

## Appendix 6. Characteristics of the global ecological zones of the tropical domain

(From FAO 2001)

The tropical domain has the following characteristics:

- Mean temperature of all months over 18°C.
- Approximate location between the Tropic of Cancer 23° N and the Tropic of Capricorn 23° S.
- Lowland zones are up to 1000 - 1500 m

<b>Name</b>	<b>Tropical rain forest</b>
<b>Code</b>	Tar
<b>Climatic criteria</b>	Uniformly high temperatures and heavy annual precipitation (at least 1500 mm, often > 2000 mm) distributed throughout the year. Either no dry season or at most 3 months during winter.
<b>Vegetation</b>	Tropical evergreen and semi-evergreen rainforest. The vegetation is lush, with tall, closely set trees that often form a continuous multi-layered canopy and emergent trees reaching a height of 50 to 60 meters. Most diverse terrestrial ecosystem, with a large number of tree species.
<b>Distribution</b>	Astride the equator and extending 5 to 10 degrees on either side. Main locations: Amazon basin, South America; Congo basin, Africa; Insular South East Asia.

<b>Name</b>	<b>Tropical moist deciduous forest</b>
<b>Code</b>	Tawa
<b>Climatic criteria</b>	Tropical climate with summer rain and a dry period of 3 to 5 months. Annual rainfall is generally in the range of 1000 to 2000 mm.
<b>Vegetation</b>	Moist semi-deciduous and deciduous forest types. Examples: monsoon forest in Asia, cerrado in South America and wet Miombo woodlands in Africa.
<b>Distribution</b>	Both north and southward of equator, approximately between 5 and 15 degrees. Most extensive areas are found in South America (cerrado) and Africa.

<b>Name</b>	<b>Tropical dry forest</b>
<b>Code</b>	Tawb
<b>Climatic criteria</b>	Tropical climate, with summer rains and a dry period of 5 to 8 months. Annual rainfall ranges from 500 to 1500 mm.
<b>Vegetation</b>	Dry tropical forest and woodland, including drier type of Miombo and Sudanian woodlands, savana (Africa), caatinga and chaco (South America), dry deciduous dipterocarp forest and woodlands (Asia).
<b>Distribution</b>	At both sides of equator, approximately between 15 and 20 degrees. This zone is most extensive in Africa.

Name	<b>Tropical shrubland</b>
Code	TBSh
Climatic criteria	Tropical temperature regime and evaporation > precipitation. Annual rainfall ranges between 200 and 500 mm.
Vegetation	Shrubs, xeromorphic woodlands, dry savana, thornbush.
Distribution	Most extensive in Africa and South Asia, where they form the equatorward margins of the tropical deserts.

Name	<b>Tropical mountain systems</b>
Code	TM
Climatic criteria	High variety of climatic conditions, varying with altitude.
Vegetation	Due to the variation in climatic conditions and altitude, there is a high variety of vegetation types along altitudinal belts, ranging from evergreen submontane rainforest, cloud forest up to alpine grassland.
Distribution	Main tropical mountain systems are the Andes in South America, mountains of the Rift Valley system in Eastern Africa and the Eastern Himalayas in Asia.

**Appendix 7. Classification of the sampling units by ecological zones**

Ecological zone code	Number of sampling units	Missing	Name	Land area (million ha)
Tar	43	3	Tropical rainforest	1389.5
Tawa	44	1	Tropical moist deciduous forest	1043.3
Tawb	25	0	Tropical dry forest and shrubland	602.4
Total	112	4		

TAR	TAWA	TAWB
1304	1310	1301
1308	1404	1302
1309	1405	1303
1401	1409	1305
1402	1410	1306
1403	1504	1307
1501	1506	1406
1502	1507	1407
1503	1508	1408
1505	1509	1602
3102	1510	1603
3103	1511	1604
3106	1512	1606
3401	1601	1608
3402	1607	1609
3403	1610	1613
3404	1611	3410
3405	1612	4403
3406	1614	4404
3407	1615	4407
3408	3101	4408
3413	3104	4410
3501	3107	4504
3502	3108	4506
3503	3109	4510
3504	3110	
3505	3409	
3506	3411	
3507	3412	
3509	3508	
3517	3510	
4405	3511	
4409	3512	
4501	3513	
4507	3514	
4508	3515	
4601	3516	
4602	4401	
4603	4402	
4604	4406	
4605	4502	
4606	4503	
4607	4505	
4608	4509	
4609		
4610		

Notes: The total surveyed land area of the ecological zone was estimated from the aggregation process (see 2.5.1.4). One sampling unit, not tropical, was not included in the analysis (3105).

Appendix 8. Results by ecological zone

Table 59. Area transition matrices for the periods 1980-1990 and 1990-2000 - Ecological zone *Tropical rain forest* (million hectares)

**Area transition matrix 1980-1990**  
(million ha)

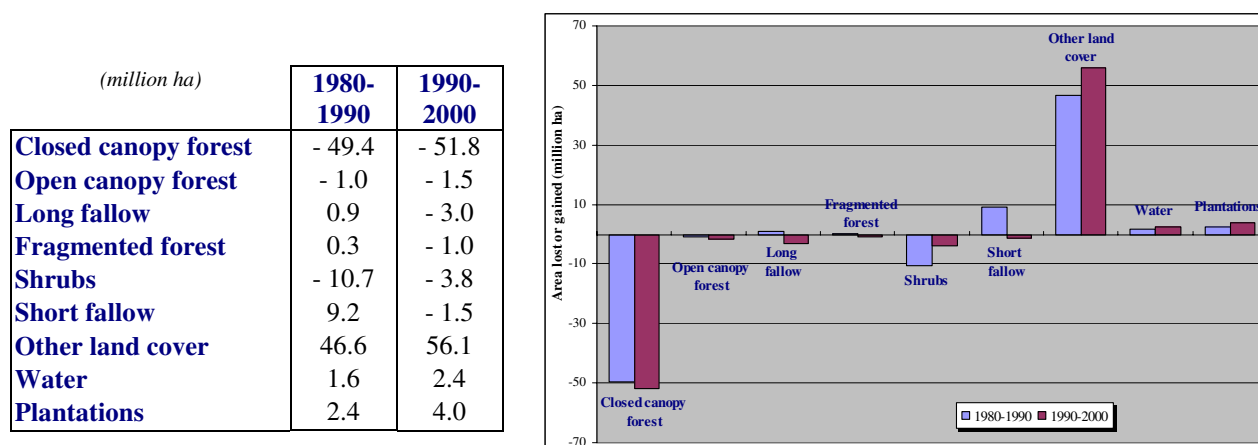
Land cover classes in 1980	Land cover classes in 1990									State 1980	% of total land area
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other land cover	Water	Plantations		
Closed canopy forest	857.5	1.4	7.4	4.7	0.7	9.3	24.8	0.7	2.5	909.0	65.4
Open canopy forest	0.1	25.9	0.1	0.5	ε	0.1	1.5	0.5	ε	28.7	2.1
Long fallow	0.8	ε	39.2	0.2	0.2	6.0	1.0	ε	ε	47.4	3.4
Fragmented forest	0.1	0.1	0.1	45.3	0.3	0.8	3.7	0.1	0.2	50.7	3.6
Shrubs	0.1	0.1	0.2	ε	40.3	ε	11.9	0.5	ε	52.9	3.8
Short fallow	0.7	0.1	1.1	0.1	0.2	69.9	4.9	0.1	0.2	77.3	5.6
Other land cover	0.2	0.2	0.2	0.2	0.6	0.2	207.0	0.2	0.4	209.2	15.1
Water	0.1	ε	ε	0.1	ε	ε	0.2	0.9	ε	1.3	0.1
Plantations	0.1	ε	ε	ε	ε	0.1	0.8	ε	11.9	12.9	0.9
<b>State 1990 →</b>	<b>859.6</b>	<b>27.7</b>	<b>48.3</b>	<b>51.1</b>	<b>42.3</b>	<b>86.5</b>	<b>255.8</b>	<b>2.9</b>	<b>15.3</b>	<b>1 389</b>	
<b>% of total land area →</b>	<b>61.9</b>	<b>2.0</b>	<b>3.5</b>	<b>3.7</b>	<b>3.0</b>	<b>6.2</b>	<b>18.4</b>	<b>0.2</b>	<b>1.1</b>		

**Area transition matrix 1990-2000**  
(million ha)

Land cover classes in 1990	Land cover classes in 2000									State 1990	% of total land area
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other land cover	Water	Plantations		
Closed canopy forest	805.6	0.4	4.8	3.4	1.1	5.4	36.4	0.7	1.9	859.6	61.9
Open canopy forest	ε	25.5	0.1	0.5	0.1	0.1	1.3	ε	ε	27.7	2.0
Long fallow	0.8	0.1	38.8	0.2	ε	3.9	4.2	ε	0.2	48.3	3.5
Fragmented forest	0.3	ε	0.1	45.1	0.3	0.4	4.6	0.1	0.2	51.1	3.7
Shrubs	ε	0.1	ε	ε	36.6	0.2	3.7	1.7	ε	42.3	3.0
Short fallow	0.7	0.1	1.0	0.1	ε	73.9	10.3	0.1	0.4	86.5	6.2
Other land cover	0.4	0.1	0.4	0.8	0.3	1.1	250.5	0.3	2.0	255.8	18.4
Water	ε	ε	ε	ε	0.1	ε	0.3	2.5	ε	2.9	0.2
Plantations	ε	ε	ε	ε	ε	ε	0.7	ε	14.6	15.3	1.1
<b>State 2000 →</b>	<b>807.8</b>	<b>26.2</b>	<b>45.2</b>	<b>50.1</b>	<b>38.5</b>	<b>85.0</b>	<b>311.9</b>	<b>5.4</b>	<b>19.3</b>	<b>1 389</b>	
<b>% of total land area →</b>	<b>58.1</b>	<b>1.9</b>	<b>3.3</b>	<b>3.6</b>	<b>2.8</b>	<b>6.1</b>	<b>22.4</b>	<b>0.4</b>	<b>1.4</b>		

Notes: See Table 6.

Figure 13. Summary of net changes during the periods 1980-1990 and 1990-2000 by land cover classes - Ecological zone *Tropical rain forest* (million hectares)



**Table 60. Standard errors and 95 percent confidence intervals of the area transition matrices - Ecological zone *Tropical rain forest* (million hectares)**

**Standard errors - Area transition matrix 1980-1990**

(million ha)		Land cover classes in 1990								
		Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other land cover	Water	Plantations
Land cover classes in 1980										
Closed canopy forest		64.0	0.5	1.5	1.4	0.3	2.0	6.4	0.3	1.2
Open canopy forest	ε	7.0	0.1	0.2	ε	0.1	0.5	0.5	ε	ε
Long fallow	0.3	ε	9.2	0.1	0.2	2.0	0.4	ε	ε	ε
Fragmented forest	ε	0.1	0.1	21.5	0.2	0.7	1.0	0.1	0.2	ε
Shrubs	0.1	0.1	0.1	ε	14.9	ε	7.4	0.4	ε	ε
Short fallow	0.3	ε	0.3	0.1	0.2	14.4	1.8	0.1	0.1	0.1
Other land cover	0.1	0.1	0.1	0.1	0.5	0.1	42.9	0.1	0.2	ε
Water	0.1	ε	ε	ε	ε	ε	0.1	0.6	ε	ε
Plantations	ε	ε	ε	ε	ε	0.1	0.4	ε	6.6	ε

**Standard errors - Area transition matrix 1990-2000**

(million ha)		Land cover classes in 2000								
		Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other land cover	Water	Plantations
Land cover classes in 1990										
Closed canopy forest		67.2	0.2	1.2	1.6	0.6	1.3	9.9	0.6	0.8
Open canopy forest	ε	6.9	0.1	0.3	ε	0.1	0.4	ε	ε	ε
Long fallow	0.5	ε	9.2	0.1	ε	1.2	1.3	ε	0.1	ε
Fragmented forest	0.1	ε	0.1	21.5	0.2	0.2	1.7	ε	0.1	ε
Shrubs	ε	ε	ε	ε	13.3	0.1	1.8	1.7	ε	ε
Short fallow	0.5	ε	0.3	0.1	ε	15.0	3.4	0.1	0.2	ε
Other land cover	0.2	ε	0.1	0.6	0.2	0.5	47.1	0.1	0.6	ε
Water	ε	ε	ε	ε	ε	ε	0.1	1.8	ε	ε
Plantations	ε	ε	ε	ε	ε	ε	0.4	ε	7.7	ε

**95 % Confidence Intervals - Area transition matrix 1980-1990**

(million ha)		Land cover classes in 1990								
		Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other land cover	Water	Plantations
Land cover classes in 1980										
Closed canopy forest		[732.2;982.9]	[0.4;2.4]	[4.3;10.4]	[1.9;7.5]	[0.2;1.3]	[5.4;13.2]	[12.2;37.4]	[0.0;1.4]	[0.1;4.9]
Open canopy forest		[0.0;0.1]	[12.1;39.6]	[0.0;0.2]	[0.1;0.8]	[0.0;0.0]	[0.0;0.3]	[0.5;2.4]	[-0.4;1.4]	[0.0;0.1]
Long fallow		[0.3;1.4]	[0.0;0.0]	[21.2;57.2]	[0.0;0.4]	[-0.2;0.5]	[2.0;9.9]	[0.3;1.7]	[0.0;0.0]	[0.0;0.0]
Fragmented forest		[0.0;0.1]	[0.0;0.2]	[0.0;0.3]	[3.3;87.4]	[-0.1;0.7]	[-0.6;2.2]	[1.8;5.7]	[0.0;0.2]	[-0.1;0.5]
Shrubs		[0.0;0.2]	[0.0;0.0]	[0.0;0.3]	[0.0;0.1]	[11.0;69.5]	[0.0;0.0]	[-2.6;26.5]	[-0.4;1.3]	[0.0;0.1]
Short fallow		[0.1;1.2]	[0.0;0.2]	[0.5;1.7]	[0.0;0.3]	[-0.1;0.5]	[41.6;98.2]	[1.4;8.3]	[0.0;0.2]	[-0.1;0.4]
Other land cover		[0.0;0.4]	[0.0;0.3]	[0.1;0.3]	[0.0;0.3]	[-0.3;1.6]	[0.1;0.3]	[122.9;291.1]	[0.1;0.3]	[0.0;0.9]
Water		[-0.1;0.2]	[0.0;0.0]	[0.0;0.0]	[0.0;0.1]	[0.0;0.0]	[0.0;0.1]	[0.0;0.4]	[-0.3;2.1]	[0.0;0.0]
Plantations		[0.0;0.1]	[0.0;0.0]	[0.0;0.0]	[0.0;0.0]	[0.0;0.0]	[0.0;0.3]	[0.1;1.5]	[0.0;0.0]	[-1.0;24.7]

**95 % confidence intervals - Area transition matrix 1990-2000**

(million ha)		Land cover classes in 2000								
		Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other land cover	Water	Plantations
Land cover classes in 1990										
Closed canopy forest		[673.8;937.3]	[0.1;0.8]	[2.5;7.0]	[0.2;6.6]	[0.0;2.2]	[2.9;8.0]	[17.0;55.7]	[-0.5;2.0]	[0.4;3.4]
Open canopy forest		[0.0;0.1]	[12.0;38.9]	[0.0;0.3]	[0.0;1.1]	[0.0;0.2]	[0.0;0.3]	[0.4;2.1]	[0.0;0.1]	[0.0;0.0]
Long fallow		[-0.1;1.8]	[0.0;0.1]	[20.8;56.8]	[0.0;0.3]	[0.0;0.0]	[1.5;6.3]	[1.6;6.8]	[0.0;0.0]	[0.0;0.5]
Fragmented forest		[0.0;0.5]	[0.0;0.1]	[-0.1;0.3]	[3.0;87.2]	[0.0;0.7]	[0.1;0.6]	[1.4;7.9]	[0.0;0.1]	[-0.1;0.4]
Shrubs		[0.0;0.1]	[0.0;0.1]	[0.0;0.0]	[0.0;0.0]	[10.5;62.6]	[0.0;0.4]	[0.1;7.2]	[-1.6;5.1]	[0.0;0.0]
Short fallow		[-0.3;1.7]	[0.0;0.1]	[0.3;1.6]	[0.0;0.2]	[0.0;0.0]	[44.5;103.3]	[3.5;17.0]	[0.0;0.2]	[0.1;0.7]
Other land cover		[0.0;0.8]	[0.0;0.1]	[0.1;0.7]	[-0.3;1.9]	[0.0;0.7]	[0.0;2.1]	[158.2;342.9]	[0.0;0.6]	[0.7;3.3]
Water		[0.0;0.0]	[0.0;0.0]	[0.0;0.0]	[0.0;0.1]	[0.0;0.2]	[0.0;0.1]	[0.0;0.5]	[-1.0;5.9]	[0.0;0.0]
Plantations		[0.0;0.0]	[0.0;0.0]	[0.0;0.0]	[0.0;0.0]	[0.0;0.0]	[0.0;0.1]	[-0.2;1.5]	[0.0;0.0]	[-0.5;29.7]

**Table 61. Analysis of change for the periods 1980-1990 and 1990-2000 - Ecological zone Tropical rain forest (percentage of total change)**

**Period 1: 1980-1990**

% of total change		Land cover classes in 1990									Total change by class of origin	
		Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other land cover	Water	Plantations	ha	%
Land cover classes in 1980												
Closed canopy forest			1.5	8.1	5.1	0.8	10.2	27.1	0.7	2.8	51.5	56.2
Open canopy forest	0.1			0.1	0.5	ε	0.2	1.6	0.5	0.1	2.8	3.1
Long fallow	0.9	ε			0.2	0.2	6.5	1.1	ε	ε	8.2	8.9
Fragmented forest	0.1	0.1	0.1			0.3	0.9	4.1	0.1	0.2	5.4	5.9
Shrubs	0.1		0.2	ε			ε	13.0	0.5	ε	12.7	13.9
Short fallow	0.7	0.1	1.2	0.2	0.2			5.3	0.1	0.2	7.4	8.0
Other land cover	0.3	0.2	0.2	0.2	0.7	0.2			0.2	0.5	2.2	2.4
Water	0.1		ε	0.1	ε	ε		0.2		ε	0.4	0.4
Plantations	0.1	ε	ε	ε		0.2	0.9		ε		1.1	1.2
<b>Total change by class of destination</b>	ha	<b>2.1</b>	<b>1.8</b>	<b>9.0</b>	<b>5.7</b>	<b>2.0</b>	<b>16.6</b>	<b>48.8</b>	<b>2.0</b>	<b>3.5</b>	<b>91.5</b>	
	%	2.3	2.0	9.9	6.3	2.2	18.1	53.3	2.2	3.8		100

**Period 2: 1990-2000**

% of total change		Land cover classes in 2000									Total change by class of origin	
		Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other land cover	Water	Plantations	ha	%
Land cover classes in 1990												
Closed canopy forest			0.4	4.9	3.5	1.1	5.6	37.7	0.8	1.9	54.1	56.0
Open canopy forest	ε			0.1	0.5	0.1	0.1	1.3	ε	ε	2.2	2.3
Long fallow	0.9	0.1			0.2	ε	4.1	4.4	ε	0.2	9.4	9.8
Fragmented forest	0.3	ε	0.1			0.3	0.4	4.8	0.1	0.2	6.0	6.2
Shrubs	ε	0.1	ε	ε			0.2	3.8	1.8	ε	5.7	5.9
Short fallow	0.7	0.1	1.0	0.1	ε			10.7	0.1	0.4	12.6	13.1
Other land cover	0.4	0.1	0.4	0.8	0.4	1.1			0.3	2.1	5.3	5.5
Water	ε	ε	ε	ε	0.1	ε		0.3			0.5	0.5
Plantations	ε			ε		ε	0.7				0.7	0.7
<b>Total change by class of destination</b>	ha	<b>2.3</b>	<b>0.7</b>	<b>6.4</b>	<b>5.0</b>	<b>1.9</b>	<b>11.1</b>	<b>61.4</b>	<b>2.9</b>	<b>4.7</b>	<b>96.5</b>	
	%	2.4	0.7	6.6	5.2	2.0	11.6	63.6	3.0	4.9		100

**Table 62. Forest area and area change - Ecological zone Tropical rain forest**

**Forest area**

	Forest definition f1				Forest definition f2				Forest definition f3				
	Absolute forest cover (million hectares)		Relative forest cover (%)		Absolute forest cover (million hectares)		Relative forest cover (%)		Absolute forest cover (million hectares)		Relative forest cover (%)		
	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	95%CI
<b>1980</b>	909.0	62.2	65.4	4.5	949.0	64.5	68.3	4.6	1002.0	69.1	72.1	5.0	[62;82]
<b>1990</b>	859.6	64.1	61.9	4.6	898.6	66.0	64.7	4.8	952.6	69.8	68.6	5.0	[59;78]
<b>2000</b>	807.8	67.2	58.1	4.8	845.2	68.7	60.8	4.9	895.9	72.6	64.5	5.2	[54;75]

**Forest area change (10-years periods)**

(million hectares)	Forest definition f1				Forest definition f2			Forest definition f3			
	Deforestation	Net forest area change			Deforestation	Net forest area change		Deforestation	Net forest area change		
	Mean	Mean	SE		Mean	Mean	SE	Mean	Mean	SE	95%CI
<b>1980-1990</b>	51.5	-49.4	9.6		52.8	-50.3	9.9	52.5	-49.4	9.1	[-67;-32]
<b>1990-2000</b>	54.1	-51.8	10.9		56.1	-53.5	11.2	59.9	-56.6	12.3	[-81;-32]

**Annual forest change (net area change and deforestation rate)**

(million hectares)	Forest definition f1				Forest definition f2				Forest definition f3				
	Annual forest area change		Deforestation rate r (%)		Annual net forest area change		Deforestation rate r (%)		Annual net forest area change		Deforestation rate r (%)		
	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	95%CI		
<b>1980-1990</b>	-4.9	1.0	0.54	0.12	-5.0	1.0	0.53	0.11	-4.9	0.9	0.49	0.10	[0.30;0.68]
<b>1990-2000</b>	-5.2	1.1	0.60	0.14	-5.3	1.1	0.60	0.14	-5.7	1.2	0.59	0.14	[0.32;0.87]

Notes: SE = standard error of the mean; 95%CI = 95% confidence interval; absolute forest cover = forest area; relative forest cover = percentage of total land area; deforestation = gross forest loss; Net forest area change = net forest loss/gain

**Table 63. Area transition matrices for the periods 1980-1990 and 1990-2000 - Ecological zone *Tropical moist deciduous forest* (million hectares)**

**Area transition matrix 1980-1990**  
(million ha)

Land cover classes in 1980	Land cover classes in 1990									State 1980	% of total land area
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other land cover	Water	Plantations		
Closed canopy forest	262.9	4.0	1.9	5.9	0.9	5.6	9.6	1.3	0.1	292.2	28.0
Open canopy forest	0.4	168.8	0.4	1.6	1.2	2.0	7.1	ε	0.1	181.7	17.4
Long fallow	0.2	ε	19.0	0.1	ε	0.7	1.1	ε	ε	21.2	2.0
Fragmented forest	0.5	0.4	0.1	110.1	0.4	3.1	9.2	0.3	ε	124.2	11.9
Shrubs	0.1	ε	0.1	0.1	70.8	0.3	5.9	0.1	0.2	77.4	7.4
Short fallow	0.4	0.2	0.2	0.5	0.1	37.7	2.3	0.1	ε	41.4	4.0
Other land cover	0.4	0.5	0.1	1.1	0.6	1.1	296.2	1.0	0.4	301.5	28.9
Water	ε	ε	ε	ε	ε	0.1	0.6	1.2	ε	2.0	0.2
Plantations	ε	ε	ε	ε	ε	ε	0.1	ε	1.6	1.8	0.2
<b>State 1990 →</b>	<b>265.1</b>	<b>174.1</b>	<b>21.7</b>	<b>119.4</b>	<b>74.1</b>	<b>50.5</b>	<b>332.1</b>	<b>4.1</b>	<b>2.4</b>	<b>1 043</b>	
<b>% of total land area →</b>	<b>25.4</b>	<b>16.7</b>	<b>2.1</b>	<b>11.4</b>	<b>7.1</b>	<b>4.8</b>	<b>31.8</b>	<b>0.4</b>	<b>0.2</b>		

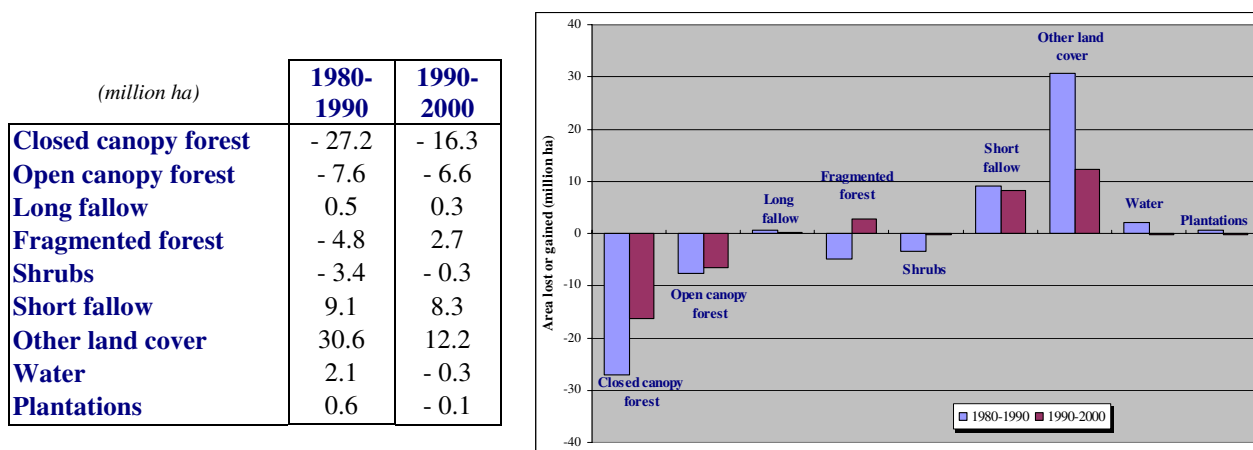
  

**Area transition matrix 1990-2000**  
(million ha)

Land cover classes in 1990	Land cover classes in 2000									State 1990	% of total land area
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other land cover	Water	Plantations		
Closed canopy forest	247.6	0.5	0.9	5.4	0.2	3.9	6.2	0.4	ε	265.1	25.4
Open canopy forest	0.1	166.2	0.3	2.0	0.5	1.2	3.7	ε	ε	174.1	16.7
Long fallow	0.2	0.1	20.3	ε	ε	0.6	0.4	ε	ε	21.7	2.1
Fragmented forest	0.2	0.2	0.1	112.2	0.1	1.8	4.6	0.1	ε	119.4	11.4
Shrubs	0.1	ε	ε	ε	69.0	0.2	4.7	ε	ε	74.1	7.1
Short fallow	0.3	0.2	0.3	1.4	0.1	47.1	1.1	0.1	ε	50.5	4.8
Other land cover	0.2	0.3	0.1	1.1	3.2	3.8	322.4	0.8	0.2	332.1	31.8
Water	0.1	ε	ε	ε	0.7	ε	0.8	2.4	ε	4.1	0.4
Plantations	ε	ε	ε	ε	ε	ε	0.4	ε	1.9	2.4	0.2
<b>State 2000 →</b>	<b>248.8</b>	<b>167.5</b>	<b>22.0</b>	<b>122.1</b>	<b>73.8</b>	<b>58.8</b>	<b>344.3</b>	<b>3.8</b>	<b>2.3</b>	<b>1 043</b>	
<b>% of total land area →</b>	<b>23.8</b>	<b>16.1</b>	<b>2.1</b>	<b>11.7</b>	<b>7.1</b>	<b>5.6</b>	<b>33.0</b>	<b>0.4</b>	<b>0.2</b>		

Notes: See Table 6.

**Figure 14. Summary of net changes during the periods 1980-1990 and 1990-2000 by land cover classes - Ecological zone *Tropical moist deciduous forest* (million hectares)**





**Table 64. Standard errors and 95 percent confidence intervals of the area transition matrices - Ecological zone *Tropical moist deciduous forest* (million hectares)**

**Standard errors - Area transition matrix 1980-1990**

(million ha)		Land cover classes in 1990								
		Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other land cover	Water	Plantations
Land cover classes in 1980										
Closed canopy forest		45.8	1.0	0.6	2.6	0.4	2.8	2.9	1.4	0.1
Open canopy forest		0.1	30.4	0.2	0.5	0.6	0.7	1.2	ε	ε
Long fallow		0.1	ε	8.2	0.1	ε	0.3	0.4	ε	ε
Fragmented forest		0.3	0.1	0.1	25.3	0.1	2.1	4.1	0.2	ε
Shrubs		ε	ε	ε	ε	22.9	0.2	2.3	ε	0.1
Short fallow		0.1	0.1	0.1	0.3	0.1	10.8	0.7	ε	ε
Other land cover		0.2	0.2	0.1	0.5	0.3	0.7	44.9	0.9	0.2
Water		ε	ε	ε	ε	ε	0.1	0.4	0.6	ε
Plantations		ε	ε	ε	ε	ε	ε	ε	ε	0.5

**Standard errors - Area transition matrix 1990-2000**

(million ha)		Land cover classes in 2000								
		Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other land cover	Water	Plantations
Land cover classes in 1990										
Closed canopy forest		43.2	0.3	0.3	2.6	0.1	1.6	2.2	0.3	ε
Open canopy forest		0.1	29.7	0.2	0.8	0.3	0.5	0.9	ε	ε
Long fallow		0.1	0.1	8.4	ε	ε	0.2	0.1	ε	ε
Fragmented forest		0.1	0.1	0.1	25.7	0.1	1.1	1.4	0.1	ε
Shrubs		ε	ε	ε	ε	22.3	0.2	2.0	ε	ε
Short fallow		0.1	0.1	0.1	0.9	0.1	13.4	0.3	ε	ε
Other land cover		0.1	0.1	ε	0.7	1.1	3.4	47.3	0.5	0.1
Water		0.1	ε	ε	ε	0.6	ε	0.5	2.4	ε
Plantations		ε	ε	ε	ε	ε	ε	0.2	ε	0.6

**95 % Confidence Intervals - Area transition matrix 1980-1990**

(million ha)		Land cover classes in 1990								
		Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other land cover	Water	Plantations
Land cover classes in 1980										
Closed canopy forest		[173.2;352.7]	[2.1;5.9]	[0.7;3.1]	[0.7;11.0]	[0.2;1.6]	[0.2;11.0]	[3.8;15.4]	[-1.4;4.1]	[0.0;0.3]
Open canopy forest		[0.2;0.7]	[109.3;228.4]	[0.0;0.8]	[0.6;2.6]	[0.0;2.4]	[0.6;3.4]	[4.7;9.5]	[0.0;0.1]	[0.0;0.2]
Long fallow		[0.0;0.4]	[0.0;0.1]	[3.0;34.9]	[-0.1;0.2]	[0.0;0.1]	[0.1;1.3]	[0.3;1.9]	[0.0;0.0]	[0.0;0.0]
Fragmented forest		[-0.1;1.1]	[0.1;0.6]	[0.0;0.3]	[60.6;159.7]	[0.2;0.7]	[-1.0;7.2]	[1.1;17.4]	[-0.1;0.7]	[0.0;0.0]
Shrubs		[0.0;0.1]	[0.0;0.1]	[0.0;0.2]	[0.0;0.1]	[26.0;115.7]	[-0.1;0.7]	[1.4;10.3]	[0.0;0.2]	[-0.1;0.4]
Short fallow		[0.1;0.6]	[0.1;0.4]	[0.0;0.3]	[-0.1;1.2]	[0.0;0.2]	[16.5;58.9]	[0.9;3.6]	[0.0;0.1]	[0.0;0.0]
Other land cover		[0.1;0.8]	[0.1;0.9]	[0.0;0.2]	[0.1;2.2]	[0.1;1.1]	[-0.3;2.4]	[208.3;384.2]	[-0.8;2.8]	[0.0;0.8]
Water		[0.0;0.1]	[0.0;0.1]	[0.0;0.0]	[0.0;0.0]	[0.0;0.0]	[-0.1;0.2]	[-0.1;1.3]	[0.0;2.5]	[0.0;0.0]
Plantations		[0.0;0.1]	[0.0;0.0]	[0.0;0.0]	[0.0;0.0]	[0.0;0.0]	[0.0;0.0]	[0.0;0.2]	[0.0;0.0]	[0.7;2.5]

**95 % confidence intervals - Area transition matrix 1990-2000**

(million ha)		Land cover classes in 2000								
		Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other land cover	Water	Plantations
Land cover classes in 1990										
Closed canopy forest		[162.9;332.3]	[0.0;1.1]	[0.3;1.4]	[0.2;10.5]	[0.1;0.4]	[0.8;7.0]	[1.9;10.4]	[-0.2;1.0]	[0.0;0.1]
Open canopy forest		[0.0;0.2]	[107.9;224.5]	[0.0;0.6]	[0.5;3.5]	[0.0;1.0]	[0.3;2.1]	[1.8;5.5]	[0.0;0.1]	[0.0;0.1]
Long fallow		[-0.1;0.5]	[-0.1;0.2]	[3.9;36.7]	[0.0;0.1]	[0.0;0.0]	[0.2;1.1]	[0.1;0.7]	[0.0;0.1]	[0.0;0.0]
Fragmented forest		[0.0;0.4]	[-0.1;0.5]	[0.0;0.3]	[61.8;162.5]	[0.0;0.2]	[-0.4;4.1]	[1.8;7.4]	[0.0;0.2]	[0.0;0.1]
Shrubs		[0.0;0.1]	[0.0;0.1]	[0.0;0.0]	[0.0;0.1]	[25.3;112.6]	[-0.1;0.6]	[0.7;8.6]	[0.0;0.0]	[0.0;0.1]
Short fallow		[0.0;0.5]	[0.0;0.3]	[0.0;0.6]	[-0.5;3.2]	[-0.1;0.3]	[20.9;73.3]	[0.6;1.6]	[0.0;0.2]	[0.0;0.0]
Other land cover		[0.0;0.4]	[0.1;0.5]	[0.0;0.2]	[-0.3;2.4]	[1.1;5.4]	[-2.8;10.4]	[229.7;415.0]	[-0.1;1.7]	[0.1;0.4]
Water		[-0.1;0.4]	[0.0;0.0]	[0.0;0.0]	[0.0;0.0]	[-0.5;1.9]	[0.0;0.0]	[-0.1;1.8]	[-2.3;7.2]	[0.0;0.0]
Plantations		[0.0;0.0]	[0.0;0.0]	[0.0;0.0]	[0.0;0.1]	[0.0;0.0]	[0.0;0.0]	[0.1;0.8]	[0.0;0.0]	[0.7;3.2]

**Table 65. Analysis of change for the periods 1980-1990 and 1990-2000 - Ecological zone *Moist deciduous forest* (percentage of total change)**

**Period 1: 1980-1990**  
% of total change

Land cover classes in 1980	Land cover classes in 1990									Total change by class of origin	
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other land cover	Water	Plantations	ha	%
Closed canopy forest		5.4	2.5	7.8	1.2	7.5	12.8	1.8	0.2	29.3	39.1
Open canopy forest	0.6		0.5	2.1	1.6	2.6	9.5	ε	0.1	12.8	17.1
Long fallow	0.3	ε		0.1	0.1	0.9	1.4	ε	ε	2.2	2.9
Fragmented forest	0.7	0.5	0.2		0.6	4.2	12.3	0.4	ε	14.1	18.8
Shrubs	0.1	0.1	0.1	0.1		0.3	7.8	0.1	0.2	6.6	8.8
Short fallow	0.5	0.3	0.2	0.7	0.1		3.0	0.1	ε	3.7	5.0
Other land cover	0.6	0.7	0.1	1.5	0.8	1.4		1.4	0.5	5.2	7.0
Water	ε	ε		ε	ε	0.1	0.8			0.8	1.0
Plantations	0.1	ε		ε	ε		0.1			0.2	0.2
<b>Total change by class of destination</b>	ha	2.2	5.2	2.7	9.3	3.3	12.8	35.9	2.8	0.8	74.9
	%	2.9	7.0	3.6	12.4	4.3	17.1	47.9	3.8	1.1	100

**Period 2: 1990-2000**  
% of total change

Land cover classes in 1990	Land cover classes in 2000									Total change by class of origin	
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other land cover	Water	Plantations	ha	%
Closed canopy forest		1.0	1.6	9.9	0.4	7.2	11.4	0.7	0.1	17.5	32.2
Open canopy forest	0.2		0.6	3.7	0.9	2.2	6.8	0.1	ε	7.9	14.5
Long fallow	0.4	0.1		ε	ε	1.2	0.7	0.1		1.4	2.6
Fragmented forest	0.4	0.3	0.2		0.2	3.4	8.5	0.1	0.1	7.2	13.3
Shrubs	0.1	0.1	ε	0.1		0.5	8.6	ε	0.1	5.1	9.4
Short fallow	0.5	0.3	0.5	2.5	0.2		2.1	0.1		3.4	6.2
Other land cover	0.4	0.5	0.2	2.0	5.9	7.0		1.5	0.4	9.7	18.0
Water	0.2	ε		ε	1.2	ε	1.5			1.6	3.0
Plantations	ε	ε		ε	ε		0.8			0.5	0.9
<b>Total change by class of destination</b>	ha	1.2	1.3	1.7	9.9	4.9	11.7	21.9	1.4	0.4	54.3
	%	2.2	2.4	3.1	18.2	8.9	21.5	40.4	2.5	0.7	100

**Table 66. Forest area and area change - Ecological zone *Tropical moist deciduous forest***
**Forest area**

	Forest definition f1		Forest definition f2				Forest definition f3						
	Absolute forest cover (million hectares)		Relative forest cover (%)		Absolute forest cover (million hectares)		Relative forest cover (%)		Absolute forest cover (million hectares)		Relative forest cover (%)		
	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	95%CI
<b>1980</b>	292.2	49.9	28.0	4.8	501.5	64.0	48.1	6.1	536.5	66.0	51.4	6.3	[39;64]
<b>1990</b>	265.1	46.1	25.4	4.4	465.7	60.9	44.6	5.8	500.6	62.9	48.0	6.0	[36;60]
<b>2000</b>	248.8	43.4	23.8	4.2	443.5	58.4	42.5	5.6	479.0	60.6	45.9	5.8	[35;57]

**Forest area change (10-years periods)**

(million hectares)	Forest definition f1		Forest definition f2			Forest definition f3				
	Deforestation	Net forest area change		Deforestation	Net forest area change		Deforestation	Net forest area change		
	Mean	Mean	SE	Mean	Mean	SE	Mean	Mean	SE	95%CI
<b>1980-1990</b>	29.3	-27.2	6.2	39.0	-35.8	6.3	39.2	-35.8	6.3	[-48;-23]
<b>1990-2000</b>	17.5	-16.3	4.3	24.5	-22.2	4.4	24.4	-21.6	4.2	[-30;-13]

**Annual forest change (net area change and deforestation rate)**

	Forest definition f1				Forest definition f2				Forest definition f3				
	<b>Annual forest area change</b> (million hectares)		<b>Deforestation rate r</b> (%)		<b>Annual net forest area change</b> (million hectares)		<b>Deforestation rate r</b> (%)		<b>Annual net forest area change</b> (million hectares)		<b>Deforestation rate r</b> (%)		
	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	95%CI
<b>1980-1990</b>	-2.7	0.6	0.93	0.16	-3.6	0.6	0.71	0.11	-3.6	0.6	0.67	0.10	[0.47;0.87]
<b>1990-2000</b>	-1.6	0.4	0.61	0.12	-2.2	0.4	0.48	0.08	-2.2	0.4	0.43	0.07	[0.30;0.57]

Notes: SE = standard error of the mean; 95%CI = 95% confidence interval; absolute forest cover = forest area; relative forest cover = percentage of total land area; deforestation = gross forest loss; Net forest area change = net forest loss/gain

**Table 67. Area transition matrices for the periods 1980-1990 and 1990-2000 - Ecological zone Tropical dry forest and shrubland (million hectares)**

**Area transition matrix 1980-1990**  
(million ha)

Land cover classes in 1980	Land cover classes in 1990									State 1980	% of total land area
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other land cover	Water	Plantations		
Closed canopy forest	76.8	0.9	0.3	0.7	0.1	0.2	1.0	0.1	ε	80.1	13.3
Open canopy forest	0.1	94.1	0.1	3.9	0.1	0.2	1.4	0.1	ε	99.9	16.6
Long fallow	ε	ε	4.1	ε	ε	0.1	0.1	ε	ε	4.5	0.7
Fragmented forest	0.1	0.3	ε	42.0	0.1	ε	1.9	ε	ε	44.4	7.4
Shrubs	ε	ε	ε	0.1	27.8	ε	1.4	ε	0.1	29.4	4.9
Short fallow	0.1	ε	ε	ε	ε	1.6	0.1	ε	ε	1.8	0.3
Other land cover	0.1	0.3	ε	0.2	0.3	ε	339.0	0.2	ε	340.2	56.5
Water	ε	ε	ε	ε	ε	ε	0.2	0.4	ε	0.7	0.1
Plantations	ε	ε	ε	ε	ε	ε	ε	ε	1.3	1.4	0.2
<b>State 1990 →</b>	<b>77.2</b>	<b>95.7</b>	<b>4.5</b>	<b>47.0</b>	<b>28.5</b>	<b>2.1</b>	<b>345.1</b>	<b>0.8</b>	<b>1.5</b>	<b>602</b>	
% of total land area →	12.8	15.9	0.7	7.8	4.7	0.3	57.3	0.1	0.3		

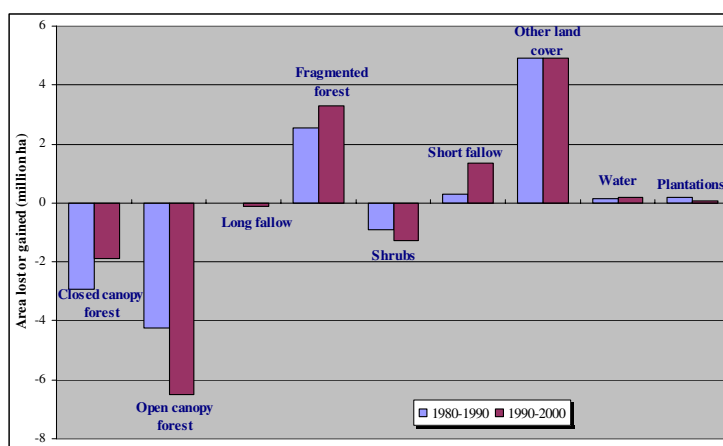
**Area transition matrix 1990-2000**  
(million ha)

Land cover classes in 1990	Land cover classes in 2000									State 1990	% of total land area
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other land cover	Water	Plantations		
Closed canopy forest	75.2	0.2	0.1	0.7	ε	0.5	0.5	ε	ε	77.2	12.8
Open canopy forest	0.1	88.6	0.1	4.3	0.1	0.8	1.7	ε	ε	95.7	15.9
Long fallow	ε	ε	4.1	0.1	ε	0.2	0.1	ε	ε	4.5	0.7
Fragmented forest	ε	0.2	ε	44.8	ε	ε	1.9	ε	ε	47.0	7.8
Shrubs	ε	ε	ε	ε	26.9	0.2	1.4	ε	ε	28.5	4.7
Short fallow	ε	0.1	ε	ε	0.1	1.7	0.2	ε	ε	2.1	0.3
Other land cover	0.1	0.1	ε	0.4	0.1	ε	344.2	0.2	ε	345.1	57.3
Water	ε	ε	ε	ε	ε	ε	0.1	0.7	ε	0.8	0.1
Plantations	ε	ε	ε	ε	ε	ε	ε	ε	1.5	1.5	0.3
<b>State 2000 →</b>	<b>75.3</b>	<b>89.2</b>	<b>4.4</b>	<b>50.2</b>	<b>27.2</b>	<b>3.4</b>	<b>350.0</b>	<b>1.0</b>	<b>1.6</b>	<b>602</b>	
% of total land area →	12.5	14.8	0.7	8.3	4.5	0.6	58.1	0.2	0.3		

Notes: See Table 6.

**Figure 15. Summary of net changes during the periods 1980-1990 and 1990-2000 by land cover classes - Ecological zone Tropical dry forest and shrubland (million hectares)**

(million ha)	1980-1990	1990-2000
<b>Closed canopy forest</b>	- 2.9	- 1.9
<b>Open canopy forest</b>	- 4.3	- 6.5
<b>Long fallow</b>	0.0	- 0.1
<b>Fragmented forest</b>	2.6	3.3
<b>Shrubs</b>	- 0.9	- 1.3
<b>Short fallow</b>	0.3	1.3
<b>Other land cover</b>	4.9	4.9
<b>Water</b>	0.1	0.2
<b>Plantations</b>	0.2	0.1



**Table 68. Standard errors and 95 percent confidence intervals of the area transition matrices - Ecological zone *Tropical dry forest and shrubland* (million hectares)**

**Standard errors - Area transition matrix 1980-1990**

(million ha)		Land cover classes in 1990								
		Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other land cover	Water	Plantations
Land cover classes in 1980										
Closed canopy forest		22.3	0.4	0.3	0.3	0.1	0.1	0.4	0.1	ε
Open canopy forest	ε		29.4	0.1	2.5	0.1	0.1	0.3	ε	ε
Long fallow	ε	ε		2.9	ε	ε	0.1	0.1	ε	ε
Fragmented forest	ε	0.1	ε		13.5	ε	ε	0.8	ε	ε
Shrubs	ε	ε	ε	ε		6.4	ε	0.6	ε	ε
Short fallow	ε	ε	ε	ε	ε		0.9	ε	ε	ε
Other land cover	ε	0.1	ε	0.1	0.2	ε		53.8	0.1	ε
Water	ε	ε	ε	ε	ε	ε	ε		0.3	ε
Plantations						ε	ε	ε		0.9

**Standard errors - Area transition matrix 1990-2000**

(million ha)		Land cover classes in 2000								
		Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other land cover	Water	Plantations
Land cover classes in 1990										
Closed canopy forest		21.9	0.1	0.1	0.3	ε	0.3	0.2	ε	ε
Open canopy forest	0.1		27.9	0.1	2.8	0.1	0.5	0.7	ε	ε
Long fallow	ε	ε		2.8	0.1	0.1	0.1	0.1	ε	ε
Fragmented forest	ε	0.1	ε		14.7	ε	ε	1.3	ε	ε
Shrubs	ε	ε	ε	ε		6.0	0.1	0.7	ε	ε
Short fallow	ε	ε	ε	ε	ε		0.9	0.1	ε	ε
Other land cover	ε	0.1	ε	0.3	0.1	ε		54.1	0.1	ε
Water	ε	ε	ε	ε	ε	ε	ε		0.5	ε
Plantations								ε		1.0

**95 % Confidence Intervals - Area transition matrix 1980-1990**

(million ha)		Land cover classes in 1990								
		Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other land cover	Water	Plantations
Land cover classes in 1980										
Closed canopy forest		[33.0;120.6]	[0.1;1.6]	[-0.2;0.8]	[0.2;1.3]	[0.0;0.2]	[0.0;0.4]	[0.2;1.9]	[0.0;0.2]	[0.0;0.1]
Open canopy forest	[0.0;0.2]		[36.5;151.6]	[-0.1;0.2]	[-1.0;8.7]	[0.0;0.3]	[0.0;0.4]	[0.7;2.0]	[0.0;0.2]	[0.0;0.1]
Long fallow	[0.0;0.1]	[0.0;0.0]		[-1.6;9.8]	[0.0;0.0]	[0.0;0.1]	[0.0;0.2]	[0.0;0.3]	[0.0;0.1]	[0.0;0.0]
Fragmented forest	[0.0;0.1]	[0.0;0.6]	[0.0;0.0]		[15.5;68.5]	[0.0;0.2]	[0.0;0.0]	[0.4;3.4]	[0.0;0.0]	[0.0;0.0]
Shrubs	[0.0;0.0]	[0.0;0.1]	[0.0;0.0]	[0.0;0.1]		[15.3;40.3]	[0.0;0.1]	[0.1;2.7]	[0.0;0.1]	[0.0;0.1]
Short fallow	[0.0;0.1]	[0.0;0.1]	[0.0;0.0]	[0.0;0.0]	[0.0;0.0]		[-0.2;3.4]	[0.0;0.2]	[0.0;0.0]	[0.0;0.0]
Other land cover	[0.0;0.2]	[0.1;0.6]	[0.0;0.1]	[0.0;0.5]	[0.0;0.7]	[0.0;0.0]		[233.6;444.3]	[0.0;0.3]	[0.0;0.1]
Water	[0.0;0.1]	[0.0;0.1]	[0.0;0.0]	[0.0;0.0]	[0.0;0.0]	[0.0;0.0]	[0.0;0.3]		[-0.2;0.9]	[0.0;0.0]
Plantations	[0.0;0.0]	[0.0;0.0]	[0.0;0.0]	[0.0;0.0]	[0.0;0.0]	[0.0;0.0]	[0.0;0.0]	[0.0;0.0]	[0.0;0.0]	[-0.5;3.2]

**95 % confidence intervals - Area transition matrix 1990-2000**

(million ha)		Land cover classes in 2000								
		Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other land cover	Water	Plantations
Land cover classes in 1990										
Closed canopy forest		[32.2;118.1]	[0.0;0.4]	[0.0;0.2]	[0.1;1.3]	[0.0;0.0]	[-0.1;1.0]	[0.1;1.0]	[0.0;0.1]	[0.0;0.0]
Open canopy forest	[0.0;0.2]		[34.0;143.2]	[-0.1;0.3]	[-1.2;9.9]	[0.0;0.2]	[-0.1;1.8]	[0.3;3.1]	[0.0;0.0]	[0.0;0.0]
Long fallow	[0.0;0.0]	[0.0;0.0]		[-1.4;9.7]	[-0.1;0.2]	[0.0;0.0]	[-0.1;0.5]	[0.0;0.2]	[0.0;0.0]	[0.0;0.0]
Fragmented forest	[0.0;0.0]	[0.0;0.4]	[0.0;0.0]		[16.0;73.7]	[0.0;0.0]	[0.0;0.1]	[-0.6;4.4]	[0.0;0.0]	[0.0;0.0]
Shrubs	[0.0;0.0]	[0.0;0.0]	[0.0;0.0]	[0.0;0.0]		[15.1;38.7]	[-0.1;0.4]	[0.1;2.7]	[0.0;0.0]	[0.0;0.1]
Short fallow	[0.0;0.1]	[0.0;0.2]	[0.0;0.1]	[0.0;0.0]	[-0.1;0.2]		[-0.1;3.5]	[-0.1;0.5]	[0.0;0.0]	[0.0;0.0]
Other land cover	[0.0;0.1]	[0.0;0.3]	[0.0;0.0]	[-0.2;0.9]	[0.0;0.3]	[0.0;0.1]		[238.2;450.1]	[0.0;0.4]	[0.0;0.1]
Water	[0.0;0.0]	[0.0;0.0]	[0.0;0.0]	[0.0;0.0]	[0.0;0.0]	[0.0;0.0]	[0.0;0.1]		[-0.3;1.6]	[0.0;0.0]
Plantations	[0.0;0.0]	[0.0;0.0]	[0.0;0.0]	[0.0;0.0]	[0.0;0.0]	[0.0;0.0]	[0.0;0.1]	[0.0;0.0]	[0.0;0.0]	[-0.5;3.6]

**Table 69. Analysis of change for the periods 1980-1990 and 1990-2000 - Ecological zone *Tropical dry forest and shrubland* (percentage of total change)**

Land cover classes in 1980		Land cover classes in 1990									Total change by class of origin	
		Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other land cover	Water	Plantations	ha	%
Closed canopy forest			5.6	1.8	4.7	0.7	1.1	6.8	0.7	0.3	3.4	21.8
Open canopy forest	0.9			0.5	25.1	1.0	1.2	9.0	0.4	0.3	5.9	38.3
Long fallow	0.2	0.1			0.1	0.3	0.7	0.9	0.2		0.4	2.5
Fragmented forest	0.5	2.1				0.5	0.1	12.1	0.1	0.1	2.4	15.3
Shrubs	ε	0.2	ε		0.4		0.3	9.2	0.2	0.3	1.6	10.7
Short fallow	0.4	0.1	ε	ε		0.1		0.6	0.1		0.2	1.3
Other land cover	0.6	2.2	0.1	1.6	2.1	ε			1.1	0.3	1.3	8.2
Water	0.2	0.2		0.1	ε					0.1	0.3	1.9
Plantations			ε			ε		0.1			0.0	0.1
<b>Total change by class of destination</b>	ha	<b>0.4</b>	<b>1.6</b>	<b>0.4</b>	<b>4.9</b>	<b>0.7</b>	<b>0.5</b>	<b>6.2</b>	<b>0.4</b>	<b>0.2</b>	<b>15.4</b>	
	%	2.8	10.6	2.5	32.0	4.7	3.3	40.0	2.7	1.3		100

Land cover classes in 1990		Land cover classes in 2000									Total change by class of origin	
		Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other land cover	Water	Plantations	ha	%
Closed canopy forest			1.3	0.7	4.6	0.2	3.3	3.6	0.3	ε	2.0	13.8
Open canopy forest	0.4			0.6	29.4	0.7	5.5	11.5	ε	ε	7.1	48.2
Long fallow					0.4			1.5	0.5		0.4	2.4
Fragmented forest	ε	1.5					0.1	12.9	ε		2.1	14.6
Shrubs	ε	ε	0.1	ε			1.0	9.4	0.1	0.3	1.6	11.0
Short fallow	0.2	0.5	0.1			0.4		1.3			0.4	2.5
Other land cover	0.4	0.8	0.1	2.4	0.8	0.2			1.5	0.3	1.0	6.5
Water	0.1			0.1	0.1			0.5			0.1	0.7
Plantations								0.2			0.0	0.2
<b>Total change by class of destination</b>	ha	<b>0.2</b>	<b>0.6</b>	<b>0.2</b>	<b>5.4</b>	<b>0.3</b>	<b>1.7</b>	<b>5.9</b>	<b>0.3</b>	<b>0.1</b>	<b>14.7</b>	
	%	1.2	4.0	1.6	36.9	2.2	11.6	39.9	1.9	0.6		100

**Table 70. Forest area and area change - Ecological zone *Tropical dry forest and shrubland***
**Forest area**

	Forest definition f1				Forest definition f2				Forest definition f3				
	Absolute forest cover (million hectares)		Relative forest cover (%)		Absolute forest cover (million hectares)		Relative forest cover (%)		Absolute forest cover (million hectares)		Relative forest cover (%)		
	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	95%CI
<b>1980</b>	80.1	23.2	13.3	3.8	189.9	47.5	31.5	7.9	199.4	48.5	33.1	8.0	[17;49]
<b>1990</b>	77.2	22.4	12.8	3.7	183.3	46.4	30.4	7.7	193.0	47.4	32.0	7.9	[17;47]
<b>2000</b>	75.3	21.9	12.5	3.6	175.7	44.8	29.2	7.4	185.6	45.8	30.8	7.6	[16;46]

**Forest area change (10-years periods)**

(million hectares)	Forest definition f1				Forest definition f2			Forest definition f3			
	Deforestation	Net forest area change			Deforestation	Net forest area change		Deforestation	Net forest area change		
	Mean	Mean	SE		Mean	Mean	SE	Mean	Mean	SE	95%CI
<b>1980-1990</b>	3.4	-2.9	1.2		7.7	-6.6	2.5	7.3	-6.3	2.3	[-11;-2]
<b>1990-2000</b>	2.0	-1.9	0.7		8.2	-7.6	3.0	8.0	-7.4	2.9	[-13;-2]

**Annual forest change (net area change and deforestation rate)**

	Forest definition f1				Forest definition f2				Forest definition f3				
	Annual forest area change (million hectares)		Deforestation rate r (%)		Annual net forest area change (million hectares)		Deforestation rate r (%)		Annual net forest area change (million hectares)		Deforestation rate r (%)		
	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	95%CI
<b>1980-1990</b>	-0.3	0.1	0.36	0.11	-0.7	0.2	0.35	0.12	-0.6	0.2	0.32	0.10	[0.12;0.51]
<b>1990-2000</b>	-0.2	0.1	0.24	0.07	-0.8	0.3	0.42	0.14	-0.7	0.3	0.38	0.13	[0.14;0.63]

Notes: SE = standard error of the mean; 95%CI = 95% confidence interval; absolute forest cover = forest area; relative forest cover = percentage of total land area; deforestation = gross forest loss; Net forest area change = net forest loss/gain

**Appendix 9. Trends analysis – Difference in forest area change estimates between 1980-1990 and 1990-2000**

• **Pan tropical level**

	Forest definition f1			Forest definition f2			Forest definition f3		
	Mean	SE	Significant (Yes/No)	Mean	SE	Significant (Yes/No)	Mean	SE	Significant (Yes/No)
<b>Difference Net forest area change estimates</b> period2-period1 (million hectares)	1.0	0.6	No	0.9	0.7	No	0.6	0.8	No
<b>Difference Deforestation rates</b> r2-r1 (%/year)	-0.04	0.05	No	-0.03	0.04	No	-0.01	0.05	No

Notes: SE= standard error of the mean; test of significance at the 5% level.

• **Regional level**

**Africa**

	Forest definition f1			Forest definition f2			Forest definition f3		
	Mean	SE	Significant (Yes/No)	Mean	SE	Significant (Yes/No)	Mean	SE	Significant (Yes/No)
<b>Difference Net forest area change estimates</b> period2-period1 (million hectares)	0.3	0.2	No	0.2	0.3	No	0.3	0.3	No
<b>Difference Deforestation rates</b> r2-r1 (%/year)	-0.09	0.07	No	-0.02	0.05	No	-0.03	0.05	No

**Asia**

	Forest definition f1			Forest definition f2			Forest definition f3		
	Mean	SE	Significant (Yes/No)	Mean	SE	Significant (Yes/No)	Mean	SE	Significant (Yes/No)
<b>Difference Net forest area change estimates</b> period2-period1 (million hectares)	0.25	3.6	No	0.11	3.6	No	0.0	0.4	No
<b>Difference Deforestation rates</b> r2-r1 (%/year)	-0.02	0.06	No	0.03	0.07	No	0.06	0.14	No



**Latin America**

	Forest definition f1			Forest definition f2			Forest definition f3		
	Mean	SE	Significant (Yes/No)	Mean	SE	Significant (Yes/No)	Mean	SE	Significant (Yes/No)
<b>Difference Net forest area change estimates</b> period2-period1 (million hectares)	0.4	0.5	No	0.6	0.5	No	0.3	0.7	No
<b>Difference Deforestation rates</b> r2-r1 (%/year)	-0.02	0.02	No	-0.04	0.02	No	-0.01	0.08	No

- **Subregional level**

**East Sahelian Africa (subregion code 13)**

	Forest definition f1			Forest definition f2			Forest definition f3		
	Mean	SE	Significant (Yes/No)	Mean	SE	Significant (Yes/No)	Mean	SE	Significant (Yes/No)
<b>Difference Net forest area change estimates</b> period2-period1 (million hectares)	20	12	No	13	18	No	8	17	No
<b>Difference Deforestation rates</b> r2-r1 (%/year)	-0.08	0.03	<b>Yes</b>	-0.01	0.04	No	0.00	0.05	No

**West Sahelian and West Africa (subregion code 14)**

	Forest definition f1			Forest definition f2			Forest definition f3		
	Mean	SE	Significant (Yes/No)	Mean	SE	Significant (Yes/No)	Mean	SE	Significant (Yes/No)
<b>Difference Net forest area change estimates</b> period2-period1 (thousand hectares)	157	89	No	- 2	88	No	25	101	No
<b>Difference Deforestation rates</b> r2-r1 (%/year)	-0.31	0.15	<b>Yes</b>	0.10	0.13	No	0.04	0.13	No

**Central Africa (subregion code 15)**

	Forest definition f1			Forest definition f2			Forest definition f3		
	Mean	SE	Significant (Yes/No)	Mean	SE	Significant (Yes/No)	Mean	SE	Significant (Yes/No)
<b>Difference Net forest area change estimates</b> period2-period1 (thousand hectares)	270	14	<b>Yes</b>	352	171	<b>Yes</b>	364	167	<b>Yes</b>
<b>Difference Deforestation rates</b> r2-r1 (%/year)	-0.16	0.08	<b>Yes</b>	-0.14	0.07	No	-0.14	0.07	<b>Yes</b>

**Tropical Southern Africa (subregion code 16)**

	Forest definition f1			Forest definition f2			Forest definition f3		
	Mean	SE	Significant (Yes/No)	Mean	SE	Significant (Yes/No)	Mean	SE	Significant (Yes/No)
<b>Difference Net forest area change estimates period2-period1 (thousand hectares)</b>	- 99	152	No	- 134	191	No	- 114	179	No
<b>Difference Deforestation rates r2-r1 (%/year)</b>	0.14	0.18	No	0.09	0.11	No	0.07	0.09	No

**South Asia (subregion code 44)**

	Forest definition f1			Forest definition f2			Forest definition f3		
	Mean	SE	Significant (Yes/No)	Mean	SE	Significant (Yes/No)	Mean	SE	Significant (Yes/No)
<b>Difference Net forest area change estimates period2-period1 (thousand hectares)</b>	106	89	No	81	89	No	120	167	No
<b>Difference Deforestation rates r2-r1 (%/year)</b>	-0.24	0.18	No	-0.14	0.15	No	-0.17	0.22	No

**Continental South-East Asia (subregion code 45)**

	Forest definition f1			Forest definition f2			Forest definition f3		
	Mean	SE	Significant (Yes/No)	Mean	SE	Significant (Yes/No)	Mean	SE	Significant (Yes/No)
<b>Difference Net forest area change estimates period2-period1 (thousand hectares)</b>	344	171	<b>Yes</b>	262	197	No	254	198	No
<b>Difference Deforestation rates r2-r1 (%/year)</b>	-0.45	0.21	<b>Yes</b>	-0.27	0.23	No	-0.22	0.19	No

**Insular South-East Asia (subregion code 46)**

	Forest definition f1			Forest definition f2			Forest definition f3		
	Mean	SE	Significant (Yes/No)	Mean	SE	Significant (Yes/No)	Mean	SE	Significant (Yes/No)
<b>Difference Net forest area change estimates period2-period1 (thousand hectares)</b>	- 204	301	No	- 237	294	No	- 375	350	No
<b>Difference Deforestation rates r2-r1 (%/year)</b>	0.30	0.22	No	0.33	0.22	No	0.37	0.24	No

**Mexico and Central America (subregion code 31)**

	Forest definition f1			Forest definition f2			Forest definition f3		
	Mean	SE	Significant (Yes/No)	Mean	SE	Significant (Yes/No)	Mean	SE	Significant (Yes/No)
<b>Difference Net forest area change estimates</b> period2-period1 (thousand hectares)	121	122	No	147	135	No	124	122	No
<b>Difference Deforestation rates</b> r2-r1 (%/year)	-0.24	0.32	No	-0.17	0.17	No	-0.14	0.15	No

**Tropical South America, excluded Brazil (subregion code 34)**

	Forest definition f1			Forest definition f2			Forest definition f3		
	Mean	SE	Significant (Yes/No)	Mean	SE	Significant (Yes/No)	Mean	SE	Significant (Yes/No)
<b>Difference Net forest area change estimates</b> period2-period1 (thousand hectares)	249	231	No	241	226	No	240	230	No
<b>Difference Deforestation rates</b> r2-r1 (%/year)	-0.08	0.07	No	-0.07	0.07	No	-0.07	0.07	No

**Brazil (subregion code 35)**

	Forest definition f1			Forest definition f2			Forest definition f3		
	Mean	SE	Significant (Yes/No)	Mean	SE	Significant (Yes/No)	Mean	SE	Significant (Yes/No)
<b>Difference Net forest area change estimates</b> period2-period1 (thousand hectares)	- 10	403	No	216	465	No	- 61	620	No
<b>Difference Deforestation rates</b> r2-r1 (%/year)	0.07	0.12	No	0.02	0.12	No	0.08	0.16	No

- **Ecological zone level**

**Tropical rain forest**

	Forest definition f1			Forest definition f2			Forest definition f3		
	Mean	SE	Significant (Yes/No)	Mean	SE	Significant (Yes/No)	Mean	SE	Significant (Yes/No)
<b>Difference Net forest area change estimates</b> period2-period1 (million hectares)	-0.2	0.5	No	-0.3	0.5	No	-0.7	0.7	No
<b>Difference Deforestation rates</b> r2-r1 (%/year)	0.06	0.06	No	0.06	0.06	No	0.10	0.07	No

### Tropical moist deciduous forest

	Forest definition f1			Forest definition f2			Forest definition f3		
	Mean	SE	Significant (Yes/No)	Mean	SE	Significant (Yes/No)	Mean	SE	Significant (Yes/No)
<b>Difference Net forest area change estimates</b> period2-period1 (million hectares)	1.1	0.4	<b>Yes</b>	1.4	0.5	<b>Yes</b>	1.4	0.5	<b>Yes</b>
<b>Difference Deforestation rates</b> r2-r1 (%/year)	-0.32	0.12	<b>Yes</b>	-0.24	0.09	<b>Yes</b>	-0.24	0.09	<b>Yes</b>

### Tropical dry forest and shrubland

	Forest definition f1			Forest definition f2			Forest definition f3		
	Mean	SE	Significant (Yes/No)	Mean	SE	Significant (Yes/No)	Mean	SE	Significant (Yes/No)
<b>Difference Net forest area change estimates</b> period2-period1 (million hectares)	0.1	0.1	No	-0.1	0.2	No	-0.1	0.2	No
<b>Difference Deforestation rates</b> r2-r1 (%/year)	-0.12	0.12	No	0.07	0.10	No	0.07	0.09	No

**Appendix 10. Probability transition matrices and their difference between the two reference periods.**

- **Pan-tropical level**

**Table 71. Mean transition probabilities 1980-1990 and 1990-2000 – Pan-tropical level**

**Probability matrix 1980-1990**

Land cover classes in 1980	Land cover classes in 1990								
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest	0.934	0.005	0.007	0.009	0.001	0.012	0.028	0.002	0.002
Open canopy forest	0.002	0.932	0.002	0.019	0.004	0.007	0.031	0.002	0.001
Long fallow	0.015	0.001	0.853	0.004	0.004	0.093	0.031	0.001	ε
Fragmented forest	0.003	0.004	0.001	0.900	0.004	0.018	0.068	0.002	0.001
Shrubs	0.001	ε	0.001	0.001	0.877	0.002	0.112	0.003	0.002
Short fallow	0.009	0.003	0.011	0.006	0.002	0.906	0.060	0.001	0.002
Other Land Cover	0.001	0.001	ε	0.002	0.002	0.001	0.990	0.002	0.001
Water	0.037	0.015	0.003	0.021	0.003	0.022	0.254	0.640	0.004
Plantations	0.007	0.001	ε	0.001	ε	0.010	0.059	ε	0.921

**Probability matrix 1990-2000**

Land cover classes in 1990	Land cover classes in 2000								
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest	0.939	0.001	0.005	0.008	0.001	0.008	0.036	0.001	0.002
Open canopy forest	0.001	0.944	0.002	0.022	0.002	0.007	0.022	ε	ε
Long fallow	0.014	0.002	0.850	0.003	ε	0.064	0.063	ε	0.003
Fragmented forest	0.002	0.002	0.001	0.929	0.002	0.010	0.051	0.001	0.001
Shrubs	0.001	0.001	ε	ε	0.920	0.004	0.063	0.011	ε
Short fallow	0.007	0.002	0.009	0.010	0.001	0.883	0.083	0.001	0.003
Other Land Cover	0.001	ε	0.001	0.002	0.004	0.005	0.983	0.001	0.002
Water	0.021	0.002	0.001	0.006	0.099	0.005	0.152	0.713	
Plantations	0.001			0.002	ε	0.002	0.059		0.937

**Table 72. Difference between mean transition probabilities from the two reference periods- Pan-tropical level**
**Difference between probability matrices (period 1990-2000 with period 1980-1990)**

Classes of origin	Classes of destination								
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest	0.004	-0.004	-0.003	-0.001	0.000	-0.004	0.008	-0.001	-0.001
Open canopy forest	-0.001	0.011	0.000	0.004	-0.002	0.000	-0.010	-0.002	0.000
Long fallow	-0.001	0.001	-0.003	0.000	-0.003	-0.028	0.032	0.000	0.003
Fragmented forest	-0.001	-0.002	0.000	0.029	-0.002	-0.008	-0.016	-0.001	0.000
Shrubs	0.000	0.000	-0.001	0.000	0.043	0.002	-0.050	0.008	-0.001
Short fallow	-0.002	-0.001	-0.002	0.005	-0.001	-0.024	0.023	0.000	0.001
Other Land Cover	0.000	-0.001	0.000	0.001	0.002	0.004	-0.007	0.000	0.001
Water	-0.016	-0.013	-0.002	-0.015	0.096	-0.017	-0.102	0.073	-0.004
Plantations	-0.006	-0.001	0.000	0.001	0.000	-0.008	0.000	0.000	0.015

**Standard error of the difference between probability matrices (1990-2000 with 1980-1990)**

Classes of origin	Classes of destination								
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest	0.005	0.001	0.001	0.002	0.001	0.002	0.005	0.001	0.001
Open canopy forest	0.000	0.008	0.001	0.004	0.002	0.002	0.004	0.001	0.000
Long fallow	0.006	0.001	0.029	0.002	0.002	0.016	0.018	0.001	0.002
Fragmented forest	0.001	0.001	0.000	0.020	0.001	0.007	0.017	0.001	0.000
Shrubs	0.000	0.000	0.001	0.000	0.033	0.001	0.029	0.008	0.001
Short fallow	0.003	0.001	0.003	0.004	0.001	0.019	0.021	0.001	0.002
Other Land Cover	0.000	0.000	0.000	0.001	0.001	0.003	0.004	0.001	0.001
Water	0.027	0.010	0.002	0.006	0.078	0.017	0.089	0.138	0.003
Plantations	0.003	0.001	0.000	0.001	0.000	0.006	0.024	0.001	0.027

**Statistical test - Difference between probability matrices (1990-2000 with 1980-1990)**

Classes of origin	Classes of destination								
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest	n.s.	DECREASE	DECREASE	n.s.	n.s.	DECREASE	n.s.	n.s.	n.s.
Open canopy forest	DECREASE	n.s.	n.s.	n.s.	n.s.	n.s.	DECREASE	n.s.	DECREASE
Long fallow	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	INCREASE
Fragmented forest	n.s.	n.s.	n.s.	n.s.	DECREASE	n.s.	n.s.	n.s.	n.s.
Shrubs	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Short fallow	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Other Land Cover	n.s.	DECREASE	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Water	n.s.	n.s.	n.s.	DECREASE	n.s.	n.s.	n.s.	n.s.	n.s.
Plantations	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.

Notes: statistical test at the 5% level of significance; **INCREASE** = Significant difference, increase of the transition probability; **DECREASE** = Significant difference, decrease of the transition probability; n.s. = difference not significant.

- Regional level

**Table 73. Mean transition probabilities 1980-1990 and 1990-2000 – Africa**

**Probability matrix 1980-1990**

		Land cover classes in 1990								
		Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Land cover classes in 1980										
Closed canopy forest		0.938	0.009	0.003	0.016	ε	0.025	0.009	ε	ε
Open canopy forest		0.001	0.940	0.001	0.025	ε	0.008	0.023	ε	ε
Long fallow		0.005	0.001	0.919	0.010	0.003	0.046	0.016		
Fragmented forest		0.003	0.004	0.001	0.936	0.001	0.015	0.040	ε	ε
Shrubs		0.001	ε	ε	0.001	0.965	0.005	0.027		0.001
Short fallow		0.008	0.004	0.002	0.008	0.001	0.950	0.026	0.001	0.001
Other Land Cover		0.001	0.002	ε	0.003	0.001	0.001	0.993	ε	0.001
Water		0.042	0.058		0.025	0.008	0.098	0.545	0.224	
Plantations		0.016					0.006	0.043		0.935

**Probability matrix 1990-2000**

		Land cover classes in 2000								
		Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Land cover classes in 1990										
Closed canopy forest		0.949	0.002	0.003	0.021	ε	0.018	0.007	ε	ε
Open canopy forest		ε	0.944	0.001	0.030	0.001	0.009	0.015	ε	ε
Long fallow		0.001	0.004	0.943	0.009	ε	0.030	0.013		
Fragmented forest		0.001	0.002	ε	0.943	ε	0.012	0.041	ε	ε
Shrubs		0.001	ε	ε	0.001	0.956	0.007	0.034		0.001
Short fallow		0.011	0.003	0.004	0.013	0.002	0.924	0.042	0.001	
Other Land Cover		ε	0.001	ε	0.001	ε	0.001	0.996	0.001	ε
Water							0.001	0.531	0.468	
Plantations		0.006			0.014		0.006	0.108		0.865

**Table 74. Difference between mean transition probabilities from the two reference periods – Africa**
**Difference between probability matrices (period 1990-2000 with period 1980-1990)**

Classes of origin	Classes of destination								
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest	0.011	-0.007	0.000	0.005	0.000	-0.007	-0.001	0.000	0.000
Open canopy forest	-0.001	0.004	0.000	0.004	0.000	0.001	-0.008	0.000	0.000
Long fallow	-0.003	0.002	0.024	-0.002	-0.002	-0.015	-0.003		
Fragmented forest	-0.002	-0.003	0.000	0.007	-0.001	-0.003	0.001	0.000	0.000
Shrubs	0.000	0.000	0.000	0.000	-0.009	0.002	0.007		
Short fallow	0.003	-0.001	0.002	0.006	0.001	-0.026	0.015	0.000	-0.001
Other Land Cover	-0.001	-0.001	0.000	-0.002	0.000	0.000	0.004	0.000	0.000
Water	-0.042	-0.058		-0.025	-0.008	-0.097	-0.014	0.244	
Plantations	-0.010			0.014		0.000	0.065		-0.069

**Standard error of the difference between probability matrices (1990-2000 with 1980-1990)**

Classes of origin	Classes of destination								
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest	0.007	0.002	0.001	0.004	0.000	0.006	0.001	0.000	0.000
Open canopy forest	0.000	0.009	0.001	0.005	0.000	0.003	0.004	0.000	0.000
Long fallow	0.003	0.003	0.018	0.006	0.002	0.018	0.005		
Fragmented forest	0.002	0.001	0.001	0.009	0.000	0.008	0.011	0.000	0.000
Shrubs	0.000	0.000	0.000	0.001	0.006	0.002	0.006		
Short fallow	0.004	0.001	0.001	0.007	0.001	0.024	0.023	0.000	0.001
Other Land Cover	0.000	0.000	0.000	0.001	0.000	0.000	0.002	0.000	0.000
Water	0.037	0.052		0.016	0.009	0.094	0.216	0.263	
Plantations	0.005			0.007		0.006	0.039		0.042

**Statistical test - Difference between probability matrices (1990-2000 with 1980-1990)**

Classes of origin	Classes of destination								
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest	n.s.	DECREASE	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Open canopy forest	DECREASE	n.s.	n.s.	n.s.	n.s.	n.s.	DECREASE	n.s.	n.s.
Long fallow	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.		
Fragmented forest	n.s.	DECREASE	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Shrubs	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.		
Short fallow	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Other Land Cover	n.s.	DECREASE	n.s.	n.s.	n.s.	n.s.	INCREASE	n.s.	n.s.
Water	n.s.	n.s.		n.s.	n.s.	n.s.	n.s.	n.s.	
Plantations	n.s.			INCREASE		n.s.	n.s.		n.s.

Notes: see Table 72.



**Table 75. Mean transition probabilities 1980-1990 and 1990-2000 – Asia**

**Probability matrix 1980-1990**

		Land cover classes in 1990								
		Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Land cover classes in 1980										
Closed canopy forest		0.900	0.008	0.023	0.005	0.001	0.019	0.032	0.002	0.011
Open canopy forest		0.012	0.916	0.005	0.008	0.011	0.004	0.039	0.002	0.003
Long fallow		0.017	ε	0.832	0.001	0.004	0.108	0.036	0.001	ε
Fragmented forest		0.005	0.005	0.007	0.848	0.018	0.009	0.103	0.002	0.004
Shrubs		0.007	0.006	0.007	0.007	0.838	0.002	0.122	0.004	0.007
Short fallow		0.011	0.001	0.022	0.003	0.005	0.868	0.086	0.001	0.003
Other Land Cover		0.001	0.001	0.001	0.001	0.002	ε	0.991	0.001	0.002
Water		0.039	0.004		0.004	0.003		0.157	0.769	0.025
Plantations		0.007	0.001	ε	0.001	ε	0.011	0.057	0.001	0.921

**Probability matrix 1990-2000**

		Land cover classes in 2000								
		Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Land cover classes in 1990										
Closed canopy forest		0.906	0.002	0.017	0.003	0.001	0.015	0.044	0.004	0.008
Open canopy forest		0.006	0.921	0.007	0.008	0.007	0.009	0.040	0.001	ε
Long fallow		0.011	ε	0.846	0.001	ε	0.080	0.058	0.001	0.005
Fragmented forest		0.005	0.002	0.009	0.888	0.012	0.013	0.066	0.002	0.003
Shrubs		0.004	0.002	0.002	0.002	0.882	0.023	0.081	0.003	0.002
Short fallow		0.002	ε	0.015	0.001	ε	0.844	0.128	0.002	0.008
Other Land Cover		0.001	0.001	0.001	0.002	0.001	0.001	0.984	0.001	0.009
Water		0.015			0.006	0.009		0.087	0.883	
Plantations		ε			ε		0.002	0.042		0.956

**Table 76. Difference between mean transition probabilities from the two reference periods- Asia**
**Difference between probability matrices (period 1990-2000 with period 1980-1990)**

Classes of origin	Classes of destination								
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest	0.006	-0.006	-0.006	-0.002	-0.001	-0.004	0.012	0.002	-0.002
Open canopy forest	-0.006	0.005	0.001	0.000	-0.004	0.006	0.002	-0.001	-0.002
Long fallow	-0.006	0.000	0.014	0.000	-0.004	-0.028	0.021	0.000	0.005
Fragmented forest	-0.001	-0.003	0.002	0.041	-0.006	0.004	-0.037	0.000	-0.001
Shrubs	-0.003	-0.004	-0.005	-0.005	0.044	0.021	-0.041	-0.001	-0.005
Short fallow	-0.008	-0.001	-0.008	-0.002	-0.005	-0.024	0.042	0.001	0.006
Other Land Cover	0.000	0.000	0.000	0.001	-0.001	0.001	-0.007	0.000	0.007
Water	-0.024	-0.004		0.003	0.007		-0.071	0.114	-0.025
Plantations	-0.007	-0.001	0.000	-0.001	0.000	-0.009	-0.015	-0.001	0.034

**Standard error of the difference between probability matrices (1990-2000 with 1980-1990)**

Classes of origin	Classes of destination								
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest	0.015	0.002	0.004	0.002	0.000	0.004	0.010	0.003	0.004
Open canopy forest	0.003	0.030	0.002	0.002	0.004	0.005	0.023	0.002	0.001
Long fallow	0.004	0.000	0.031	0.000	0.003	0.021	0.017	0.001	0.002
Fragmented forest	0.002	0.002	0.003	0.029	0.005	0.005	0.027	0.002	0.002
Shrubs	0.006	0.002	0.006	0.003	0.043	0.013	0.042	0.002	0.004
Short fallow	0.006	0.001	0.007	0.001	0.003	0.035	0.042	0.001	0.005
Other Land Cover	0.000	0.001	0.000	0.001	0.001	0.001	0.004	0.001	0.003
Water	0.023	0.007		0.003	0.007		0.066	0.089	0.022
Plantations	0.004	0.001	0.000	0.000	0.000	0.007	0.026	0.001	0.033

**Statistical test - Difference between probability matrices (1990-2000 with 1980-1990)**

Classes of origin	Classes of destination								
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest	n.s.	DECREASE	n.s.	n.s.	DECREASE	n.s.	n.s.	n.s.	n.s.
Open canopy forest	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Long fallow	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	INCREASE
Fragmented forest	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Shrubs	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Short fallow	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Other Land Cover	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	INCREASE
Water	n.s.	n.s.		n.s.	n.s.		n.s.	n.s.	n.s.
Plantations	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.

Notes: see Table 72.

**Table 77. Mean transition probabilities 1980-1990 and 1990-2000 – Latin America**

**Probability matrix 1980-1990**

		Land cover classes in 1990								
		Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Land cover classes in 1980										
Closed canopy forest		0.944	0.002	0.004	0.007	0.002	0.004	0.034	0.002	ε
Open canopy forest		0.001	0.918	0.001	0.006	0.011	0.007	0.049	0.006	0.001
Long fallow		0.029	0.006	0.840	0.005	0.001	0.097	0.021	0.001	
Fragmented forest		0.002	0.001	0.001	0.823	0.005	0.029	0.130	0.006	0.003
Shrubs		ε	ε	0.001	ε	0.846	0.001	0.146	0.005	0.001
Short fallow		0.007	0.006	0.010	0.006	0.001	0.843	0.122	0.007	
Other Land Cover		0.001	ε	ε	0.001	0.005	0.004	0.983	0.005	0.001
Water		0.036	0.007	0.005	0.025	0.001	0.010	0.207	0.709	
Plantations					0.001			0.086		0.913

**Probability matrix 1990-2000**

		Land cover classes in 2000								
		Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Land cover classes in 1990										
Closed canopy forest		0.945	ε	0.002	0.004	0.002	0.002	0.044	ε	ε
Open canopy forest		ε	0.949	0.001	0.010	0.004	0.002	0.033	ε	ε
Long fallow		0.063	0.008	0.670	0.007	0.002	0.043	0.207	ε	
Fragmented forest		0.004	0.003	0.001	0.904	0.003	0.003	0.078	0.002	0.003
Shrubs		ε	0.001	ε	ε	0.908	ε	0.073	0.017	ε
Short fallow		0.006	0.004	0.012	0.024	0.001	0.830	0.123	ε	
Other Land Cover		0.002	ε	0.001	0.006	0.013	0.017	0.957	0.003	0.001
Water		0.024	0.003	0.002	0.007	0.126	0.006	0.143	0.689	
Plantations					0.006	0.004		0.160		0.830

**Table 78. Difference between mean transition probabilities from the two reference periods - Latin America**
**Difference between probability matrices (period 1990-2000 with period 1980-1990)**

Classes of origin	Classes of destination								
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest	0.001	-0.002	-0.002	-0.003	0.000	-0.002	0.011	-0.002	0.000
Open canopy forest	-0.001	0.032	0.000	0.004	-0.007	-0.005	-0.016	-0.005	0.000
Long fallow	0.034	0.002	-0.169	0.002	0.001	-0.054	0.186	-0.001	
Fragmented forest	0.001	0.003	0.000	0.081	-0.001	-0.027	-0.053	-0.005	0.000
Shrubs	0.000	0.000	-0.001	0.000	0.062	0.000	-0.072	0.013	-0.001
Short fallow	-0.001	-0.002	0.002	0.019	0.000	-0.013	0.001	-0.006	
Other Land Cover	0.000	0.000	0.001	0.005	0.009	0.013	-0.026	-0.002	-0.001
Water	-0.011	-0.004	-0.003	-0.018	0.125	-0.003	-0.064	-0.020	
Plantations				0.006	0.004		0.074		-0.083

**Standard error of the difference between probability matrices (1990-2000 with 1980-1990)**

Classes of origin	Classes of destination								
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest	0.007	0.001	0.001	0.002	0.001	0.001	0.008	0.001	0.000
Open canopy forest	0.001	0.020	0.001	0.005	0.008	0.004	0.010	0.005	0.000
Long fallow	0.050	0.006	0.156	0.005	0.001	0.037	0.100	0.001	
Fragmented forest	0.002	0.002	0.000	0.068	0.002	0.015	0.057	0.004	0.000
Shrubs	0.000	0.000	0.001	0.000	0.047	0.001	0.041	0.012	0.001
Short fallow	0.004	0.003	0.006	0.016	0.001	0.055	0.048	0.003	
Other Land Cover	0.001	0.000	0.000	0.003	0.005	0.010	0.014	0.003	0.000
Water	0.037	0.006	0.003	0.009	0.105	0.005	0.115	0.170	
Plantations				0.004	0.003		0.070		0.071

**Statistical test - Difference between probability matrices (1990-2000 with 1980-1990)**

Classes of origin	Classes of destination								
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest	n.s.	DECREASE	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Open canopy forest	DECREASE	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Long fallow	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	
Fragmented forest	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Shrubs	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Short fallow	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	DECREASE	
Other Land Cover	n.s.	n.s.	INCREASE	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Water	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	
Plantations				n.s.	n.s.		n.s.		n.s.

Notes: see Table 72.

- Subregional level

**Table 79. Mean transition probabilities 1980-1990 and 1990-2000 – East Sahelian Africa (subregion code 13)**

**Probability matrix 1980-1990**

		Land cover classes in 1990								
Land cover classes in 1980		Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest		0.934	0.003	0.012	0.024	0.001	0.006	0.020		
Open canopy forest		ε	0.963		0.007	0.001		0.029		
Long fallow			0.001	0.424	0.380		0.160	0.036		
Fragmented forest		0.002	0.005		0.887	0.006	0.001	0.100		ε
Shrubs		ε			0.002	0.953		0.045		
Short fallow							0.326	0.674		
Other Land Cover		ε	0.001		0.001	0.001	ε	0.996		ε
Water								1.008	-0.008	
Plantations										1.000

**Probability matrix 1990-2000**

		Land cover classes in 2000								
Land cover classes in 1990		Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest		0.940	0.002	0.010	0.026	ε	0.013	0.009		
Open canopy forest		0.001	0.964		0.008	0.001		0.026		ε
Long fallow				0.352	0.166		0.349	0.133		
Fragmented forest		0.001			0.912	0.003	0.006	0.078		ε
Shrubs		ε			ε	0.955		0.044		
Short fallow							0.444	0.556		
Other Land Cover		ε	ε		0.001	0.001		0.996	0.001	
Water								0.202	0.798	
Plantations										1.000

**Table 80. Difference between mean transition probabilities from the two reference periods- East Sahelian Africa (subregion code 13)**
**Difference between probability matrices (period 1990-2000 with period 1980-1990)**

Classes of origin	Classes of destination								
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest	0.006	-0.002	-0.002	0.001	0.000	0.006	-0.010		
Open canopy forest	0.000	0.001		0.000	0.001		-0.003	0.000	
Long fallow		-0.001	-0.071	-0.214		0.189	0.097		
Fragmented forest	0.000	-0.005		0.025	-0.003	0.005	-0.022	0.000	
Shrubs	0.000			-0.001	0.002		-0.001		
Short fallow						0.118	-0.118		
Other Land Cover	0.000	-0.001		0.000	-0.001	0.000	0.000	0.001	
Water							-0.806	0.806	
Plantations									

**Standard error of the difference between probability matrices (1990-2000 with 1980-1990)**

Classes of origin	Classes of destination								
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest	0.004	0.001	0.001	0.003	0.000	0.006	0.006		
Open canopy forest	0.001	0.009		0.002	0.001		0.009	0.000	
Long fallow		0.000		0.000		0.000	0.000		
Fragmented forest	0.001	0.003		0.020	0.002	0.006	0.025	0.000	
Shrubs	0.000			0.001	0.003		0.002		
Short fallow						0.000	0.000		
Other Land Cover	0.000	0.000		0.000	0.001	0.000	0.001	0.000	
Water							0.289	0.202	
Plantations									

**Statistical test - Difference between probability matrices (1990-2000 with 1980-1990)**

Classes of origin	Classes of destination								
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest	n.s.	DECREASE	n.s.	n.s.	n.s.	n.s.	n.s.		
Open canopy forest	n.s.	n.s.		n.s.	n.s.		n.s.	n.s.	
Long fallow		DECREASE		DECREASE		INCREASE	INCREASE		
Fragmented forest	n.s.	n.s.		n.s.	n.s.	n.s.	n.s.	n.s.	
Shrubs	n.s.			n.s.	n.s.		n.s.		
Short fallow						INCREASE	DECREASE		
Other Land Cover	n.s.	n.s.		n.s.	n.s.	n.s.	n.s.	n.s.	
Water							DECREASE	INCREASE	
Plantations									

Notes: see Table 72.

**Table 81. Mean transition probabilities 1980-1990 and 1990-2000 – West Sahelian and West Africa (subregion code 14)**

**Probability matrix 1980-1990**

		Land cover classes in 1990								
Land cover classes in 1980		Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest		0.827	0.009	0.005	0.090	0.002	0.050	0.016	ε	ε
Open canopy forest			0.894		0.087	0.001	0.001	0.017	ε	ε
Long fallow		0.001		0.923			0.066	0.010		
Fragmented forest		0.001	0.005		0.963	ε	ε	0.032		
Shrubs		0.001	ε		ε	0.994		0.005		
Short fallow		0.001	0.001	0.002	0.005		0.967	0.023	ε	0.002
Other Land Cover		ε	0.001		0.002	ε	0.001	0.995	0.001	ε
Water								0.601	0.399	
Plantations							0.004	0.009		0.987

**Probability matrix 1990-2000**

		Land cover classes in 2000								
Land cover classes in 1990		Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest		0.855	0.002	0.005	0.106	0.001	0.008	0.023	ε	0.001
Open canopy forest			0.854		0.117	0.003	0.002	0.022	ε	ε
Long fallow				0.981			0.017	0.001		
Fragmented forest		0.002	0.002		0.932	ε	0.001	0.063	ε	
Shrubs		0.001	ε		0.001	0.987		0.010		
Short fallow		ε	0.001	0.002	ε		0.923	0.074	ε	
Other Land Cover		ε	0.001		ε		0.002	0.995	0.001	ε
Water							0.002	0.601	0.396	
Plantations							0.023	0.023		0.954

**Table 82. Difference between mean transition probabilities from the two reference periods- West Sahelian and West Africa (subregion code 14)**
**Difference between probability matrices (period 1990-2000 with period 1980-1990)**

Classes of origin	Classes of destination								
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest	0.028	-0.007	0.000	0.015	-0.001	-0.041	0.006	0.000	0.000
Open canopy forest		-0.040		0.030	0.002	0.002	0.006	0.000	0.000
Long fallow	-0.001		0.058			-0.049	-0.009		
Fragmented forest	0.001	-0.002		-0.031	0.000	0.001	0.031	0.000	
Shrubs	0.000	0.000		0.001	-0.007		0.005		
Short fallow	0.000	0.000	0.000	-0.005		-0.044	0.052	0.000	-0.002
Other Land Cover	0.000	0.000		-0.002	0.000	0.002	0.000	0.000	0.000
Water						0.002	0.000	-0.003	
Plantations						0.019	0.014		-0.033

**Standard error of the difference between probability matrices (1990-2000 with 1980-1990)**

Classes of origin	Classes of destination								
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest	0.016	0.005	0.004	0.006	0.001	0.018	0.003	0.000	0.001
Open canopy forest		0.019		0.018	0.003	0.002	0.002	0.000	0.000
Long fallow	0.001		0.027			0.029	0.009		
Fragmented forest	0.001	0.002		0.013	0.000	0.001	0.014	0.000	
Shrubs	0.000	0.000		0.000	0.001		0.001		
Short fallow	0.000	0.000	0.001	0.003		0.052	0.052	0.000	0.002
Other Land Cover	0.000	0.000		0.001	0.000	0.001	0.002	0.000	0.000
Water						0.002	0.376	0.379	
Plantations						0.013	0.009		0.006

**Statistical test - Difference between probability matrices (1990-2000 with 1980-1990)**

Classes of origin	Classes of destination								
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest	n.s.	n.s.	n.s.	INCREASE	n.s.	DECREASE	INCREASE	n.s.	n.s.
Open canopy forest		DECREASE		n.s.	n.s.	n.s.	INCREASE	n.s.	n.s.
Long fallow	n.s.		INCREASE			n.s.	n.s.		
Fragmented forest	n.s.	n.s.		DECREASE	n.s.	n.s.	INCREASE	n.s.	
Shrubs	INCREASE	INCREASE		INCREASE	DECREASE		INCREASE		
Short fallow	DECREASE	n.s.	n.s.	n.s.		n.s.	n.s.	n.s.	n.s.
Other Land Cover	n.s.	n.s.		n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Water						n.s.	n.s.	n.s.	
Plantations						n.s.	n.s.		DECREASE

Notes: see Table 72.



**Table 83. Mean transition probabilities 1980-1990 and 1990-2000 – Central Africa (subregion code 15)**

**Probability matrix 1980-1990**

		Land cover classes in 1990								
Land cover classes in 1980		Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest		0.951	0.011	0.001	0.002		0.031	0.003	ε	ε
Open canopy forest		0.002	0.950	ε	0.007		0.013	0.028		
Long fallow				0.984			0.016			
Fragmented forest		0.002	0.002		0.950		0.001	0.046		
Shrubs										
Short fallow		0.018	0.005		ε		0.960	0.014	0.001	0.001
Other Land Cover		0.001	0.002		0.005		0.002	0.989	ε	ε
Water							0.984	0.066	-0.049	
Plantations								0.036		0.964

**Probability matrix 1990-2000**

		Land cover classes in 2000								
Land cover classes in 1990		Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest		0.966	0.003	0.002	0.002		0.026	0.001	ε	ε
Open canopy forest		ε	0.985	0.001	0.005		0.006	0.004		
Long fallow				0.988	0.009		0.004			
Fragmented forest		0.001	ε		0.965		0.020	0.014		
Shrubs										
Short fallow		0.028	0.002		ε		0.965	0.004	0.002	
Other Land Cover			0.001		0.001		0.001	0.997	ε	0.001
Water									1.000	
Plantations										1.000

**Table 84. Difference between mean transition probabilities from the two reference periods- Pan-tropical level Central Africa (subregion code 15)**

**Difference between probability matrices (period 1990-2000 with period 1980-1990)**

Classes of origin	Classes of destination								
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest	0.015	-0.008	0.000	0.000		-0.005	-0.002	0.000	0.000
Open canopy forest	-0.002	0.035	0.001	-0.002		-0.007	-0.024		
Long fallow			0.003	0.009		-0.012			
Fragmented forest	-0.001	-0.002		0.014		0.020	-0.032		
Shrubs									
Short fallow	0.010	-0.004		0.000		0.004	-0.011	0.001	-0.001
Other Land Cover	-0.001	-0.001		-0.004		-0.002	0.008	0.000	0.000
Water						-0.984	-0.066	1.049	
Plantations							-0.036		0.036

**Standard error of the difference between probability matrices (1990-2000 with 1980-1990)**

Classes of origin	Classes of destination								
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest	0.009	0.003	0.000	0.000		0.009	0.001	0.000	0.000
Open canopy forest	0.001	0.016	0.001	0.003		0.006	0.012		
Long fallow			0.000	0.000		0.000			
Fragmented forest	0.001	0.001		0.016		0.014	0.028		
Shrubs									
Short fallow	0.011	0.002		0.001		0.015	0.006	0.001	0.001
Other Land Cover	0.001	0.001		0.003		0.001	0.003	0.000	0.000
Water						0.083	0.098	0.000	
Plantations							0.011		0.011

**Statistical test - Difference between probability matrices (1990-2000 with 1980-1990)**

Classes of origin	Classes of destination								
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest	n.s.	DECREASE	n.s.	n.s.		n.s.	n.s.	n.s.	n.s.
Open canopy forest	n.s.	INCREASE	n.s.	n.s.		n.s.	DECREASE		
Long fallow			INCREASE	INCREASE		DECREASE			
Fragmented forest	n.s.	n.s.		n.s.		n.s.	n.s.		
Shrubs									
Short fallow	n.s.	DECREASE		n.s.		n.s.	n.s.	n.s.	n.s.
Other Land Cover	n.s.	n.s.		n.s.		n.s.	INCREASE	n.s.	n.s.
Water						DECREASE	n.s.	INCREASE	
Plantations							DECREASE		INCREASE

Notes: see Table 72.

**Table 85. Mean transition probabilities 1980-1990 and 1990-2000 – Tropical Southern Africa (subregion code 16)**

**Probability matrix 1980-1990**

Land cover classes in 1980	Land cover classes in 1990								
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest	0.951	0.011	0.001	0.002		0.031	0.003	ε	ε
Open canopy forest	0.002	0.950	ε	0.007		0.013	0.028		
Long fallow			0.984			0.016			
Fragmented forest	0.002	0.002		0.950		0.001	0.046		
Shrubs									
Short fallow	0.018	0.005		ε		0.960	0.014	0.001	0.001
Other Land Cover	0.001	0.002		0.005		0.002	0.989	ε	ε
Water						0.984	0.066	-0.049	
Plantations							0.036		0.964

**Probability matrix 1990-2000**

Land cover classes in 1990	Land cover classes in 2000								
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest	0.966	0.003	0.002	0.002		0.026	0.001	ε	ε
Open canopy forest	ε	0.985	0.001	0.005		0.006	0.004		
Long fallow			0.988	0.009		0.004			
Fragmented forest	0.001	ε		0.965		0.020	0.014		
Shrubs									
Short fallow	0.028	0.002		ε		0.965	0.004	0.002	
Other Land Cover		0.001		0.001		0.001	0.997	ε	0.001
Water								1.000	
Plantations									1.000

**Table 86. Difference between mean transition probabilities from the two reference periods- Tropical Southern Africa (subregion code 16)**
**Difference between probability matrices (period 1990-2000 with period 1980-1990)**

Classes of origin	Classes of destination								
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest	-0.006	-0.007	-0.002	0.016	0.000	0.000	-0.001	0.000	-0.001
Open canopy forest	-0.001	-0.004	-0.002	0.002	0.000	0.008	-0.002	0.000	0.000
Long fallow	-0.007	0.005	0.003	0.000	-0.006	0.009	-0.004		
Fragmented forest	-0.006	-0.004	-0.001	0.036	-0.002	-0.027	0.004	0.000	0.000
Shrubs	-0.003		0.001	-0.001	-0.050	0.014	0.038		0.000
Short fallow	-0.007	0.003	0.011	0.037	0.007	-0.029	-0.021		
Other Land Cover	-0.001	-0.002	0.000	-0.002	0.000	0.000	0.008	0.000	-0.002
Water	-0.102	-0.143		-0.061	-0.020		0.540	-0.214	
Plantations	-0.016			0.023		-0.008	0.101		-0.100

**Standard error of the difference between probability matrices (1990-2000 with 1980-1990)**

Classes of origin	Classes of destination								
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest	0.014	0.003	0.001	0.012	0.000	0.002	0.003	0.000	0.001
Open canopy forest	0.001	0.016	0.002	0.012	0.000	0.004	0.003	0.000	0.000
Long fallow	0.008	0.006	0.021	0.012	0.005	0.009	0.006		
Fragmented forest	0.005	0.002	0.002	0.011	0.001	0.012	0.014	0.000	0.000
Shrubs	0.003		0.000	0.001	0.035	0.011	0.041		0.000
Short fallow	0.007	0.006	0.004	0.020	0.005	0.024	0.023		
Other Land Cover	0.001	0.001	0.000	0.002	0.000	0.000	0.006	0.000	0.002
Water	0.077	0.108		0.034	0.023		0.233	0.360	
Plantations	0.004			0.005		0.011	0.031		0.040

**Statistical test - Difference between probability matrices (1990-2000 with 1980-1990)**

Classes of origin	Classes of destination								
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest	n.s.	DECREASE	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Open canopy forest	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Long fallow	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.		
Fragmented forest	n.s.	n.s.	n.s.	INCREASE	DECREASE	DECREASE	n.s.	n.s.	n.s.
Shrubs	n.s.		n.s.	n.s.	n.s.	n.s.	n.s.		n.s.
Short fallow	n.s.	n.s.	INCREASE	n.s.	n.s.	n.s.	n.s.		
Other Land Cover	n.s.	DECREASE	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Water	n.s.	n.s.		n.s.	n.s.		INCREASE	n.s.	
Plantations	DECREASE			INCREASE		n.s.	INCREASE		DECREASE

Notes: see Table 72.

**Table 87. Mean transition probabilities 1980-1990 and 1990-2000 – South Asia  
(subregion code 44)**

**Probability matrix 1980-1990**

		Land cover classes in 1990								
Land cover classes in 1980		Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest		0.948	0.019	0.014	0.001	0.001	0.006	0.010	ε	0.001
Open canopy forest		0.016	0.942	ε	0.006	0.007	ε	0.025	0.001	0.003
Long fallow		0.005		0.839	ε	ε	0.129	0.026		ε
Fragmented forest		0.004	0.005	0.002	0.956	0.001	ε	0.029	0.001	0.002
Shrubs			0.009			0.951	0.001	0.030	0.002	0.006
Short fallow		0.011		0.054	0.002	0.001	0.928	0.004		
Other Land Cover		0.001	0.001	ε	0.001	0.001	ε	0.995	0.001	0.001
Water		0.060	0.024					0.347	0.493	0.075
Plantations		0.014	0.007	ε	0.003	0.002	ε	0.018		0.956

**Probability matrix 1990-2000**

		Land cover classes in 2000								
Land cover classes in 1990		Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest		0.980	0.004	0.001	0.003	ε	0.007	0.004	0.001	ε
Open canopy forest		0.005	0.969		0.008	0.002	0.002	0.013	0.001	ε
Long fallow		ε		0.897	0.002	ε	0.090	0.011		
Fragmented forest		0.001	0.002	ε	0.976	ε	0.001	0.015	0.004	0.001
Shrubs			ε		0.002	0.978	0.007	0.011	0.002	
Short fallow		ε		0.071	ε	ε	0.916	0.013		
Other Land Cover		ε	0.001	0.001	0.003	ε	0.001	0.993	0.001	0.001
Water		0.033			0.021			0.170	0.776	
Plantations								0.017		0.983

**Table 88. Difference between mean transition probabilities from the two reference periods - South Asia (subregion code 44)**

**Difference between probability matrices (period 1990-2000 with period 1980-1990)**

Classes of origin	Classes of destination								
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest	0.032	-0.015	-0.013	0.002	-0.001	0.001	-0.006	0.000	0.000
Open canopy forest	-0.011	0.028	0.000	0.002	-0.005	0.002	-0.012	0.001	-0.003
Long fallow	-0.005		0.057	0.001	0.000	-0.038	-0.015		0.000
Fragmented forest	-0.003	-0.003	-0.001	0.020	-0.001	0.000	-0.014	0.003	-0.001
Shrubs		-0.009		0.002	0.027	0.006	-0.019	-0.001	-0.006
Short fallow	-0.011		0.017	-0.002	-0.001	-0.012	0.009		
Other Land Cover	-0.001	0.000	0.000	0.002	0.000	0.000	-0.002	0.000	0.000
Water	-0.027	-0.024		0.021			-0.178	0.283	-0.075
Plantations	-0.014	-0.007	0.000	-0.003	-0.002	0.000	-0.001		0.027

**Standard error of the difference between probability matrices (1990-2000 with 1980-1990)**

Classes of origin	Classes of destination								
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest	0.018	0.008	0.012	0.001	0.001	0.001	0.004	0.001	0.001
Open canopy forest	0.004	0.014	0.000	0.004	0.004	0.002	0.009	0.001	0.002
Long fallow	0.001		0.082	0.001	0.000	0.073	0.009		0.000
Fragmented forest	0.001	0.002	0.001	0.015	0.001	0.000	0.014	0.006	0.001
Shrubs		0.008		0.002	0.019	0.006	0.008	0.000	0.004
Short fallow	0.006		0.001	0.001	0.000	0.008	0.003		
Other Land Cover	0.000	0.001	0.000	0.002	0.000	0.000	0.003	0.001	0.000
Water	0.043	0.037		0.008			0.146	0.164	0.072
Plantations	0.009	0.005	0.000	0.002	0.002	0.000	0.006		0.015

**Statistical test - Difference between probability matrices (1990-2000 with 1980-1990)**

Classes of origin	Classes of destination								
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Open canopy forest	DECREASE	INCREASE	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Long fallow	DECREASE		n.s.	n.s.	n.s.	n.s.	n.s.		DECREASE
Fragmented forest	DECREASE	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Shrubs		n.s.		n.s.	n.s.	n.s.	DECREASE	n.s.	n.s.
Short fallow	n.s.		INCREASE	DECREASE	DECREASE	n.s.	INCREASE		
Other Land Cover	DECREASE	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Water	n.s.	n.s.		INCREASE			n.s.	n.s.	n.s.
Plantations	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.		n.s.

Notes: see Table 72.

**Table 89. Mean transition probabilities 1980-1990 and 1990-2000 – Continental South-East Asia (subregion code 45)**

**Probability matrix 1980-1990**

		Land cover classes in 1990								
Land cover classes in 1980		Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest		0.890	0.010	0.029	0.006	0.002	0.011	0.035	0.003	0.014
Open canopy forest		0.007	0.906	0.008	0.005	0.016	0.004	0.050	0.004	0.005
Long fallow		0.020	0.001	0.884	0.002	0.003	0.032	0.055	0.003	0.005
Fragmented forest		0.009	0.004	0.008	0.815	0.021	0.012	0.121	0.004	0.005
Shrubs		0.004	0.007	0.004	0.008	0.836	0.003	0.131	0.005	0.003
Short fallow		0.023	0.006	0.020	0.002	0.008	0.781	0.156	0.004	0.005
Other Land Cover		0.002	0.002	0.001	0.001	0.003	0.003	0.988	0.002	0.001
Water		0.035			0.005	0.003		0.114	0.829	0.014
Plantations		0.000	0.000					0.002		0.997

**Probability matrix 1990-2000**

		Land cover classes in 2000								
Land cover classes in 1990		Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest		0.938	0.002	0.017	0.008	0.001	0.017	0.016	0.002	0.005
Open canopy forest		0.006	0.882	0.012	0.003	0.009	0.017	0.069	0.001	0.005
Long fallow		0.015		0.927	0.001	0.001	0.036	0.019	0.002	0.005
Fragmented forest		0.007	0.004	0.013	0.878	0.000	0.026	0.068	0.000	0.003
Shrubs		0.007	0.003	0.003	0.002	0.865	0.017	0.097	0.005	0.002
Short fallow		0.006	0.000	0.016	0.004	0.002	0.886	0.083	0.002	0.005
Other Land Cover		0.002	0.001	0.001	0.001	0.002	0.001	0.989	0.001	0.002
Water		0.015			0.005	0.013		0.055	0.911	0.014
Plantations		0.001						0.005		0.995

**Table 90. Difference between mean transition probabilities from the two reference periods - Continental South-East Asia (subregion code 45)**
**Difference between probability matrices (period 1990-2000 with period 1980-1990)**

Classes of origin	Classes of destination								
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest	0.047	-0.007	-0.012	0.001	-0.001	0.006	-0.019	-0.002	-0.013
Open canopy forest	-0.001	-0.024	0.004	-0.002	-0.007	0.013	0.020	-0.004	0.000
Long fallow	-0.006	-0.001	0.042	-0.001	-0.003	0.005	-0.036	-0.001	0.000
Fragmented forest	-0.002	0.000	0.005	0.062	-0.021	0.014	-0.053	-0.004	-0.003
Shrubs	0.003	-0.004	-0.001	-0.006	0.029	0.014	-0.033	-0.001	0.000
Short fallow	-0.016	-0.006	-0.003	0.002	-0.006	0.105	-0.073	-0.002	0.000
Other Land Cover	0.000	-0.001	0.000	0.000	-0.001	0.001	0.001	-0.001	0.001
Water	-0.020			0.001	0.010		-0.059	0.082	-0.014
Plantations	0.000	0.000					0.003		-0.002

**Standard error of the difference between probability matrices (1990-2000 with 1980-1990)**

Classes of origin	Classes of destination								
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest	0.020	0.005	0.006	0.005	0.001	0.004	0.009	0.001	0.014
Open canopy forest	0.005	0.066	0.004	0.003	0.007	0.011	0.049	0.004	0.000
Long fallow	0.008	0.001	0.019	0.001	0.001	0.013	0.024	0.002	0.000
Fragmented forest	0.004	0.002	0.006	0.046	0.009	0.011	0.035	0.002	0.006
Shrubs	0.004	0.003	0.002	0.004	0.064	0.015	0.066	0.003	0.002
Short fallow	0.010	0.006	0.006	0.003	0.005	0.076	0.059	0.002	0.000
Other Land Cover	0.001	0.002	0.001	0.001	0.002	0.001	0.004	0.001	0.002
Water	0.025			0.001	0.012		0.065	0.081	0.018
Plantations	0.000	0.000					0.001		0.001

**Statistical test - Difference between probability matrices (1990-2000 with 1980-1990)**

Classes of origin	Classes of destination								
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest	INCREASE	n.s.	DECREASE	n.s.	n.s.	n.s.	DECREASE	n.s.	n.s.
Open canopy forest	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Long fallow	n.s.	n.s.	INCREASE	n.s.	DECREASE	n.s.	n.s.	n.s.	n.s.
Fragmented forest	n.s.	n.s.	n.s.	n.s.	DECREASE	n.s.	n.s.	DECREASE	n.s.
Shrubs	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Short fallow	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Other Land Cover	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Water	n.s.			n.s.	n.s.		n.s.	n.s.	n.s.
Plantations	INCREASE	DECREASE					n.s.		n.s.

Notes: see Table 72.



**Table 91. Mean transition probabilities 1980-1990 and 1990-2000 – Insular South-East Asia (subregion code 46)**

**Probability matrix 1980-1990**

		Land cover classes in 1990								
Land cover classes in 1980		Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest		0.889	0.003	0.023	0.006	0.001	0.027	0.037	0.001	0.013
Open canopy forest		0.012	0.727	0.043	0.070	0.002	0.047	0.076		0.024
Long fallow		0.019		0.784	0.001	0.007	0.162	0.026		ε
Fragmented forest		0.001	0.006	0.013	0.748	0.035	0.016	0.177		0.004
Shrubs		0.025		0.025	0.009	0.720	0.003	0.195		0.023
Short fallow		0.009	0.001	0.021	0.003	0.005	0.880	0.078	0.001	0.003
Other Land Cover		0.001		0.004	ε	0.003	0.002	0.977	0.003	0.009
Water								0.224	0.776	
Plantations		0.011		0.001	0.001		0.025	0.127	0.001	0.833

**Probability matrix 1990-2000**

		Land cover classes in 2000								
Land cover classes in 1990		Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest		0.862	0.001	0.023	0.001	0.001	0.016	0.074	0.005	0.016
Open canopy forest		0.015	0.790	0.028	0.069	0.043	0.008	0.045		0.001
Long fallow		0.012	ε	0.750			0.113	0.113		0.011
Fragmented forest		0.006	ε	0.017	0.779	0.044	0.012	0.136		ε
Shrubs					ε	0.833	0.058	0.107		ε
Short fallow		0.002		0.009	ε		0.829	0.147	0.002	0.011
Other Land Cover		0.001		0.001	ε	ε	0.004	0.943	0.004	0.047
Water								0.140	0.860	
Plantations		ε			ε		0.004	0.088		0.908

**Table 92. Difference between mean transition probabilities from the two reference periods - Insular South-East Asia (subregion code 46)**
**Difference between probability matrices (period 1990-2000 with period 1980-1990)**

Classes of origin	Classes of destination								
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest	-0.027	-0.002	0.000	-0.005	0.000	-0.011	0.037	0.004	0.003
Open canopy forest	0.003	0.063	-0.015	-0.001	0.041	-0.038	-0.030		-0.023
Long fallow	-0.007	0.000	-0.033	-0.001	-0.007	-0.049	0.087		0.011
Fragmented forest	0.005	-0.006	0.004	0.031	0.009	-0.004	-0.040	0.000	0.002
Shrubs	-0.025		-0.025	-0.009	0.113	0.056	-0.087	0.000	-0.022
Short fallow	-0.007	-0.001	-0.012	-0.002	-0.005	-0.051	0.069	0.001	0.007
Other Land Cover	0.000		-0.003	0.000	-0.003	0.002	-0.034	0.002	0.038
Water							-0.084	0.084	
Plantations	-0.011		-0.001	-0.001		-0.021	-0.038	-0.001	0.074

**Standard error of the difference between probability matrices (1990-2000 with 1980-1990)**

Classes of origin	Classes of destination								
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest	0.022	0.002	0.005	0.003	0.000	0.007	0.017	0.005	0.002
Open canopy forest	0.006	0.048	0.011	0.005	0.017	0.025	0.020		0.011
Long fallow	0.003	0.000	0.048	0.001	0.007	0.032	0.032		0.005
Fragmented forest	0.006	0.005	0.005	0.078	0.014	0.008	0.080	0.000	0.001
Shrubs	0.035		0.035	0.005	0.086	0.045	0.065	0.000	0.012
Short fallow	0.007	0.001	0.008	0.002	0.004	0.044	0.053	0.001	0.006
Other Land Cover	0.001		0.002	0.000	0.002	0.002	0.017	0.004	0.017
Water							0.391	0.391	
Plantations	0.007		0.001	0.000		0.016	0.057	0.002	0.068

**Statistical test - Difference between probability matrices (1990-2000 with 1980-1990)**

Classes of origin	Classes of destination								
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	INCREASE	n.s.	n.s.
Open canopy forest	n.s.	n.s.	n.s.	n.s.	INCREASE	n.s.	n.s.		DECREASE
Long fallow	DECREASE	n.s.	n.s.	n.s.	n.s.	n.s.	INCREASE		INCREASE
Fragmented forest	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Shrubs	n.s.		n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Short fallow	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Other Land Cover	n.s.		DECREASE	DECREASE	n.s.	n.s.	DECREASE	n.s.	INCREASE
Water							n.s.	n.s.	
Plantations	n.s.		n.s.	n.s.		n.s.	n.s.	n.s.	n.s.

Notes: see Table 72.

**Table 93. Mean transition probabilities 1980-1990 and 1990-2000 – Mexico and Central America (subregion code 31)**

**Probability matrix 1980-1990**

		Land cover classes in 1990								
Land cover classes in 1980		Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest		0.907	0.019	0.025	0.018	0.002	0.015	0.012	ε	
Open canopy forest		0.002	0.945	0.002	0.007	0.004	0.013	0.025	0.001	ε
Long fallow		0.038	0.017	0.757	0.008		0.147	0.033		
Fragmented forest		0.005	ε	0.003	0.939	ε	ε	0.049	0.002	0.001
Shrubs			ε			0.989		0.010	0.001	ε
Short fallow		0.009	0.014	0.008	ε	0.002	0.919	0.041	0.007	
Other Land Cover		0.001	ε	ε	ε	0.001	ε	0.993	0.001	0.004
Water		0.056					0.037	0.224	0.683	
Plantations								0.169		0.831

**Probability matrix 1990-2000**

		Land cover classes in 2000								
Land cover classes in 1990		Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest		0.934	0.001	0.015	0.032	ε	0.006	0.011	ε	
Open canopy forest		ε	0.971	0.004	0.008	ε	0.003	0.013	ε	ε
Long fallow		0.021	0.006	0.876			0.089	0.009		
Fragmented forest		0.001	0.002	0.004	0.962		0.001	0.027		0.003
Shrubs						0.996		0.004		
Short fallow		0.002	0.008	0.011	0.003		0.962	0.013	ε	
Other Land Cover		ε	ε	ε	ε	ε	ε	0.996	ε	0.002
Water						0.059	0.081		0.860	
Plantations								0.163		0.837

**Table 94. Difference between mean transition probabilities from the two reference periods - Mexico and Central America (subregion code 31)**

**Difference between probability matrices (period 1990-2000 with period 1980-1990)**

Classes of origin	Classes of destination								
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest	0.027	-0.018	-0.011	0.014	-0.002	-0.009	-0.002	0.000	
Open canopy forest	-0.002	0.026	0.001	0.000	-0.003	-0.010	-0.012	-0.001	0.000
Long fallow	-0.017	-0.011	0.119	-0.008		-0.059	-0.024		
Fragmented forest	-0.004	0.001	0.001	0.023	0.000	0.000	-0.022	-0.002	0.002
Shrubs		0.000			0.008		-0.006	-0.001	0.000
Short fallow	-0.007	-0.006	0.003	0.003	-0.002	0.043	-0.027	-0.007	
Other Land Cover	-0.001	0.000	0.000	0.000	-0.001	0.000	0.004	-0.001	-0.002
Water	-0.056				0.059	0.044	-0.224	0.177	
Plantations							-0.006		0.006

**Standard error of the difference between probability matrices (1990-2000 with 1980-1990)**

Classes of origin	Classes of destination								
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest	0.033	0.011	0.007	0.021	0.001	0.005	0.003	0.000	
Open canopy forest	0.001	0.019	0.003	0.004	0.002	0.009	0.008	0.001	0.000
Long fallow	0.019	0.007	0.078	0.006		0.091	0.026		
Fragmented forest	0.002	0.001	0.001	0.012	0.000	0.000	0.014	0.002	0.001
Shrubs		0.000			0.005		0.005	0.001	0.000
Short fallow	0.004	0.010	0.003	0.002	0.002	0.047	0.033	0.007	
Other Land Cover	0.001	0.000	0.000	0.000	0.001	0.000	0.003	0.001	0.002
Water	0.061				0.060	0.070	0.146	0.124	
Plantations							0.150		0.150

**Statistical test - Difference between probability matrices (1990-2000 with 1980-1990)**

Classes of origin	Classes of destination								
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	
Open canopy forest	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Long fallow	n.s.	n.s.	n.s.	n.s.		n.s.	n.s.		
Fragmented forest	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Shrubs		n.s.			n.s.		n.s.	n.s.	n.s.
Short fallow	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	
Other Land Cover	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Water	n.s.				n.s.	n.s.	n.s.	n.s.	
Plantations							n.s.		n.s.

Notes: see Table 72.

**Table 95. Mean transition probabilities 1980-1990 and 1990-2000 – Tropical South America, excluded Brazil (subregion code 34)**

**Probability matrix 1980-1990**

		Land cover classes in 1990								
Land cover classes in 1980		Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest		0.979	ε	0.002	0.002	0.001	0.003	0.010	0.004	ε
Open canopy forest		0.001	0.994					0.005		
Long fallow		0.053		0.795			0.142	0.004	0.006	
Fragmented forest		0.001			0.893	0.001	0.006	0.089	0.010	
Shrubs		0.001				0.993		0.006		
Short fallow		0.004		0.021			0.956	0.014	0.005	
Other Land Cover		0.001	ε	ε	ε	0.005	ε	0.987	0.007	ε
Water		0.003		0.011	0.051			0.136	0.799	
Plantations										

**Probability matrix 1990-2000**

		Land cover classes in 2000								
Land cover classes in 1990		Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest		0.986		0.001	0.001	ε	0.002	0.009	0.001	
Open canopy forest			0.999					0.001		
Long fallow		0.006		0.919			0.045	0.030		
Fragmented forest		0.001		ε	0.884	0.002		0.105	0.007	
Shrubs						0.975		0.025		
Short fallow		0.007		0.003			0.919	0.071	0.001	
Other Land Cover		0.002		ε	ε	ε	ε	0.994	0.003	ε
Water		0.052		0.004	0.012			0.186	0.746	
Plantations										1.000

**Table 96. Difference between mean transition probabilities from the two reference periods - Tropical South America, excluded Brazil (subregion code 34)**
**Difference between probability matrices (period 1990-2000 with period 1980-1990)**

Classes of origin	Classes of destination								
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest	0.007	0.000	0.000	-0.002	-0.001	-0.001	-0.001	-0.003	0.000
Open canopy forest	-0.001	0.005					-0.004		
Long fallow	-0.047		0.124			-0.098	0.026	-0.006	
Fragmented forest	0.000		0.000	-0.010	0.002	-0.006	0.016	-0.002	
Shrubs	-0.001				-0.018		0.019		
Short fallow	0.003		-0.018			-0.037	0.057	-0.004	
Other Land Cover	0.001	0.000	0.000	0.000	-0.004	0.000	0.007	-0.004	0.000
Water	0.049		-0.007	-0.039			0.050	-0.052	
Plantations									1.000

**Standard error of the difference between probability matrices (1990-2000 with 1980-1990)**

Classes of origin	Classes of destination								
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest	0.008	0.000	0.001	0.001	0.000	0.001	0.005	0.004	0.000
Open canopy forest	0.001	0.004					0.003		
Long fallow	0.005		0.059			0.064	0.013	0.001	
Fragmented forest	0.002		0.000	0.087	0.002	0.006	0.083	0.002	
Shrubs	0.001				0.014		0.014		
Short fallow	0.009		0.016			0.057	0.045	0.005	
Other Land Cover	0.001	0.000	0.000	0.000	0.004	0.000	0.007	0.005	0.000
Water	0.061		0.010	0.036			0.254	0.339	
Plantations									

**Statistical test - Difference between probability matrices (1990-2000 with 1980-1990)**

Classes of origin	Classes of destination								
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Open canopy forest	n.s.	n.s.					n.s.		
Long fallow	DECREASE		INCREASE			n.s.	n.s.	DECREASE	
Fragmented forest	n.s.		n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	
Shrubs	n.s.				n.s.		n.s.		
Short fallow	n.s.		n.s.			n.s.	n.s.	n.s.	
Other Land Cover	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Water	n.s.		n.s.	n.s.			n.s.	n.s.	
Plantations									

Notes: see Table 72.

**Table 97. Mean transition probabilities 1980-1990 and 1990-2000 – Brazil (subregion code 35)**

**Probability matrix 1980-1990**

		Land cover classes in 1990								
Land cover classes in 1980		Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest		0.922	0.002	0.004	0.010	0.003	0.005	0.053	0.001	ε
Open canopy forest		0.001	0.838	0.001	0.007	0.027	0.004	0.103	0.015	0.002
Long fallow		0.008	ε	0.939	0.006	0.002	0.026	0.018	ε	ε
Fragmented forest		0.002	0.001	ε	0.797	0.006	0.037	0.147	0.006	0.003
Shrubs		ε	ε	0.002	ε	0.787	0.001	0.202	0.006	0.002
Short fallow		0.006	0.003	0.008	0.010	ε	0.766	0.200	0.007	ε
Other Land Cover		0.002	ε	ε	0.004	0.009	0.014	0.965	0.003	0.002
Water		0.049	0.010	0.003	0.015	0.002	0.013	0.237	0.673	ε
Plantations					0.001			0.041		0.958

**Probability matrix 1990-2000**

		Land cover classes in 2000								
Land cover classes in 1990		Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest		0.914	ε	0.001	0.004	0.003	0.002	0.075	ε	ε
Open canopy forest		ε	0.886	ε	0.019	0.012	0.001	0.081	0.001	0.001
Long fallow		0.110	0.013	0.449	0.014	0.005	0.011	0.397	ε	ε
Fragmented forest		0.005	0.004	ε	0.897	0.004	0.003	0.082	0.001	0.003
Shrubs		ε	0.001	ε	ε	0.867	0.001	0.104	0.026	ε
Short fallow		0.007	0.003	0.016	0.043	0.001	0.734	0.195	ε	ε
Other Land Cover		0.002	ε	0.003	0.015	0.034	0.043	0.899	0.003	0.001
Water		0.003	0.005		0.002	0.237	0.007	0.116	0.629	ε
Plantations					0.009	0.006		0.158		0.827

**Table 98. Difference between mean transition probabilities from the two reference periods - Brazil (subregion code 35)**
**Difference between probability matrices (period 1990-2000 with period 1980-1990)**

Classes of origin	Classes of destination								
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest	-0.008	-0.002	-0.003	-0.005	0.000	-0.003	0.022	-0.001	0.000
Open canopy forest	-0.001	0.048	-0.001	0.012	-0.015	-0.003	-0.023	-0.014	-0.001
Long fallow	0.102	0.013	-0.490	0.008	0.002	-0.015	0.379	0.000	
Fragmented forest	0.003	0.003	0.000	0.100	-0.002	-0.033	-0.065	-0.005	0.000
Shrubs	0.000	0.001	-0.002	0.000	0.081	0.000	-0.097	0.020	-0.002
Short fallow	0.001	0.000	0.008	0.033	0.001	-0.032	-0.005	-0.007	
Other Land Cover	0.000	0.000	0.002	0.011	0.025	0.029	-0.066	0.000	-0.002
Water	-0.046	-0.005	-0.003	-0.012	0.235	-0.005	-0.121	-0.044	
Plantations				0.008	0.006		0.118		-0.131

**Standard error of the difference between probability matrices (1990-2000 with 1980-1990)**

Classes of origin	Classes of destination								
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest	0.013	0.001	0.002	0.004	0.002	0.002	0.016	0.001	0.000
Open canopy forest	0.001	0.049	0.001	0.011	0.021	0.003	0.026	0.013	0.001
Long fallow	0.082	0.009	0.235	0.009	0.002	0.013	0.148	0.000	
Fragmented forest	0.003	0.002	0.000	0.084	0.003	0.019	0.070	0.005	0.000
Shrubs	0.000	0.001	0.001	0.000	0.063	0.001	0.053	0.017	0.001
Short fallow	0.008	0.001	0.010	0.030	0.001	0.093	0.078	0.002	
Other Land Cover	0.003	0.000	0.001	0.007	0.011	0.019	0.029	0.002	0.001
Water	0.042	0.008	0.003	0.007	0.183	0.005	0.055	0.150	
Plantations				0.004	0.005		0.079		0.079

**Statistical test - Difference between probability matrices (1990-2000 with 1980-1990)**

Classes of origin	Classes of destination								
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other Land Cover	Water	Plantations
Closed canopy forest	n.s.	DECREASE	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Open canopy forest	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Long fallow	n.s.	n.s.	DECREASE	n.s.	n.s.	n.s.	INCREASE	n.s.	
Fragmented forest	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Shrubs	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Short fallow	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	DECREASE	
Other Land Cover	n.s.	n.s.	INCREASE	n.s.	INCREASE	n.s.	DECREASE	n.s.	n.s.
Water	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	DECREASE	n.s.	
Plantations				n.s.	n.s.		n.s.		n.s.

Notes: see Table 72.



- Ecological zone level

**Table 99. Mean transition probabilities 1980-1990 and 1990-2000 – Tropical rain forest**

**Probability matrix 1980-1990**

		Land cover classes in 1990								
Land cover classes in 1980		Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other land cover	Water	Plantations
Closed canopy forest		0.943	0.002	0.008	0.005	0.001	0.010	0.027	0.001	0.003
Open canopy forest		0.003	0.902	0.004	0.016	0.001	0.005	0.052	0.017	0.002
Long fallow		0.017	ε	0.827	0.004	0.004	0.126	0.022	ε	ε
Fragmented forest		0.002	0.002	0.002	0.894	0.005	0.016	0.073	0.001	0.004
Shrubs		0.001		0.003	ε	0.760	ε	0.225	0.009	0.001
Short fallow		0.009	0.001	0.014	0.002	0.002	0.905	0.063	0.001	0.002
Other land cover		0.001	0.001	0.001	0.001	0.003	0.001	0.989	0.001	0.002
Water		0.067		0.010	0.040	0.001	0.014	0.148	0.714	0.006
Plantations		0.006	ε	ε	ε		0.012	0.063	0.001	0.918

**Probability matrix 1990-2000**

		Land cover classes in 2000								
Land cover classes in 1990		Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other land cover	Water	Plantations
Closed canopy forest		0.937	ε	0.006	0.004	0.001	0.006	0.042	0.001	0.002
Open canopy forest		0.002	0.921	0.004	0.019	0.002	0.005	0.045	0.001	0.001
Long fallow		0.017	0.001	0.804	0.003	ε	0.081	0.087	ε	0.005
Fragmented forest		0.005	0.001	0.003	0.883	0.006	0.007	0.091	0.001	0.003
Shrubs		0.001	0.001	ε	ε	0.866	0.004	0.087	0.041	ε
Short fallow		0.008	0.001	0.011	0.001	ε	0.854	0.119	0.001	0.005
Other land cover		0.001	ε	0.002	0.003	0.001	0.004	0.979	0.001	0.008
Water		0.006	0.005	0.004	0.011	0.027	0.011	0.101	0.835	
Plantations			ε		0.001		0.002	0.044		0.953

**Table 100. Difference between mean transition probabilities from the two reference periods - Tropical rain forest**
**Difference between probability matrices (period 1990-2000 with period 1980-1990)**

Classes of origin	Classes of destination								
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other land cover	Water	Plantations
Closed canopy forest	-0.006	-0.001	-0.003	-0.001	0.000	-0.004	0.015	0.000	-0.001
Open canopy forest	-0.002	0.019	0.000	0.003	0.002	0.000	-0.007	-0.016	-0.001
Long fallow	0.000	0.001	-0.023	0.000	-0.003	-0.045	0.066	0.000	0.005
Fragmented forest	0.004	-0.002	0.000	-0.011	0.001	-0.009	0.018	0.000	-0.001
Shrubs	-0.001	0.001	-0.003	0.000	0.105	0.004	-0.139	0.033	-0.001
Short fallow	0.000	-0.001	-0.003	-0.001	-0.002	-0.051	0.056	0.000	0.002
Other land cover	0.000	0.000	0.001	0.002	-0.002	0.003	-0.010	0.000	0.006
Water	-0.061	0.005	-0.007	-0.029	0.026	-0.003	-0.047	0.121	-0.006
Plantations	-0.005	0.000	0.000	0.000		-0.009	-0.020	-0.001	0.035

**Standard error of the difference between mean transition probabilities (1990-2000 with 1980-1990)**

Classes of origin	Classes of destination								
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other land cover	Water	Plantations
Closed canopy forest	0.006	0.000	0.001	0.002	0.001	0.002	0.007	0.001	0.001
Open canopy forest	0.001	0.015	0.003	0.004	0.002	0.003	0.014	0.014	0.001
Long fallow	0.009	0.001	0.043	0.001	0.004	0.023	0.027	0.000	0.002
Fragmented forest	0.003	0.001	0.000	0.036	0.002	0.015	0.030	0.000	0.001
Shrubs	0.001	0.001	0.002	0.000	0.092	0.003	0.075	0.024	0.001
Short fallow	0.005	0.001	0.004	0.001	0.002	0.030	0.032	0.001	0.003
Other land cover	0.001	0.000	0.000	0.002	0.002	0.002	0.005	0.001	0.003
Water	0.058	0.002	0.005	0.018	0.010	0.008	0.048	0.078	0.007
Plantations	0.004	0.000	0.000	0.001		0.007	0.028	0.001	0.035

**Statistical test - Difference between probability matrices (1990-2000 with 1980-1990)**

Classes of origin	Classes of destination								
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other land cover	Water	Plantations
Closed canopy forest	n.s.	DECREASE	n.s.	n.s.	n.s.	DECREASE	INCREASE	n.s.	n.s.
Open canopy forest	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Long fallow	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	INCREASE	n.s.	INCREASE
Fragmented forest	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Shrubs	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Short fallow	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Other land cover	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	INCREASE
Water	n.s.	INCREASE	n.s.	n.s.	INCREASE	n.s.	n.s.	n.s.	n.s.
Plantations	n.s.	n.s.	n.s.	n.s.		n.s.	n.s.	n.s.	n.s.

Notes: see Table 72.

**Table 101. Mean transition probabilities 1980-1990 and 1990-2000 – Tropical moist deciduous forest**

**Probability matrix 1980-1990**

		Land cover classes in 1990								
Land cover classes in 1980		Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other land cover	Water	Plantations
Closed canopy forest		0.900	0.014	0.006	0.020	0.003	0.019	0.033	0.005	ε
Open canopy forest		0.002	0.930	0.002	0.009	0.006	0.011	0.039	ε	0.001
Long fallow		0.011	0.002	0.896	0.004	0.002	0.033	0.051	0.001	ε
Fragmented forest		0.004	0.003	0.001	0.886	0.004	0.025	0.074	0.002	ε
Shrubs		0.001	0.001	0.001	0.001	0.915	0.003	0.076	0.001	0.002
Short fallow		0.009	0.006	0.004	0.013	0.003	0.910	0.054	0.002	ε
Other land cover		0.001	0.002	ε	0.004	0.002	0.004	0.983	0.003	0.001
Water		0.012	0.011		0.010	0.004	0.035	0.311	0.617	
Plantations		0.023	0.009		0.003		0.002	0.062		0.900

**Probability matrix 1990-2000**

		Land cover classes in 2000								
Land cover classes in 1990		Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other land cover	Water	Plantations
Closed canopy forest		0.934	0.002	0.003	0.020	0.001	0.015	0.023	0.001	ε
Open canopy forest		0.001	0.955	0.002	0.011	0.003	0.007	0.021	ε	ε
Long fallow		0.010	0.004	0.935	0.001	0.001	0.030	0.018	0.002	
Fragmented forest		0.002	0.002	0.001	0.940	0.001	0.015	0.039	0.001	ε
Shrubs		0.001	ε	ε	0.001	0.931	0.003	0.063	ε	ε
Short fallow		0.005	0.003	0.005	0.027	0.002	0.933	0.022	0.001	
Other land cover		0.001	0.001	ε	0.003	0.010	0.011	0.971	0.002	0.001
Water		0.033	ε		0.002	0.164	0.001	0.203	0.596	
Plantations		0.004			0.008	0.003		0.183		0.802

**Table 102. Difference between mean transition probabilities from the two reference periods - Tropical moist deciduous forest**

**Difference between probability matrices (period 1990-2000 with period 1980-1990)**

Classes of origin	Classes of destination								
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other land cover	Water	Plantations
Closed canopy forest	0.035	-0.012	-0.003	0.000	-0.002	-0.004	-0.010	-0.003	0.000
Open canopy forest	-0.002	0.025	0.000	0.003	-0.004	-0.004	-0.018	0.000	0.000
Long fallow	-0.002	0.002	0.039	-0.002	-0.001	-0.004	-0.032	0.001	0.000
Fragmented forest	-0.003	-0.001	0.000	0.053	-0.003	-0.010	-0.036	-0.002	0.000
Shrubs	0.000	0.000	0.000	0.000	0.016	0.000	-0.013	-0.001	-0.002
Short fallow	-0.003	-0.002	0.001	0.014	0.000	0.023	-0.032	0.000	0.000
Other land cover	-0.001	-0.001	0.000	0.000	0.008	0.008	-0.012	-0.001	-0.001
Water	0.021	-0.010		-0.008	0.161	-0.034	-0.109	-0.021	
Plantations	-0.019	-0.009		0.005	0.003	-0.002	0.121		-0.098

**Standard error of the difference between mean transition probabilities (1990-2000 with 1980-1990)**

Classes of origin	Classes of destination								
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other land cover	Water	Plantations
Closed canopy forest	0.012	0.003	0.001	0.005	0.001	0.005	0.006	0.004	0.000
Open canopy forest	0.001	0.011	0.001	0.003	0.003	0.003	0.006	0.000	0.000
Long fallow	0.008	0.002	0.016	0.003	0.001	0.014	0.020	0.001	0.000
Fragmented forest	0.002	0.001	0.001	0.029	0.001	0.011	0.026	0.002	0.000
Shrubs	0.000	0.000	0.001	0.000	0.016	0.001	0.016	0.001	0.001
Short fallow	0.002	0.002	0.002	0.011	0.001	0.017	0.014	0.001	0.000
Other land cover	0.001	0.001	0.000	0.002	0.003	0.008	0.011	0.002	0.001
Water	0.037	0.005		0.004	0.156	0.035	0.181	0.294	
Plantations	0.009	0.006		0.006	0.002	0.003	0.025		0.034

**Statistical test - Difference between probability matrices (1990-2000 with 1980-1990)**

Classes of origin	Classes of destination								
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other land cover	Water	Plantations
Closed canopy forest	INCREASE	DECREASE	DECREASE	n.s.	DECREASE	n.s.	n.s.	n.s.	n.s.
Open canopy forest	DECREASE	INCREASE	n.s.	n.s.	n.s.	n.s.	DECREASE	n.s.	n.s.
Long fallow	n.s.	n.s.	INCREASE	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Fragmented forest	n.s.	n.s.	n.s.	n.s.	DECREASE	n.s.	n.s.	n.s.	n.s.
Shrubs	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Short fallow	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	DECREASE	n.s.	n.s.
Other land cover	n.s.	n.s.	n.s.	n.s.	INCREASE	n.s.	n.s.	n.s.	n.s.
Water	n.s.	DECREASE		DECREASE	n.s.	n.s.	n.s.	n.s.	
Plantations	DECREASE	n.s.		n.s.	n.s.	n.s.	INCREASE		DECREASE

Notes: see Table 72.

**Table 103. Mean transition probabilities 1980-1990 and 1990-2000 – Tropical dry forest and shrubland**

**Probability matrix 1980-1990**

		Land cover classes in 1990								
Land cover classes in 1980		Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other land cover	Water	Plantations
Closed canopy forest		0.958	0.011	0.004	0.009	0.001	0.002	0.013	0.001	0.001
Open canopy forest		0.001	0.941	0.001	0.039	0.001	0.002	0.014	0.001	ε
Long fallow		0.006	0.004	0.916	0.003	0.010	0.023	0.031	0.008	ε
Fragmented forest		0.002	0.007	ε	0.947	0.002	ε	0.042	ε	ε
Shrubs		ε	0.001	ε	0.002	0.944	0.001	0.048	0.001	0.002
Short fallow		0.034	0.010	0.001	0.003	0.005	0.889	0.051	0.006	ε
Other land cover		ε	0.001	ε	0.001	0.001	ε	0.996	0.001	ε
Water		0.052	0.056	ε	0.020	0.003	ε	0.288	0.568	0.013
Plantations		ε	ε	ε	ε	0.003	ε	0.013	ε	0.984

**Probability matrix 1990-2000**

		Land cover classes in 2000								
Land cover classes in 1990		Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other land cover	Water	Plantations
Closed canopy forest		0.974	0.003	0.001	0.009	ε	0.006	0.007	0.001	ε
Open canopy forest		0.001	0.926	0.001	0.045	0.001	0.009	0.018	ε	ε
Long fallow		ε	ε	0.920	0.013	ε	0.050	0.017	ε	ε
Fragmented forest		ε	0.005	ε	0.954	ε	ε	0.040	ε	ε
Shrubs		ε	ε	ε	ε	0.943	0.005	0.049	ε	0.001
Short fallow		0.013	0.032	0.009	ε	0.031	0.824	0.091	ε	ε
Other land cover		ε	ε	ε	0.001	ε	ε	0.997	0.001	ε
Water		0.018	ε	ε	0.011	0.016	ε	0.088	0.867	ε
Plantations		ε	ε	ε	ε	ε	ε	0.016	ε	0.984

**Table 104. Difference between mean transition probabilities from the two reference periods- Tropical dry forest and shrubland**

**Difference between probability matrices (period 1990-2000 with period 1980-1990)**

Classes of origin	Classes of destination								
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other land cover	Water	Plantations
Closed canopy forest	0.015	-0.008	-0.002	0.000	-0.001	0.004	-0.006	-0.001	-0.001
Open canopy forest	-0.001	-0.015	0.000	0.007	0.000	0.007	0.004	-0.001	0.000
Long fallow	-0.006	-0.004	0.005	0.009	-0.010	0.027	-0.014	-0.008	
Fragmented forest	-0.001	-0.003		0.007	-0.002	0.000	-0.002	0.000	0.000
Shrubs	0.000	-0.001	0.000	-0.002	-0.001	0.004	0.000	-0.001	0.000
Short fallow	-0.021	0.022	0.008	-0.003	0.025	-0.064	0.040	-0.006	
Other land cover	0.000	-0.001	0.000	0.000	-0.001	0.000	0.001	0.000	0.000
Water	-0.034	-0.056		-0.009	0.013		-0.200	0.299	-0.013
Plantations					-0.003		0.003		0.000

**Standard error of the difference between mean transition probabilities (1990-2000 with 1980-1990)**

Classes of origin	Classes of destination								
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other land cover	Water	Plantations
Closed canopy forest	0.012	0.004	0.002	0.003	0.001	0.002	0.004	0.001	0.000
Open canopy forest	0.001	0.015	0.000	0.011	0.001	0.004	0.006	0.001	0.000
Long fallow	0.005	0.003	0.038	0.006	0.004	0.010	0.015	0.008	
Fragmented forest	0.001	0.001		0.015	0.001	0.000	0.014	0.000	0.000
Shrubs	0.000	0.001	0.000	0.001	0.013	0.004	0.013	0.000	0.000
Short fallow	0.019	0.018	0.006	0.003	0.019	0.039	0.039	0.007	
Other land cover	0.000	0.000	0.000	0.001	0.000	0.000	0.001	0.000	0.000
Water	0.036	0.054		0.015	0.015		0.116	0.173	0.015
Plantations					0.004		0.008		0.006

**Statistical test - Difference between probability matrices (1990-2000 with 1980-1990)**

Classes of origin	Classes of destination								
	Closed canopy forest	Open canopy forest	Long fallow	Fragmented forest	Shrubs	Short fallow	Other land cover	Water	Plantations
Closed canopy forest	n.s.	DECREASE	n.s.	n.s.	DECREASE	n.s.	n.s.	n.s.	n.s.
Open canopy forest	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Long fallow	n.s.	n.s.	n.s.	n.s.	DECREASE	INCREASE	n.s.	n.s.	
Fragmented forest	n.s.	DECREASE		n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Shrubs	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Short fallow	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	
Other land cover	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Water	n.s.	n.s.		n.s.	n.s.		n.s.	n.s.	n.s.
Plantations					n.s.		n.s.		n.s.

Notes: see Table 72.