GOI), which has selected demonstration plots on farms cultivated by the owners for the dissemination of bench terrace technology and agro-forestry.
- (c) Social Forestry Project of State Forestry Corporation, Indonesia (Ford Foundation/GOI), which has provided extended leases for taungya/ tumpang sari <sup>1/</sup> cultivation and allowed farmers to plant perennial crops in between timber trees;
- (d) National Social Forestry project, India (USAID/WB/GOI), which is the most recent of the Bank's social forestry programs funded for individual states in India,
- (e) West Bengal Social Forestry Program, India (WB/GOWB), which includes a component termed "group farm forestry" encouraging farmers with marginal holdings to undertake block tree planting with shared labor and shared protection systems.
- (f) West Bengal forest department experiment in regeneration of natural forest through allocation of forest land to local villages, (WB/GWB), which has provided villages with intermediate yields and a substantial share of the final timber harvest in rehabilitated sal forests;
- (g) Village Resource Management Societies, Haryana, India (originally assisted by Ford Foundation), which are local-level societies created for watershed management and maintenance of small water harvesting structures for irrigation;
- (h) Forest Panchayats, <sup>2/</sup> Himachal Pradesh and Uttar Pradesh, India, which are institutions established prior to independence in the Himalayas and Siwaliks for community management and protection of forests on behalf of the forest department;
- (i) Central Visayas Regional Project (CVRP), Philippines (WB/GOP), which is a watershed and coastal rehabilitation project extending the sloping area land technologies (SALT) for land improvement to upland

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<sup>1/</sup> Temporary allocation of forest land to forest laborers, which allows them to intercrop.

<sup>2/</sup> Smallest unit of local administration.



farmers and providing stewardship leases to farmers cultivating state forest lands;

- (j) Forestry Associations (FOSAs), CVRP, Philippines, which is a component of the above project organizing upland migrants exploiting lands over 18% slope into associations (FOSAs) for the establishment and extraction of forest plantations on degraded forest lands and providing them with stewardship leases for these lands;
- (k) Highland Agriculture Development Project (AIDAB/WB), which is a project in North Thailand for rehabilitation of lands cultivated by tribals under an extensive (slash-and-burn) agricultural system.
- (l) Gansu Provincial Project, China, (WB/GOPRC), which has allocated pasture lands to individuals for development on long-term leases (the period of the lease has steadily increased since the inception of this program); and
- (m) Red Soils Area Development Project, China (WB/GOPRC), which has allocated land to individuals for development on long-term leases, and which includes a parastatal institution providing capital and marketing support for farmers developing these lands.
- (n) Kalikonto Project

6.15 Figure 1, Annex 1 summarizes schematically the categories of tenurial arrangements on private and public lands and the range of project components included to strengthen or alter existing tenure patterns. Figure 2 provides a summary of project components designed to mitigate tenurial constraints on the adoption of land improvements. As stated above, tenure must be seen as a continuum rather than strictly separated into private, communal, or public ownership. The figures follow this principle. Land categories on the left side of the figures are more private and those to the right more public.

6.16 Table 1 in the text summarizes the present level of understanding about the attributes of tenure that affect the adoption of conservation practices on degraded lands under different tenurial status, drawing upon the case study material itemized above. Where a case is included in the table it is numbered according to para. 6.14. As a rule of thumb categories of land tenure which measure high on all attributes are those for which incentives to adopt SWC treatments is highest. Measures to mitigate tenurial constraints (titling untitled lands or recognizing informal community rights) address particular "low" attributes. Measures such as alternative credit programs or subsidy components have the effect of compensating for the weakness of certain attributes in particular tenure categories (for renters with little access to credit such programs can enable them to adopt SWC technologies).

6.17 Table 1 has been included also in Annex 2 with additional columns summarizing the possible interventions for inclusion in programs to increase the rate of adoption for particular tenurial arrangements and outlining some cautions for the effective implementation of some interventions.



## B. The Effect of Tenurial Arrangements on Adoption on Private Land

### Conceptual Framework for Considering Private Land

6.18 The most common tenure distinction made in project analysis is between owner-operated and tenant-operated lands. The perception has been that owner-operators are much more likely to adopt soil and moisture conservation measures on their cultivated land because of greater tenure security. As a general assumption this is sound, but it is much too general for evaluating project results or project strategies. The two figures in Annex 1 identify six general categories of tenure on private lands found in the case study countries that have different characteristics pertinent to the cultivator's interest in land improvements. The attributes of interest for each of these categories are summarized in Figure 1. In general, the private cultivator with title has the most attributes for adopting SWC measures and the sharecropper on land of an absentee owner the least.

6.19 The following section points out that tenure is not simply a question of guaranteed long-term access to land. Other consequences of secure tenure that are of interest include: access to credit/capital, ability of the user to make decisions regarding development of the land, ability to protect the land from others, the percentage of returns that accrue to the user, and the ability of the user to transfer rights of access to others once land improvements have been made (or partially made). Any or all of these factors may be the reason for a land user's non-adoption of SWC technologies, and different measures to address land tenure can affect any or all of these attributes. As will be clear in the discussion of public lands, long-term access may be less of an issue to groups of users than other attributes, such as right to develop lands or returns that accrue to individual users.

6.20 What follows describes what the land tenure literature and past experience in watershed projects bring to bear on our understanding of the relationship between tenure and SWC adoption on different categories of land.

### Privately-Owned and Operated Land -- With and Without Title

6.21 One problem faced in watershed projects is that while some owner-cultivators in a project area hold formal title certificates to their lands a large percentage do not, even though the land is deemed to be private. The costs of formally transferring title to heirs are expensive in many countries and as a result many inheritors only obtain formal certificates of land transfer when they wish to sell their land, when they need proof of ownership to use the land as collateral, or when their claim is disputed by another heir. For marginal farmers obtaining a certificate of ownership may be too costly, regardless of their need for such a document. In some areas, such as Yogyakarta province, Indonesia, lands allocated to private owners may not have been formally titled when the state assumed control over lands formerly under the jurisdiction of traditional rulers.

6.22 A number of watershed projects have included titling components as incentives for farmer participation. There is little solid evaluation data to assess the value of these components in meeting project objectives. A study undertaken in Thailand found the relationship between title and farmer adoption to be subtle. Credit rather than land security in this case may be the



main concern of the cultivator seeking title (Feder, 1988). The Thailand study argues strongly for titling components in projects that espouse SWC improvements in order to give farmers access to capital and in order to enable farmers to transfer title and improvements to their heirs. In the absence of comparable studies in other countries it is difficult to extend these recommendations. Both sense of security and need for titles to increase access to credit can vary from one situation to another. Thailand is somewhat unusual in having an efficient and widespread rural credit system. In countries such as India and Indonesia, where rural credit programs have provided subsidized, but limited credit, the credit market has been monopolized by larger farmers and few marginal and small farmers have gotten formal credit, regardless of whether or not they had titles to the land they cultivated. To make the situation more complicated, some analysts of the Thai experience argue that the rural credit system in Thailand is efficient only because of the still limited number of upland farmers with formal title.

6.23 The lesson for the project designer is that credit may be a key attribute of adequate tenure for the potential adopters of SWC technologies, but its importance varies depending how the cultivator perceives security, the efficiency and accessibility of rural institutional credit, and the input requirements of the proposed technologies.

6.24 Comparative Studies of SWC Technology Adoption and Tenurial Categories. There is only one comprehensive study that has been made of the relationship between land tenure in upland areas and long-term investment strategies. This was carried out in Haiti by the Land Tenure Center, University of Wisconsin (McLain and Steenberger, 1988). Two conclusions emerged that are relevant to understanding farmer strategies in Asia on privately-owned lands with and without title: (a) cultivators might be more willing to develop untitled plots allocated to them on state lands than to plant trees on privately-owned plots where there is some degree of ownership dispute among other family members; and (b) decisions to plant trees (the study's example of a long-term strategy) depended not simply on the tenure of the plot to be developed itself but the tenure of that plot in light of the status of the rest of the holding. The implications of this for project designers is that it is not enough to categorize types of ownership in the watershed and predict adoption on that basis, but the patterns of landholding and combinations of ownership must be understood, before predictions of a farmer's likely strategy are possible.

6.25 Titling Components. To counteract tenure insecurity as a disincentive to adopt and to provide cultivators with access to formal credit, a number of watershed development programs have included titling components which facilitate surveying procedures and issuance of certificates in order to speed up the process and reduce the transaction costs to the cultivator. These interventions can be effective when efficiently implemented. Two examples in Indonesia are the issuing of certificates to coffee growers on former estate lands on Java as part of the horticultural service schemes, and the Yogyakarta Rural Development I project (para. 6.14a).

6.26 In both cases these components had two objectives: to provide cultivators with an incentive to adopt long-term cropping strategies and to provide them with title as collateral for government credit schemes. The Yogyakarta



project addressed a special problem that at the death of the former sultan, landowners were concerned that their land rights would not continue to be upheld under Indonesia law. The titling under the horticultural service scheme seemed to provide a strong incentive to farmers to participate. Little data have yet emerged from the Yogyakarta project on the effect of titling, largely because of difficulties in implementing this component. With a lack of institutional capacity procedures were delayed and surveying efforts have been concentrated on nearby homegarden plots to the exclusion of the majority of dryland plots where most land rehabilitation measures are being promoted. In support of the component's value, however, one report asserts that titling of homegardens has encouraged some cultivators with newly acquired access to formal credit to invest in their dryland plots as well (Edgerton, 1987).

6.27 Other projects without titling components have operated on the assumption that adoption will be limited mainly to owner-cultivators and in projects such as Upland Agriculture and Conservation Project(UACP) (para. 6.14b), technologies have been targetted exclusively to titled lands. Evaluation of the soundness of this assumption in this and other projects in Java has been made difficult by the poor land records available to the project staff. Village records available do not reflect the real situation, and as a result, project staff can neither evaluate whether the subsidies for upgrading and establishing bench terraces have been given to the owners or the cultivators of a plot when these are different, nor can they evaluate whether land tenure is as important a precondition for adoption of measures as has been assumed in the literature since actual categories of holdings do not correspond with that in the available records.

#### Leasing-in and Sharecropping Arrangements

6.28 Where land is cultivated by someone other than the owner on a leasing-in or sharecropping arrangement there is in principle less certainty that that cultivator will be assured the returns from his or her investment, particularly a long-term one. This is especially true for tree planting which has a longer time lag from investment to return than terracing or contour hedging and which may be perceived as higher risk.<sup>3/</sup> While a small proportion of leasing-in arrangements are based on written agreements and the rights of each party are clearly and legally specified, the majority are informal and, where land reform legislation is active, may be kept short-term to protect the owner from losing his land to the cultivator. It has been argued that rehabilitation of private land is impossible without somehow providing better guarantees to cultivators than those pertaining under the existing leasing-in or sharecropping arrangements. To this end, countries have recommended or enacted programs of land consolidation to reduce the number of uneconomic

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<sup>3/</sup> For tree-planting on private land, it is important to distinguish tenure security from the potential effect of legislation regulating private tree planting and felling. In India, a main disincentive to planting of trees that are not exotics, like eucalyptus, is that a majority of native species cannot be felled in many states without a permit from the forest department.



holdings and the need for such a wide proliferation of leasing, particularly by smallholders, programs of land redistribution to title land to the cultivator, and programs providing written agreements to formalize the rights of lessee and lessor. These programs have had mixed success in encouraging farmers to adopt SWC technologies.

6.29 Land Redistribution and Land Consolidation. Land redistribution or land consolidation programs are notoriously difficult to implement without the requisite political will and bureaucratic support to carry out surveying and paper work. They are extremely slow to implement because of the lag time involved in identifying areas to be redistributed or consolidated, in surveying plots, and in carrying out the necessary paperwork to provide certificates of title to the new owners. A positive example of land consolidation is that carried out as part of a Bank-assisted Meknes Agricultural Development project, Morocco, to create more viable holding sizes for agricultural development and land stabilization (Project Completion Report, 1987, Adams and Seddon, 1983). The success of this program is linked in the PCR to the identification of an adequate number of land classes for exchange purposes, so that farmers in watersheds with different qualities and types of land were able to exchange fragmented holdings of varied quality for consolidated holdings with an equal overall quality. In the PCR the component is evaluated as being instrumental in leading to higher productivity in the project area and maximizing returns from promoted technologies. There are few such cases of successfully implemented land consolidation programs to compare results in other settings and under other institutional arrangements.

6.30 Land distribution or consolidation programs should not be embarked upon lightly. An added difficulty to effective implementation which must be faced is that tenurial arrangements are fluid and tend to adjust to new circumstances. Once complete, in areas of dense population pressure, there is no assurance that the new tenurial arrangements will remain effective over the long-term. The new owners may find it profitable to lease or share crop their parcels, or due to constraints in obtaining inputs to farm the land themselves, eventually be forced to lease out land, as has become a standard practice in Indonesia on Java (Soetoro, Collier and Hartoyo, 1981; Madie, 1989). If reforms are poorly implemented cultivators may lose rights. Numerous cases have been documented in which tenants were evicted by owners before land reforms were implemented to avoid new laws providing rights to the tenant. Written tenant agreements are particularly difficult to implement, since many tenants fail to apply for such contracts, for fear of severing relations with their lessors (Khasnabis and Chakravarty, 1982). This is an area for which more study is clearly needed.

6.31 Land redistribution or consolidation programs may be important interventions for reasons of long-term equity in development of a region, but the planner should not assume that this will automatically increase adoption rates for SWC technologies, without carefully examining the situation. As will be discussed in a later section, where political will exists land reforms may be an excellent intervention. Where it does not, tailoring technological options to existing tenurial arrangements and tailoring extension support to raise the awareness of land owners may be better interventions for improving SWC.



6.32 Sub-categories of Lease or Sharecrop. What complicates assessing the need for strengthening tenure measures in respect of watershed development is the wide range of arrangements contained in the category of lease or sharecrop, all of which entail a different incentive structure. Taking examples from India, Java, and Thailand, the evidence is that even where tenancy rights have been legislated actual arrangement may not follow legal procedures. This is even so in India, where there has been a fairly active land reform policy and holdings are well-surveyed (Cohen, 1983, Pant et. al, 1981, and Hart, 1986). There is a wide range of variation within Asia regarding the terms of the rental or sharecrop agreement. Fixed rent agreements tend to be the more secure and provide a greater incentive to the cultivator. Such agreements tend to be made with more resource-rich cultivators who are more likely to have resources to invest in land improvements. Adoption of high yielding varieties in India has been equally high for fixed renters and owner-cultivators, but less for sharecroppers (Singh, 1988).

6.33 Sharecropping arrangements tend to be less secure than fixed rent arrangements, but within this category there is a wide continuum. One common disincentive for the sharecropper is the lack of access to inputs and formal credit systems, and the fact that the majority of lessors leave the provision of inputs largely to the cultivator. In south India, there is evidence that sharecroppers and other cultivators may adopt the same level of inputs except for labor where the input by sharecroppers is lower due to lack of resources. Since SWC technologies tend to be more labor than capital-intensive, this pattern would suggest the need to provide subsidies to have sharecroppers participate in land improvement programs (Pant et. al., 1981).

6.34 Provision of Inputs. Any generalizations must be qualified by the fact that there are a substantial number of owners who do provide inputs. There seem to be two patterns recorded for rural India for provision of inputs by owners which would affect the incentive structure for land rehabilitation. In the first but less common case owners provide inputs to cultivators practicing high-return, high-investment strategies to maximize returns and modernize the agricultural strategies. For this arrangement there could be considerable incentive for terracing or contour hedge/grass establishment if the owner is convinced of its utility. In the second, more-prevalent situation, inputs are provided only because the sharecropper is poor and cannot supply them, and in this case only low return, traditional agriculture is practiced. In this type of situation it is unlikely that there will be an incentive for either party to adopt improved practices (Khasnabis and Chakravarty, 1982).

#### Leasing or Sharing to Relatives

6.35 Sharecropping arrangements can be skewed towards the landowner in situations of acute land pressure, such as Java. In parts of Thailand there is a tradition of key money under which owners auction the rights to gain access to a sharecropped plot and are paid a sum in addition to any share terms. This greatly lowers the share of returns that accrues to the cultivator. In studies of Thailand and Java, however, researchers have found that a high percentage of renters and sharecroppers are personally related to the owners (more than 50% in parts of Thailand) and that the terms of the lease are much more favorable to these individuals (key money is not required from



relatives in Thailand and shares are greater in Java) (Cohen, 1983, Mackie, 1989). These arrangements may be extended to recently married couples as a form of start-up loan, even on lands they should eventually inherit. When comparing adoption rates of technology between sharecroppers and owners, relatives would fall in the category of sharecroppers, even though they might have strong incentives to adopt long-term land-improvement measures.

#### Absentee Ownership and Leasing Arrangements

6.36 There is also a distinct difference in the incentives for sharecroppers or tenants to undertake improvements depending upon whether the owner is resident in the area or residing outside the area. Absentee ownership is increasing in all countries as more rural landowners migrate to the cities and as urban residents seek to invest their capital in land. It is not a homogenous category in any of the countries studied. Absentee owners tend to opt for the least risky, least management-intensive land-use options. Increasingly, absentee holdings are farmed by hired laborers rather than by tenants. In India an increase in block plantations of trees by absentee owners as a low maintenance strategy that frees the owner from problems of labor market constraints and leasing out arrangements has been documented (Bandhopadhyay and Shiva, 1985). On the other hand in India, there are cases where land rights of tenants are well-recognized and absentee owners cannot evict lessees and may end up allowing most land management decisions to be made by the user.

6.37 By contrast, on Java and in Thailand, leasing by absentee owners is widespread, but generally entails a lower level of land investment and less security of tenant rights since the owner is not bound by local social pressures. For absentee urban owners whose only interest in land is its sale value, it will be very difficult to convince them of the value of soil and moisture conservation measures, particularly if they are afraid that land improvements will weaken their ownership rights.

#### Mediation between Owner and Cultivator

6.38 In lieu of land titling, redistribution or consolidation, non-governmental organizations in the Philippines have been successful in extending vegetative conservation techniques (Sloping Area Land Technology (SALT)) and agroforestry technologies to lessees (or fictional lessees on public lands) by including informal mediation as an extension strategy (para. 6.14i). Project staff encourage landowner and tenant to establish informal guarantees that the tenant will benefit as long as he makes no claims to the government to gain control of the land (Seymour, 1985). On Java, village leadership plays a key role (Mackie, personal communication). If the headman chooses to actively promote a soil and water conservation technology, this could be used to encourage landowners to allow tenants to take up longer-term strategies. The Upland Agriculture and Conservation Project (para. 6.14b) has placed strong emphasis on the need for extension that fosters conservation awareness among landowners, both resident and absentee.



### Strategies to Increase Adoption Rates on Less-Secure Private Lands

6.39 In projects evaluated in Java one of the rapidly developing strategies to provide greater incentives for adoption of soil and moisture conservation measures is the identification of technical recommendations that provide better economic returns to the smaller farmers with less access to inputs and credit, who are strongly oriented towards off-farm as well as on-farm employment opportunities. These farmers traditionally invest much less in dryland plots than in irrigated paddy or home gardens, particularly when these plots are distant from their homesteads and therefore difficult to protect and time-consuming to reach. The farming system research teams (KEPAS) are promoting soil and water conservation measures that include establishment of fodder grasses as a contour row or terrace stabilizer (KEPAS, 1983). This provides a stronger incentive to cultivators to participate in the program, particularly where soils are less fertile and improved measures do not greatly increase crop yields. This type of strategy is also applicable to cultivators with less secure tenure, namely, tenant farmers, renters and untitled owners, since overall returns are higher and inputs less capital-dependent.

6.40 The Kalikonto watershed project in Eastern Java has a relatively long experience in watershed development compared to the Bank-assisted projects. It has increasingly put emphasis on components that increase the overall income-generating opportunities in the watersheds, whether on the targeted fragile lands or not, rather than focusing exclusively on treatment of degraded lands per se. This project has begun focusing on cropping systems with a higher return for mixed and home gardens, on the premise that this may encourage adoption of more agro-forestry in other dryland plots and that this may provide enough income to re-orient some marginal farmers towards heavier agricultural investment and less dependence on off-farm employment.

6.41 Non-government organizations involved in watershed development programs in India are also giving more attention to generating a menu of improved technological options for rainfed plots. Programs by Samanvita and Agrame, two organizations with programs in the tribal districts of Orissa are promoting agro-forestry models that provide an increased and steady source of income from tree crops intercropped with seasonal crops. These NGOs are supplementing technical advice with support to improve farmers' marketing strategies for their produce in order to increase the returns to the farmer. The SALT models being implemented in the Philippines in Central Visayas and elsewhere (para. 6.14i) also have a strong focus on quick-return conservation techniques, such as planting of vegetative materials on contours that generate valuable and continuous supplies of fuel and fodder, as well as stabilizing agricultural lands. The research being conducted by the farming system research group in Java (KEPAS) for watershed projects increasingly stresses the key role that fodder generation plays as an incentive for the adoption of vegetative techniques for soil conservation. In the Indian Deccan villages where vetiver grass hedges have traditionally been used as field boundaries farmers benefit not only from the leveling of their fields, but also cut the hedges fortnightly as fodder for their cattle (Greenfield, personal communication).

6.42. The main conclusions of this review for soil and moisture conservation measures on private lands are that:



- (a) the economics of many interventions have not been clearly determined, with the result that the technologies promoted may not generate adequate incentives on land under secure tenure, and may fail completely for land without secure tenure,
- (b) monitoring adoption rates by collecting information only for two categories of tenure, namely, owner-cultivated land and tenant-operated land, is conceptually inadequate to draw valid conclusions about how tenure affects land improvement,
- (c) promoting technologies appropriate to a farmer's tenurial status is more likely to improve conditions in the watershed than implementing government policies of land redistribution or land consolidation, and
- (d) the effect of titling programs on the adoption of improved practices although not systematically documented, indicates that titling is important for the promotion of tree-planting on privately-cultivated land.

C. Measures to Increase the Incentives for Private Cultivators on Public Land

6.43 Where cultivators have laid claim to public lands for agriculture, tree planting, or pasture, the policies for watershed development have either sought to evict them, to introduce private land titling, or provided them limited-use contracts/stewardship contracts to the land while maintaining ownership of the land by the State. Experience with these contracts as an incentive to more sustainable cultivation practices has been mixed. Evidence to date suggests that contracts can be effective when provided for an adequate length of time and when the terms of the contract provide the cultivator with rights of transfer and potential use of the contract as collateral. The effective programs issuing these contracts have been those that included:

- (a) adequate support services in the form of good technical extension,
- (b) adequate dissemination of information about the contracts, and
- (c) informal mediation among potential claimants of the lands in question.

Stewardship or Limited-Use Contracts on Public Lands

6.44 In South East Asian countries (Philippines, Thailand) where large tracts of steep land under state ownership (usually under the jurisdiction of the forest department) have been converted to shifting or permanent agriculture in response to increasing population pressure issuing fixed-term limited-use contracts to individual cultivators has been a popular strategy. The strategy is intended to:

- (a) control further in-migration;
- (b) provide an incentive for more sustainable practices; and



- (c) keep fragile lands under the jurisdiction of the government so that, at least in theory, more control can be placed on land uses that are permissible.

6.45 Evidence available suggests that contracts only provide tenure security when given for an adequate time period so that farmers are willing to try long-term strategies that entail risk, such as agroforestry (Philippines, China) (Tingfu and Zhen, 1988). In the Gansu provincial project in China the terms for pasture leases have been increased several times by the government in response to the lessee's dissatisfaction. At present the lease is a 99-year use contract, renewable on the basis of sound land utilization during the original tenure of the lease and completely transferable to heirs. On the basis of the Philippines environmental study (fFARM), the Department of Environment and Resources in the Philippines has recommended that the 25-year renewable stewardship contract for public lands be extended to a 50-year period, with the option to convert this certificate to a bona fide land title if sustainable land-use practices are adopted by the cultivator during the tenure of the lease (World Bank fFARM, 1989).

6.46 It is important to be cautious in drawing conclusions about the effectiveness of stewardship contracts in encouraging more sustained land-use practices. As in the case of private land tenure, a cultivator's perception of security is subtle and depends upon the social and political climate of the country. In Northeast Thailand, for instance, a study of stewardship contracts found that the tenure security aspect of the contracts was not very important to the cultivators since they had long-standing occupancy rights in these lands and did not feel threatened with eviction. These cultivators were dissatisfied with the contracts because their primary interest was proof of ownership that could be used for collateral or for legal transfer of their rights by sale or inheritance (Feder, 1988).

6.47 One general principle in land tenure literature that is applicable to stewardships for public lands is that punitive measures to ensure proper land-use patterns are much less effective than rewards (Young, 1987). This is part of the rationale behind the suggestion in the Philippines that cultivators have an option to establish formal title to lands under stewardship agreements if they have maintained a sustainable land-use.

6.48 When evaluating the limited-use contract it is important to bear in mind the several purposes title to land serves which include, security of ownership, recognized right of occupancy, proof of ownership for use as collateral, and the legal right to transfer ownership through inheritance or sale (para. 6.20). Cultivators on public lands may value a stewardship contract only if it also bestows these four benefits. There is no example of a stewardship program being effective where the only benefit was recognized right of occupancy. In part this is due to the fact that cultivators have equal interest in the other aspects of titling; in part, to the fact that cultivators only believe the government is serious in allocating rights when these aspects are present. Cultivators may already have greater faith in their customary rights of occupancy due to their length of occupancy.

6.49 Mediation. Studies stress the importance of providing adequate information to clients about the stewardship contracts when these are being



promoted (Feder, 1988, World Bank fFARM, 1989, Hoare, 1986). Programs carried out by the Bureau of Forest Development in the Philippines (para. 6.41) relied upon mediation between individuals claiming rights to the same lands (commonly referred to as a 'pseudo- landlord/tenant' situation) (Seymour, 1985). Mediation has led to informal guarantees by pseudo owners that cultivators will benefit from land improvements. This mediation is less threatening to the existing power brokers, yet seems to be simultaneously increasing benefits to cultivators, who can now adopt more sustainable practices.

6.50 Tree Tenure and Incentives for Planting Trees. The failure of tree tenure programs in India is a good example of the failure to provide adequate rights in lands allocated or to provide mediation by government authorities. A program was implemented in West Bengal, India (para. 6.14e) to encourage farmers to plant trees on marginal lands allocated on 99-year unlimited-use leases as part of a land redistribution scheme. These lands had not been used by the beneficiaries for agriculture because it was too degraded to support crops. Tree planting proved to be a profitable alternative. This program, locally dubbed "group farm forestry" because of the joint responsibility taken by blocks of farmers for protecting the trees, was extremely successful (WB supervision reports, Molnar, 1986, Shah, 1986). Other states who did not have active land reform programs tried to emulate the scheme, which they called tree tenure, by giving landless cultivators plots of government land to be used specifically for tree-planting. Unlike the West Bengal leases which allowed individuals to do anything they wished with the land, including undertake agriculture, in other states the lease was limited to tree planting and the lease period confined to the life of the plantation. The program has been a near total failure in the other states. The social climate is not conducive to enforcing the rights of poor individuals given plots. Cultivators are suspicious of what they see as an overly-short lease and fear the forest department is trying to establish plantations with cheap labor, and will terminate the lease before they can benefit. Powerful landowners have laid claim to relatively fertile lands distributed under the scheme and established pasture, commercial orchards, or agricultural crops. Poor cultivators have no collateral so are limited to a few government loans for very restricted choices of inputs. Unlike the certificates in West Bengal the leaseholds are only for tree planting and cultivators have been forbidden to intercrop with cereals, for fear powerful villagers will lay claim to the better wastelands if agriculture is permitted. Nor are the leases transferable if the cultivator decides to migrate or seek other employment at a future point in time (USAID/World Bank, 1988). Data collected by the Government of Uttar Pradesh for example, showed in 1988 that only 8 out of 600 allottees were actually planting trees on their land in that state.

6.51 Some NGOs have established good group plantations on wastelands allocated to them under this program but they are successful largely because of the social pressure these NGOs place on local elites to protect the groups from power brokers competing for access to these newly-productive lands. However, the NGOs have not been successful in helping groups receive formal lease-certificates for these wastelands, since the legal procedures are formidable and not well understood by government personnel. There is potential to expand the NGO programs, but only if the government streamlines procedures and provides some checks on local power holders.



6.52 It is important also to recognize that tenure on stewardship lands can be as fluid as on private lands. If new technologies are introduced on lands with effective stewardship contracts this may not prevent a repetition in time of the complicated tenant/sharecrop/mortgage arrangements found on private lands. Recent studies in the Philippines (Cornista, \_) indicate that the complex tenurial arrangements found in the lowlands are being replicated in the uplands, extending to the informal trading of stewardship contracts and establishment of owner-tenant relations. While the importance of stewardship contracts as a means of increasing the incentives for sustained land management should not be underplayed, the need for better technological options will always remain. Technological recommendations for contour hedges, fodder production, agro-forestry, and improved cropping patterns must be tailored to a range of tenurial arrangements so that a majority of farmers in the watershed can participate.

#### D. Common Property Resource Management Strategies on Common and Public Land

6.53 Integrated watershed development projects equally involve stabilizing the non-arable lands that are under the jurisdiction of forest or other government departments and village common land. Often these lands are important for supplying fuel and fodder needs of the local population and are under considerable pressure from high human and animal populations. The general consensus is that in situations of high population pressure it is almost impossible to manage state lands by excluding local people. Projects are therefore exploring a variety of systems for involving local people in the management of these as well as common lands. Past evaluations of the Bank's experience in South Asia in promoting common property resource management (CPRM) on village lands, state revenue lands, and forest lands have been generally pessimistic (Naronha, 1985, National Social Forestry Appraisal Report, 1985, Uttar Pradesh and Gujarat Project Completion Reports, 1988, Blaikie, et. al., 1987, Ljungman, McGuire, and Molnar, 1986). The conclusion has been that strategies fail due to the heterogeneity of the communities and their control by a small group of elites, the breakdown of indigenous systems in the face of population pressure and market orientation, the privatization of many Common Property Resources (CPRs) by industries and encroaching farmers, and the lack of equity in distribution systems for products.

6.54 Recently the tide of opinion has begun to turn. More positive experiences in CPRM are being documented on both common and state-owned lands and projects are becoming much more sophisticated in their approach to and understanding of the dynamics of CPRM (Stewart, 1988, Campbell and Dani, 1987, Arnold and Campbell, 1985, Guhathakurta, 1989, Brara, 1987). A recent paper (Magrath, 1989) questions existing economic theories of nonexclusive resource allocation. What is striking about the new literature on CPRM is that the principles for effective management that are being defined now directly contradict the basic elements of CPRM strategies promoted in early forestry and watershed development projects. Successful CPRM interventions in India and Nepal have had the following characteristics:<sup>4/</sup>

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<sup>4/</sup> Results of an informal workshop on Common Property Resource Management, New Delhi, India, February 1989.



- (a) management that rests with a local users' group, building on both customary and formal institutional arrangements (regulating long-term access, use and protection of the resource);
- (b) publicly acknowledged rights and duties of the users for the CPRs in question (in terms of Table 1, ability of the users to make development or utilization decisions),
- (c) a regular flow of outputs that are valued by the users i.e. at least an annual flow of produce, not merely a one-time harvest (in terms of Table 1, this is the percentage of returns accruing to the user or group of users);
- (b) distribution system that reaches a diverse population but does not exclude the interests of the powerbrokers in that community (in terms of Table 1, percentage of returns to different categories of users), and
- (c) protection system that has clear easily enforced rules of compliance (in terms of Table 1, this would be the ability to protect the land from outsiders).

6.55 It is interesting to observe that all of these characteristics were missing from the original social forestry models for Indian woodlot establishment. In this case management was given to an artificial political body with no customary management responsibilities, rights and duties were only known to a few key village leaders, a one-time harvest was planned, distribution of products was skewed away from local power-brokers, and the protection system was alien to local customs and difficult to enforce by local people. Table 2 compares the extent to which different project models have adhered to the criteria outlined above. The more successful models outside South Asia, have incorporated characteristics that fit some of these general principles of viable CPRM. While this is not to say that the problems of CPRM and sustained management of state lands in upland catchments have been solved, it indicates that the basic principles and how to apply them to individual circumstances are beginning to be clarified.

6.56 In comparing the results in Table 2 with those of Table 1 in terms of the attributes that have been identified earlier for privately cultivated lands (para. 6.20) only the ability of transfer is not dealt with explicitly by the above criteria. However, even this aspect is often included in effective CPRM. Local management by users often carries with it the guarantee of transfer of rights over those resources to future members of the group (heirs), unless community rights are preempted by leasing of public lands for industrial purposes, other development purposes, or to a formal cooperative for development. A major lesson learned from the South Asia CPRM experience is that functioning systems of CPRM do not generally provide equal returns to all users. That is to say, distribution of benefits tends to be skewed toward the elite and vested power-brokers. Effective systems are those that provide substantial benefits to both resource-rich and resource-poor individuals, not necessarily equal benefits to both. In addition, systems must grow out of the particular socio-political context of the project area in which they are to be encouraged, rather than fit an ideal type of CPRM.



Table 2: CHARACTERISTICS OF SOME PUBLIC LAND MANAGEMENT INTERVENTIONS

Project	Criteria				
	Locally devised rules and regulation for protection	Agreements understood by all parties	Fluid, local user groups	Distribution system not excluding powerful	Regular flowing outputs
National Social Forestry Project (d) Woodlot Component	No	No	No		No
Ford Foundation/State Forestry Corporation of Indonesia <u>taungsa Humpangsau</u> (C)	Sometimes	Yes	Yes	No	Yes
FOSs (Forestry Associations) in the Philippines in Central Visayas Project (CURP) (I)	No	Yes	Yes	Yes	Yes, so far
Community Forestry Project in Nepal (hills)	Yes in new phase	Planned in new phase	Yes	Yes	Yes in existing forests
Village Forestry - China	No	Yes	Yes	Yes	No
Sukhomaejiri Model in Hanjana of Village Resource Management Societies (G)	Yes	Yes	Yes	Yes	Yes



6.57 Definitional Issues for CPRM. Before evaluating the measures that have been tried in different categories of public lands as outlined in Figure 1 and 2, it is relevant to discuss some definitional issues for understanding CPRM. Just as land tenure issues on private lands have been confused by the mixing of discrete tenure categories when examining incentive structures so discussions of tenure on public lands have been confused by the lack of clear definition of CPRM. In this paper CPRM extends to all categories of public lands as well as to the management of private lands by communities under particular circumstances. CPRM can occur on agriculture fields that are fallow and used by the villagers for common grazing. CPRM can occur on state forest lands that are under forest department jurisdiction and used to produce commercial wood for government revenue and to meet national needs.

6.58 In south India agricultural fields are considered private land during the period of seasonal cultivation, but after harvest become common village grazing lands regulated under a system of village management until the next planting period (Wade/1988). State forest lands with timber can be CPRs insofar as they are used in a regulated fashion by villagers for grazing purposes and extraction of dead or fallen fuelwood and timber. Likewise common lands can include private property. In Kashmir trees traditionally planted on village commons are considered the property of the planter, although fallen wood and leaves belong to the villagers collectively. In Pakistan, village "commons" can belong to all residents or be the exclusive property of the landed families in the areas with traditional grazing rights (Cernea, 1985). In Bhutan, high pastures shared by different winter and summer herders are privately owned by a particular set of herders only by season, not year round. Although these herders do not legally have title to forests adjacent to their pastures, they cannot be denied grazing access to them by the forest department.

#### Legal, Institutional and Productivity Issues

6.59 Three aspects of CPRM require analysis in identifying a potential strategy for watershed development on public or common lands. The first is the legal aspect: what is the formal legal status of rights in a particular resource and how do these relate to actual use. A second is institutional: what are the formal and informal institutions that govern use, access, management, and development of that resource. The third concerns the potential productivity of the resource: what are the range of products that can be generated in this resource.

6.60 A Legal Framework for CPRM Analysis. One means of securing a group's ability to protect CPRs, develop them, and increase their returns from such resources is to strengthen their legal rights of access, use, and control over management decisions vis-a-vis other users, or the government authorities having some jurisdiction over these resources. For this reason, legal rights and rules governing tenure and use of CPRs have become a key issue to be examined in the design of watershed management projects. Few countries have a consistent set of rights and obligations for users of such resources. There can be conflicting rights over a CPR each valid from a different legal standpoint. Where customary rights pertain these may be equal to or have precedence over the formal rights prescribed by law. When designing measures to encourage CPRM it is important to analyze correctly the inter-relation of



conflicting tenurial claims to a piece of land and for different purposes. A common mistake is to limit the analysis of the legal situation to only certain aspects of CPRM. Where the desired intervention to strengthen management by a community of users is a legal one the correct point of legal intervention must be well understood.

6.61 A Legal Typology.<sup>5/</sup> Legal rights governing the use of a piece of land can be legally present at any of five distinct levels, namely (a) customary or traditional rights at the social custom level (e.g. village grazing rights, tribal forest rights); (b) administrative orders regarding use of lands (e.g., forest department rules concerning collection of headload fees or forest closure orders); (c) court rulings regarding existing legislation, (d) state and national legislative statutes regarding the rights over lands (e.g., the Indian Forest Conservation Act); and (e) constitutional law regarding citizens rights in land.

6.62 Conflicts over use rights occur because there is a discrepancy in the rights at two or more different levels. To identify the proper measure to strengthen CPRM, it is often necessary to identify the key areas of conflict and take legal or policy steps to alleviate them. It is important to understand at what levels the conflicts rest and to identify the measure to address that conflict. At each level outlined above, the solution will be different. The solution to weak CPRM may rest upon the formal recognition of existing customary rights (local level 1), or may require changing forest department regulations (Administrative level 2), or there may need for a formal change in the state forest legislation (state law level 4).

Table 3: A Legal Typology of Tenurial Rights

1. People	----- Customary Law -----
2. Administration	----- Govt. Orders -----
3. Courts	----- Legal Cases -----
4. Legislative Bodies	----- Statutes -----
5. Legislative Body - National	----- Constitution ----- - -----

6.63 For example, a study of village grazing patterns in central Rajasthan, India revealed a three-way conflict resulting from the claims of traditional village users of the grazing lands, of panchayat officials entrusted with responsibility for these lands as the smallest unit of state administration, and of private individuals who had encroached upon these lands

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<sup>5/</sup> Presentation on legal issues by Chatrapatti Singh at a Methodology Workshop on Common Property Resource Management, New Delhi, India, February 1989, sponsored by USAID, WB, and Development Alternatives (India).



over time. When these disputes led to court cases there was a range of variation in their resolution. While the more common ruling was to give decision-making power to the panchayat, recent rulings upheld the traditional rights of villagers to retain control of these lands for grazing. Thus, villagers were gradually losing control of grazing lands to panchayats and private individuals not due to a lack of tenurial rights, but their lack of awareness that the courts had a precedent for ruling in their favor if they sued. The way of strengthening CPRM in this instance might take the form of encouraging villagers to take court action and simultaneously disseminate information to judges trying such cases about the legal precedents.

6.64 The dilemma of community woodlots in Indian social forestry programs stem in part from the differing perspectives of the government implementing the program and the local population regarding tenurial rights over the woodlot and the responsibilities stemming from those. When a panchayat gave permission to the forest department to establish a woodlot on village grazing land, with an agreement that the forest department would recover its costs at the time of harvesting each party saw the agreement differently. To the panchayat it was much like renting the land out to the forest department on a 50/50 share basis since cost recovery usually led to this division of profits. To the local village it meant losing grazing land to the panchayat and the forest department with no assured returns to the village. To the villager admonished by the forester for grazing his cattle inside the enclosure, it was evidence of the forest department's assumption of tenure over the land, even if on behalf of the environmental needs of the villager. To the forester, it was panchayat and village land, and the people were responsible for protection. Thus no local sense of responsibility for protecting or maintaining the plantation developed in the direction of sustained CPRM. Rather than reinforcing local village conceptions of CPRM which had been undermined by population pressure, the woodlot model introduced a new arrangement for which no one had clear responsibility.

#### CPRM Measures adopted in Different Categories of Public Land

6.65 Improved participation leading to enhanced CPRM has been successfully encouraged by two sets of measures, namely, strengthening tenure arrangements and providing incentives. Measures to strengthen tenure include: (a) formally recognizing local people's rights of access to public lands, sometimes with written agreements (woodlot agreements in the Indian National Social Forestry Project, forestry management plans in the Hills Community Forestry Project in Nepal); (b) transferring control over resources to local groups of users or political authorities; (c) instituting systems of joint management and cost-sharing of final product between local users and government agencies; and (d) extending leases to cooperatives or associations for forest or pasture development (Forestry Stewardship Associations in the Philippines). Incentives provided for CPRM include (a) designing technologies for forest and pasture land development that yield on a regular basis locally-valued produce (Indian models, State Forestry Corporation taungya model on Java); (b) linking provision of small irrigation structures with catchment protection by local users (Haryana, India experience); and (c) supporting the participation of tribal groups and other traditional forest users in small-scale forest-based enterprises.



6.66 Interventions in State-Owned Forest Lands. State-owned forest lands fall into the following categories from the perspective of traditional common property resource rights.

- (a) undemarcated forests, to which people often have traditional use rights for subsistence products;
- (b) production forests, which are lands allocated for timber production, and generally more restricted to local people;
- (c) reserve forests, including parks and reserves, which are closed to local people (although tribals may have customary and conflicting claims to these areas);
- (d) forest lands of all categories which have been put under shifting or permanent agriculture;
- (e) forest lands allocated on concession or lease to industries, cooperatives, associations, etc. (pulp industries in India, forestry associations granted stewardship contracts in the Philippines, village resource societies with grass leases in Haryana, India)

6.67 Forest land demarcation in India and Indonesia tends to follow patterns set up during the colonial administration with the result that many customary rights have been revoked in law and others remain ambiguous. The situation is complicated in India by the fact that some areas remained princely states up to independence and in these areas customary rights were never legally overridden at independence.

6.68 Transferring Control over Resources to Local Communities. In Nepal, where few forests have been demarcated or reserved, the policy for improved forest management is to transfer control for local protection and management to communities over two categories of government forest lands: those rehabilitated through plantation and those already-forested lands near villages. In many areas this is simply legalizing an already existing traditional system of common property management, and thereby providing more encouragement for it to continue. This policy reverses an earlier one (1957) which had transferred control over all forest areas to the state in an attempt to arrest deforestation resulting from rapid population growth. The first step in the change transferred management to the local administrative council, the panchayat, with a forest committee organized to handle the management of the forest area. It is now proposed to transfer management to a more organic user's group, namely the village with traditional rights of access to the forest for their subsistence needs. With this change the role of the forest department would shift from manager to adviser: assisting the local community to develop a sustainable management plan for the existing or newly-created forest and providing technical guidance on silvicultural matters.

6.69 Cost-Sharing. Transfer of resource control has been successfully on a broad scale in West Bengal, India. The state forest department has experimented with a cost-sharing model for producing timber in natural but degraded sal forests with local cooperation. Villagers agree in a contract that in exchange for protecting growing timber they will be employed in singling



operations to cut all but the main shoot from degraded sal stands, receiving concessional prices for the discarded stems. They are assured a fixed share (25%) of the final harvest distributed in cash and have access to the forest for supplying their needs from fallen wood, grass, and sal leaves (which can be a major source of income when sold in local markets) (Guhathakurta, 1989). This model has been so successful that now about 150,000 hectares of regenerating sal forest is being managed in this fashion. Several other state forest departments, are planning to implement a similar model.

6.70 Increased Rights Over Produce. Cost sharing is matched in the social forestry plantation areas under forest department tenure to substantially increase local rights over produce from newly-established forests. In all Indian states with social forestry programs government orders regarding the concessionary rights of local communities have been revised to provide increasing amounts of produce to surrounding villagers, either through the panchayat by auction or by allowing more collection of intermediate produce. In addition, new technologies are being tested that are directed more towards environmental enhancement than timber production and provide a range of forest products needed by the villagers. Emphasis is being placed on silvipastoral plantation models which produce fodder for stall-feeding animals, as well as trees. More use is being made of shrub and hedge species that stabilize the soil as well as provide a regular source of medium-quality, but continually accessible supply of household fuel (USAID/World Bank, 1988).

6.71 Increased Tenure Rights in the Taungya Model of Afforestation. In response to a very low success rate in afforestation of production forest lands in Java (under the jurisdiction of the forest corporation, the government in cooperation with Ford Foundation has been experimenting with a model that the corporation has recently decided to adopt on a broad scale. The model increases tenure rights of forest laborers working in afforestation schemes by allocating plots, and allowing them to plant crops of grass and fruit trees between rows of timber and pulp species for their own profit in addition to initial seasonal crops planted before closure of the canopy (Peluso, 1988). The system from the cultivator's perspective is somewhere in between a stewardship contract and a cost-sharing model.

6.72 As can be seen in Table 2, there are a number of elements of this scheme that emulate the principles emerging for successful CPRM in South Asia. There is a sustained flow of benefits initially from the seasonal crops, then from the rows of fodder, and eventually from fruit. The plots have been strongly targeted to marginal villagers in the pilot program but on a broad scale it is likely there will be considerable opposition from better-off villagers if they are de facto excluded from access to plots. Rights and responsibilities are clearly defined for the plot holder and the foresters. In some areas there has been an increase in rights in nearby nonproduction forests since foresters have stopped enforcing restrictions on gathering minor forest produce in villagers involved in the new scheme (Sri Palupi, 1989). This appears to be a conscious effort to change the relationship between village and forest department and this has strengthened villager confidence in the program. One of the issues raised as a consequence of the scheme is what should be villager rights of access to other forest lands. Should the government consider the income-generating potential of other forest lands or continue its present policy of exclusion, except under the limitation of the



model? A recent paper argues for the former in forest areas adjacent to parks and reserves so that these areas can realistically serve as a buffer zone for protection (Wells, 1989). This is also a contention of the Kalikonto watershed project staff in East Java (para. 6.46), which is tackling similar forest, land-use issues (Jacques Berns, personal communication).

6.73 Leases to Cooperatives and Associations in Forest Land. There are two models for extending leases to cooperatives and associations in the cases studied. One is in the Philippines, Central Visayas Rural Development Project, in which groups of upland residents who had been illegally exploiting forest lands for timber in areas of extensive in-migration were given legal stewardship over these lands for afforestation purposes. The residents of the area are organized into associations (FOSAs). They establish tree nurseries and plant forest lands with timber and fuel species for which they have exclusive rights of harvest within the terms of the 25-year renewable lease. Initially, the associations are allowed to harvest the remaining timber on these lands in a controlled manner to generate income in the early stages of the FOSA. Since most FOSA members have some agriculture land as well, the project also provides tree seedlings to members to encourage tree planting as a more sustainable land-use practices, along with SALT technologies promoted in less steep arable sites. These FOSAs are quite new, and as yet there is not clear information to judge their future viability. These models need careful study, particularly from the standpoint of costs and benefits, as an alternative model to private or village management of resources.

6.74 The second model comes from Haryana state, India. A Ford Foundation-assisted program for degraded watershed near Chandigarh, developed small-scale water harvesting structures for irrigation in combination with Village Resource Management Societies created to manage the upper catchment and the flow of water into the harvesting structure. The lands in the upper catchment are state forest lands previously leased to contractors for grass harvesting. In the model the societies have purchased lease rights from the forest department for the grass. Grass is used for rope-making and as fodder. Given the proximity of these watersheds to the city there is a good market for milk and dairy products and villagers have a strong incentive to protect the catchment for grass production. An analysis of these societies has shown that in many of the sites the water harvesting benefits are quite small because of limited collection potential, and that the benefits from grass are more promising. Irrigation structures provide an initial strong incentive for village participation and mobilization, while it is the grass management that offers the most sustained returns to the village population as a whole. (Stewart, 1989; Stewart and Arnold, 1989). Even though the irrigation facilities created are limited and do not reach the majority of villagers they serve as a strong incentive for protection of the catchment by all villagers, including those without irrigation facilities. This is the case even where the returns from grasses and resulting fodder production are actually greater than from the water. The Haryana model is a good example of policies of management that introduce rewards for good management rather than punishments for poor management are much more likely to result in the desired behaviors (para. 6.50).

6.75 Facilitate People's Participation in Small-Scale Forest-Based Enterprises. Although this measure has to date largely been ignored (Annex 1,



Figure 2) recently the potential to increase income of local people through support of small-scale forest-based enterprises has been developed. In natural forests which traditionally supply a range of nontimber forest products (NTFP) more attention is directed to income generation both from collection and sale of products and by providing better access to markets and encouraging their greater participation in value-adding processing activities. In villages participating in the cost-sharing model in West Bengal sal forest rehabilitation women have begun to earn substantial income from NTFP.

6.76 A similar approach is being recommended in Java in several projects, for example, areas under taungya afforestation schemes (para. 6.71). Indian social forestry projects have increased attention to NTFP, such as medicinal plants, but the focus has been on producing the products not on marketing or processing them to generate maximum income to local people. One NGO has started an experimental industrial estate which will support a small village with enterprises drawing raw materials from a nearby plantation on government revenue land.

#### Overall Land-Use Strategies and the Importance of CPRM

6.77 Reserve forest areas are often under pressure from shifting cultivators, nomadic and sedentary graziers, timber contractors, poachers, tribal hunters and gatherers, and commercial extractors and traders of minor forest products. Measures to strengthen tenure security for surrounding populations in public lands provide incentives to these populations to help sustain this resource, to help protect it from over-exploitation by competing users, and to add to the supply of forest and fodder products needed in the local and national economy. There is considerable public debate in the countries studied regarding the optimal land-use solutions for degraded public lands or those in danger of degradation: the more radical argue for protection of designated natural forest areas from exploitation for commercial or industrial purposes. In all the cases examined in this review watershed development requires a combination of options depending upon the status of public lands and the overall pattern of land-use in the watershed as a whole. There is considerable competition among users of public lands both those designated as "buffer" areas, as well as areas designated by the government as "closed" to the local people. Given the extreme population pressure on public resources in Asian countries there is little likelihood that simply "closing" resources will be effective. Even in areas with biosphere reserves the only effective approach seems to be one that concentrates on meeting the needs of the surrounding population for income, employment, forest products, and livestock fodder. (Wells, 1989)

#### Tribals and Land Tenure

6.78 A complex and controversial issue in public land management is the extent to which tribals residing near traditionally important forest reserves should have rights of access and control to these resources. Until now most Bank projects have concentrated their interventions outside areas inhabited by tribals and have not tackled this issue in any comprehensive fashion. Some social forestry programs in India have included rehabilitation of forests traditionally exploited by tribals. These programs have acknowledged tribal right of access to forests for produce traditionally collected by them but



have not made any attempt to recognize their customary rights to land classified as under forest. The Indian forest legislation at state and national level has been given precedence over the rights held by tribal groups through customary law. Indian forest policy has guaranteed tribal groups access to non timber forest products though this has not always occurred in practice due to the control of marketing and processing of commercially valuable products by outsiders. Tribal communities have been given shares of the final timber harvest in West Bengal and Gujarat. In both cases, this has not been an acknowledgement of any customary land rights, but instead, attention to their social welfare and income needs as well as an implicit compensation for their labor input in plantation maintenance and protection.

6.79 It is important that Bank staff consider this issue in terms of watershed development policy and project design. Bank guidelines on indigenous peoples and development expressly state that "the Bank will not assist development projects that knowingly involve encroachment on traditional territories being used or occupied by tribal, people, unless adequate safeguards are provided." In south east Asia, the question of tribal rights to forest lands is most marked in areas of low population pressure (outer islands of Indonesia, Papua New Guinea), and has been raised in the Philippines for the islands where tribal communities exercised traditional adat <sup>6/</sup> rights over lands, now under conflicting pressure for conservation and from nontribal immigration.

#### E. Conclusions and Implications for Watershed Development

##### Implications of the Review for Future Project Design

6.80 The following recommendations emerge from the review of land tenure:

- (a) The relationship between land tenure and the adoption of soil and moisture conservation practices would be strengthened by more analysis of the economics of these measures vis-a-vis different categories of tenure and economic status (on and off-farm).
- (b) Measures to strengthen land tenure rights can be effective incentives for the adoption of soil and moisture conservation practices. They must be adopted, however, within a favorable political climate with an adequate bureaucratic capacity to implement the desired programs.
- (c) Planners must be clear as to what they wish to achieve for the cultivation through measures to strengthen tenurial rights: opportunity to capture the benefits, access to credit and services for which collateral is a pre-requisite, or guaranteed access to particular products from the land concerned. Strengthening tenurial rights may not be the only way to provide these. Alternative interventions such as providing credit sources that do not require land as collateral, changing legislation regarding rights to products, or providing cash subsidies as an incentive to investment are all potentially sound interventions where tenure security is not the only issue.

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<sup>6/</sup> Indigenous customary land rights.



- (d) The policy framework for establishing tenurial rights for government-owned lands is not yet adequate to encourage sustainable utilization of these lands in any of the countries studied. There are often conflicting claims over a particular land resource, which hinders effective management. The degree of access that should be provided to local watershed residents has not been clearly analyzed in light of local needs for grazing, forest products, and employment. Tenurial rights for tribal residents of watershed areas are particularly controversial. Considerably more work in defining the Bank's own policy recommendations -- similar to that done in the Philippines in the FFARM study -- needs to be done by the Bank in the region as a precondition to watershed development.
- (e) More study is needed of the past experience in encouraging cultivators with different tenurial status to adopt soil and moisture conservation practices in watershed development projects. In particular, it would be valuable to analyze the Moroccan experience with land consolidation, the Yogyakarta land titling component, the adoption of improved measures by tenurial status for a small sample in the Upland Agriculture project in Java, and to conduct a special study of land tenure as an incentive for private land development in the proposed integrated watershed development projects in India.
- (f) There appears to be greater potential for encouraging sustainable common property resource management on different categories of public lands than has been recognized in the past. Some general principles have emerged from the Bank's experiences that can be applied with confidence in future projects and which deserve further testing in on-going or future projects.
- (g) The pressure on public resources is such that it is impossible to close these lands to local communities, except for small areas designated as biosphere reserves. Either these lands should be privatized and individual users encouraged to adopt sustainable land-use practices, or they must be managed with different degrees of involvement of the local population.



Table 1: ATTRIBUTES OF PARTICULAR TENURAL ARRANGEMENTS RELEVANT TO ADOPTION OF SOIL AND MOISTURE CONSERVATION TECHNOLOGIES AND PROPOSED INTERVENTIONS

Tenure Category	Guaranteed Long-Term Access to Credit/Capital to land (security)		Ability of user to make development decisions	Ability to protect land from owners	Percentage of returns to user of land	Ability to transfer rights of ownership
Privately-owned with title	High	High	High	High	High	High
Privately-owned without title	Medium	Medium	High	High	High	Medium
Leased in from relative	Low	Medium	Medium	High	Medium	Low
Fixed renter from unrelated owner	Low	High if owner contributes	Low	Medium/high	Medium	Low
Sharecropper from resident owner	Low	Low (Medium if owner contributes)	Low	High	Low to medium	Low
Sharecropper from absentee owner	Low	Low in general	Low	High	Low	Low
Private cultivator on public lands	Low	Low	High	Depends	High if not paying rent to pseudo-landowner	Low
Perum Perhutani model of longer taungya leases - Java	Medium	High	Medium/high	Low/medium	High	Low at present
Forest associations (FOSAs) Philippines	Medium	High	Low	Medium	High	Low at present
Local grazier on village commons land	High	Low	Low	Depends on management system	Depends on management system	Depends on management
Local grazier on state revenue lands	Low	Low	Low	Low	Depends on management	Depends on management
Tree tenure leases on state revenue land (India)	Medium	Low	High	Low	High	Low
Cost-sharing of forests giving user protection duties (West Bengal, India)	High	High	Low	High	High (could be higher if products expanded)	High within village
Recognizing customary rights over forests	High	Low	Depends on for department/village relationship	High	Can be high	High within village



Figure 1: MEASURES TO STRENGTHEN TENANTIAL RIGHTS INCREASE INCENTIVES IMPROVED LAND USE  
(AND WHAT PROJECTS HAVE APPLIED THEM)  
BY TENANT TYPE

Type of measure and where tried	Private owner operator-titled	Private owner operator untitled	Category of Holder and Tenurial Status of Land Both Privately and State-Owned				Private cultivator public lands	Community-owned grazing/forest land	State owned revenue lands	Forest Dept Owned undermargined land	Forest Dept Owned production lands	Reserve areas (including parks)
			Leased in relative	Leased in fixed rent	Lease in sharecrop	Leased into absentee owner						
Issue private land title certificate to cultivator		Yogyakarta II-Java  Horticultural Scheme-Java					West Bengal Group Farm Forestry  Thailand Program  Philippines under IRR along					
Land consolidation	Meknes AQ Sector Project - Morocco Very difficult to implement		<u>Dual Effect to Increase and Decrease Incentive</u> Decreases amount of leasing out and increases owner-operator category where not clear political will or good implementation tenant-owner relations worsen and long-term strategies are not taken									
Land reform												
Written tenant agreements			Not effective in most countries in encouraging long term tenant strategies unless clear political will									
Stewardship/limited-use leases							CYRP - Philippines HASD- Thailand Red Soils - China Jyngau - China	Tree tenure in India - excluding West Bengal				
Tenancy leases for forest lands							Perum Perhutani - Ford Foundation Java			State Forestry Corporation/Ford Foundation Java		
Recognize communal informal rights							NSFP - India Indian Social Forestry -	NSFP - India	Integrated Watershed Development Projects - India Proposed			
Transfer control over resource to local users							NSFP - India China Afforestation		Hilla Forestry II - Nepal Sulchowajri Model - Maryana Hill Forest Program Nepal - ADB			
Recognize tribal rights to:												
- Produce - Share of timber - Land under forest							India Forest Act and Tribal Policy West Bengal Cost-Sharing Model of Forest Regeneration Pacific Islands/Papua New Guinea					
Sharing of produce between Forest Dept and local population living adjacent to resource							India Social Forestry Models of Original Wood Lots		India Social Forestry Programs in Various States			
Tree tenure for women cultivators	In Africa used to give women incentive to plant trees on husband's lands											
Reallocation of lands to local user groups as cooperatives through lease or titling									NDB program to female NDBs landless NDBs			
Give population more control over small forest-based non-timber and processing industries									NDB efforts on NDBs-allocated wastelands - India	Isolated NDB efforts in all study countries Has not been tried in most programs as yet		



Figure 2: TYPES OF TECHNOLOGIES AND ALTERNATIVE MEASURES TO INCREASE THE INCENTIVES TO ADOPT IMPROVED LAND USE PRACTICES BY CATEGORY OF LAND

Types of measure	Category of Holder and Tenurial Status of Lands (Both Privately and State-Owned)								Community-owned grazing/forest land	State owned revenue lands	Forest Dept Owned undermercatized land	Production Forest	Reserve land (including parks)
	Private owner operator-titled	Private owner operator untitled	Leased in relative	Leased in fixed rent	Lease in sharecrop	Leased into absentee owner	Private cultivator public lands						
Promote agroforestry and conservation models with quick returns and low cost technologies and high returns compared to previous models	<----->	<----->	Yogyakarta RD. II - Java					<----->					
	<----->	<----->	UACP - Java					<----->	New India forestry models promoted			Indonesia buffer zone concepts	
	<----->	<----->	IVOP - India and NSFP - India					<----->					
	<----->	<----->	W. Bengal Group Farm Forestry - India					<----->					
	<----->	<----->	CYRP - Philippines					<----->					
			Has not been tried until very recently as a strategy for different tenure types										
Improve extension to owners leasing out regarding sustainable land-use			BFD Program - Philippines HACP/Citanouy Projects - Java Kalikonto Project - Java										
Promote role of project implementers as middlemen helping patrons and tenant clients choose options			BFD Program - Philippines CYRP - Philippines										
Provide subsidies on inputs and labor	<----- Javanese watershed projects try this as tenure neutral strategy ----->												
Reward communities with CPRM with access to small irrigation programs													Sukhomajrh Model India (Haryana)



Tenure Category	Guaranteed Long-Term Access to Land (Security)	Access to Credit/Capital	Ability of User to Make Development Decisions	Ability to Protect Land From Others	Percentage of Returns to User of Land	Ability to Transfer Rights of Ownership	Possible Interventions	Possible Negative Repercussions of Interventions
Privately-Owned with Title	High	High	High	High	High	High	Land Consolidation to Create Economic Holding Sizes Subsidies	Difficult to implement unless adequate number of size classes for exchange among farmers
Privately-Owned without Title	Medium	Medium	High	High	High	Medium	Titling Component Alternative Credit Programs that do not Require Collateral Land Consolidation, Subsidies	Difficult to implement, may lead to eviction of tenant before redistribution is made effective
Leased in from Relative	Low	Medium	Medium	High	Medium	Low	Land Redistribution Subsidies of Inputs Alternative Credit Programs Promote Technologies with higher returns	Can lead to eviction by owner to protect rights
Fixed Renter from Resident Owner	Low	High if Owner Contributes	Low	Medium/High	Medium	Low	Land Redistribution Written Tenant Agreements Subsidies Alternative Credit programs Extension directed to owner to convince him of value of new technologies Promote Technologies with higher returns	See problems identified in items above
Share cropper from Resident Owner	Low	Low (Medium if Owner Contributes)	Low	High	Low to Medium	Low	Land Redistribution Written Tenant Agreements Promote Technologies with higher returns Provide strong subsidies for land development Extension directed to Owner Local staff act as mediators between owner and tenant	
Sharecropper from Absentee Owner	Low	Low in General	Low	High	Low	Low	Land Redistribution Written Tenant Agreements Provide subsidies and access to credit long-term (Extension directed to owner likely to be ineffective)	
Private Cultivator on Public Lands	Low	Low	High	Depends	High if not paying rent to Pseudo-Landowner	Low	Titling component Local staff act as mediators between pseudo-owner and cultivator Limited-use Stewardship leases Subsidies Alternative Credit Programs	
Perum Perhutani Model of longer term lease - Java	Medium	High	Medium/High	Low/Medium	High	Low at present	Titling component possible Introduce tree crops with products that are more easily protected than fruits (e.g., oilseeds)	
Forest Associations (FOSAs) Philippines	Medium	High	Low	Medium	High	Low at present	Allow annual cropping as well as trees Introduce tree-crop species as well as forestry species	
Local Grazier on Village Common Land	High	Low	Low	Depends on Management System	Depends on Management System	Depends on management	Strengthen local user's groups Strengthen local protection systems	
Local grazer on State Revenue Lands	Low	Low	Low	Low	Depends on Management System	Depends on management	Privatize this land Lease to set of graziers or users Provide capital for developing resource to users Give control to local user's groups	
Tree tenure leases on State Revenue Land (India)	Medium	Low	High	Low	High	Low	Privatize the land or extend lease terms Provide access to capital to develop resource Give control to a group rather than individual Give tenure to community as CPR	
Cost-sharing of forests giving User protection duties (West Bengal, India)	High	High	Low	High	High (Could be higher if products expanded)	High within village		
Recognizing customary rights over forests	High	Low	Depends on Forestry/Department/Village Relationship	High	Can be High	High within village	Introduce technologies with many intermediate yields Develop local control of NTFP collection, sale, marketing Strengthen local user's groups Provide capital to develop resource Give leases to customary users for exploiting and managing resource (This is Maryland's Sukhomajri model of Watershed Development)	
							Has not been tried except in Pacific Islands like PNG	



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## LAND TENURE PAPER ARGUMENT

Background

Economic literature on SWC argues that the most incentive for SWC adoption is on Private lands and least on tenant-cultivated or public/communally owned lands.

When we examine the evidence from Asia region SWC projects, we do not find clear evidence for this assumption. Why?

1. Often, positive economic returns are not forthcoming to farmers from SWC measures, so there may be no incentive on either privately-cultivated or other land categories.
2. Economists have over-simplified the actual the land tenure system, neither recognizing the wide range of tenures in the project area, nor factoring in the site-specific characteristics of those tenure categories within the overall village dynamics operating.
3. No systematic monitoring of the impact of tenure on SWC adoption rates has been carried out in WB projects, so at best we can only evaluate past experience impressionistically.
4. Important land tenure types have largely been ignored, such as CPRM.

Findings of the Review

1. There is no question that tenure is an important factor in SWC adoption. What is not clear is whether titling or privatization is the solution to upland problems, since there is no assurance that titled/privately-allocated lands will remain in the hands of the cultivator subsequent to the land reform. There is also a confusion in discussions between objectives of efficiency of land use and objectives of equitable land distribution and land rights.
2. Included is a conceptual model of the expected impact of tenure categories on private and public lands on SWC adoption. Assuming the intervention proposed is economic ( see Chapter IV and I). Several steps are needed in project preparation. At a policy level, it is preferable to strengthen categories that provide incentives for adoption. (This requires political will to implement.) The task manager needs to identify salient categories in project area and disincentives for farmers in particular tenure categories and attempt to resolve these through negotiation and provision of extension and other incentives.
4. Within the salient categories, certain CPRM tenures are highly favorable to sustainable land use and adoption of SWC measures on public lands. These have been overlooked in the past, and need to receive more attention. To be implemented successfully need adequate attention to local institutional support and development and participatory planning and implementation.
5. On private lands as well, negotiation and group extension is an important element of SWC technology dissemination to address tenure disincentives, labor constraints, credit constraints, and lack of inputs. Technologies to improve



marginal lands are also not tenure-neutral in their impact. Increasing the productivity of lands in a watershed will inevitably lead to a change in tenure patterns in that watershed. The less powerful are likely to lose out without some process of mediation.

### Recommendations

1. For private tenure systems, institution-building to mobilize or create associations of farmers, tenants, graziers, villagers is an important project activity. Institution building is likely to be quite site-specific and will require social science expertise regarding rural and village dynamics and tenure issues.
2. In CPRM systems, corporate groups/associations will exist through which interventions can be promoted and tailored to fit local needs and conditions.
3. It is important to learn more about the dynamics of tenure and adoption in our projects, both to improve those projects, and to contribute to our ability to design future projects more soundly. Those on-going, watershed programs such as Yogyakarta RD II, Kalikonto, Upland Agriculture and Conservation Project all in Indonesia, the pilot Deccan Watershed projects in India, and Central Visayas project in Philippines are all useful examples.



1. Things that muddled issue  
No technicals,  
large subsidies
2. many different types of tenure,  
and levels of security
3. lack of information.

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Tenure is important



# OFFICE MEMORANDUM

cc: AM

DATE: July 27, 1989

TO: Ms. Augusta Molnar, ASTEN

FROM: David Butcher, IENED *DPB*

EXTENSION: 33236

SUBJECT: Land Tenure Chapter in "Review of Watershed Improvement

1. Your paper contains a lot of information but after reading it I was left with a impression that the subject is so complicated that very little can be done in the area of watershed development. I am however sure that is not the impression you wish to convey.
2. Interest in land tenure as a subject is important because it influences the ways in which people regard, use and claim the use of land. In the context of development, the study of land tenure is not of course an end in itself, but seen presumably as a means of understanding situations in particular areas, in order to be able to launch useful projects which conserve the land as a resource. Having said that I would prefer to go further and present the following train of thought.
3. It would appear that the technical and agronomic techniques for arresting and reversing soil erosion are sufficiently well known, to enable the arrest/conservation of many sloped areas.
4. People can play two roles, they can carry out and maintain the physical work and husband the plants, and they can also bring about a situation in which soil erosion is made worse.
5. People in this case, are members of the public and there are 127 million of them, according to the Magrath and Doolittle paper. Members of the public will do what is advantageous to them as individuals working as such or in groups. As far as projects are concerned, they are clients who will take up and use what is perceived as useful, and ignore that which is considered of no value.
6. The two tables in your paper (Tables 1 & 2) specifying (a) the attributes of tenurial arrangements influencing the adoption of SWC and (b) the characteristics of some public land management interventions in fact provide an indication on how best to proceed with an SWC project.
7. There would appear to be three sets of considerations.
  - (a) A start could be made where your preconditions (Table 1) are most favourable. Simultaneously and progressively put pressure on governments at the policy level to bring about the wider prevalence of the favourable conditions.



- (b) Design the field level projects so they conform to the characteristics most conducive to project success (Table 2).
- (c) Build in factors to ensure sustainability of each group within the micro-watershed (or whatever unit is used). The internal factors leading to sustainability of group activity are:
  - i. organization of recipients, beneficiaries, project agents, or whatever;
  - ii. participation of the members of the group or organization in group activities;
  - iii. decision taking on what will be done by the group;
  - iv. payment/cost recovery from those benefitting;
  - v. sanctions against those who break the rules of the group.

8. In addition to the internal factors essential to sustainability, there are critical factors external to the project, i.e. favourable policy environment, pricing policies, availability of technology, and if possible - credit.

9. As your paper so ably illustrates, land tenure systems, and their linkages with other factors, e.g. categories of people entitled to credit, are very diverse and complex. The complexity, and importance of local conditions rules out a 'blueprint' approach to SWC, but SWC could be systematically tackled using the kind of procedures outlined in the previous paragraph. In any case, there will always be a need for on-the-ground assessments, often in greater detail than RRA can provide which perhaps should be reserved for providing information on the prevalence of conditions identified through more detailed studies by say, a social anthropologist.

10. Since the increase in population numbers seems to have brought about the alarming situation in which the 127 million people find themselves, with an unknown number in the plains subjected to the results of the activities of those in the hills, I am surprised that more prominence is not given to ways of reducing the human (and consequently) animal populations.

11. Although I think the prospect of rehabilitating the large areas already degraded is daunting, I believe that your paper could indicate a more positive way on how to proceed, as most of the essential data from which I have drawn my conclusions are contained therein.

cc: Messrs. Holstein (INURD), Noronha (ENVOS), Magrath (ENVPR),  
Doolette (ASTAG), Ms. ✓ Davis, Partridge (ASTEN)

DButcher:cuc



THE WORLD BANK/INTERNATIONAL FINANCE CORPORATION  
OFFICE MEMORANDUM

DATE: August 16, 1989

TO: Augusta Molnar, ASTEN

FROM: Lynn Holstein, INURD

EXT.: 33946

SUBJECT: Some comments on the land tenure chapter in the report "Review of Watershed Improvement" -- Chapter VI -- "Land Tenure Issues in Watershed Development" by Augusta Molnar.

1. The Chapter is useful in considering the issues in tenure improvement. It does convey the message that "tenure" is a difficult aspect of watershed management but an element which never-the-less must be addressed. Watershed management should not just consist of just technical improvements provided by some external project, but organizational (and institutional) arrangements adopted by the land managers and cultivators themselves to manage those technical improvements. Incentives must also be provided to allow the people on the land to be involved and share the benefits; tenure is one of those measures. I believe the main considerations are available in the Chapter to allow a task manager to isolate them, but with some re-organization of the material it could be more successful. Several of the case studies show that appropriate long term community accepted tenure assist in the improved land management (especially the Indian tree planting projects (6.50)); these should be capitalized upon.

2. I suggest an improved framework is needed in the paper within which to consider the dimensions of tenure as it impacts the topic at hand. Tenure can be considered in terms of impacts and demands: policy, politics, physical, legal/extralegal status (rights and responsibilities), it's adaptability, institutional demands, social (eg community focus), technical, financial and economic (eg incentives, cost of provision and maintenance, cost of "access" to tenure), and human resource requirements (for both the providers and receivers including education). Equity and efficiency considerations must not be forgotten. An analytic framework is mentioned in 6.14 but it turns out to be a list of projects; a conceptual framework is mentioned in 6.18 but it appears to be a coverage of the various types of tenure. Parts of a framework keep on re-occurring in the paper such as "Legal, Institutional and Productivity Issues" in 6.59 but I'm not sure whether this applies only to CPRM or to other types of property. Table 3 applies to all tenures not just to CPRM. Tenure types are a continuum based on all of the above considerations.



3. As part of the conclusions, it would be useful if the Chapter had a checklist of major considerations or measures if tenure is to be part of a watershed project. While it is important to have a list of considerations for "Review" of projects, it is also important to have a list of considerations for tenure incorporation for project preparation and implementation -- for the busy task manager, consultant or developing country professional. The considerations in 6.13 are a good start but are in the wrong setting; 6.54 continues this. The case studies do portray many "lessons" useful for this "checklist", but these need to be collected up for the reader, especially for those in LDCs. Section 6.80 (f) basically states this -- I believe you must include it.

4. When undertaking improvement of extralegal systems of tenure, support is needed for the people in the form of legal and institutional advice - some form of legal aid, access to knowledgeable NGO, non community advisers (6.51) - is so necessary otherwise they are at the mercy of government and project officials.

5. I could not find any information on the "cost" of provision and the maintenance of tenure systems. After establishment tenure systems need maintenance especially if the rights involved are conditional upon certain actions not being taken etc. Supervision is necessary. In the long term land trading will occur then some elementary land registration system will be necessary. The cost of access to formal tenure (or statutory tenure) is another consideration -- many times the poor farmers just cannot afford formal law.

6. The conclusions are too brief and do not portray what has gone before -- that is the conclusions (in my opinion) should include the many instructive, positive, useful aspects of how to improve tenure for better watershed management, that are mentioned in the chapter.

7. A glossary might be useful in the chapter -- the usage of several of the terms overlap, some are quite different -- title is quite different than tenure; a stewardship contract in the Philippines is actually a lease (6.48) - - this would be useful for the reader as well as to the author for clarity purposes.

8. There are some margin notes on my copy which may be useful to you, therefore I have attached my "marked up" copy. I am looking forward to receiving the final version of your Chapter.