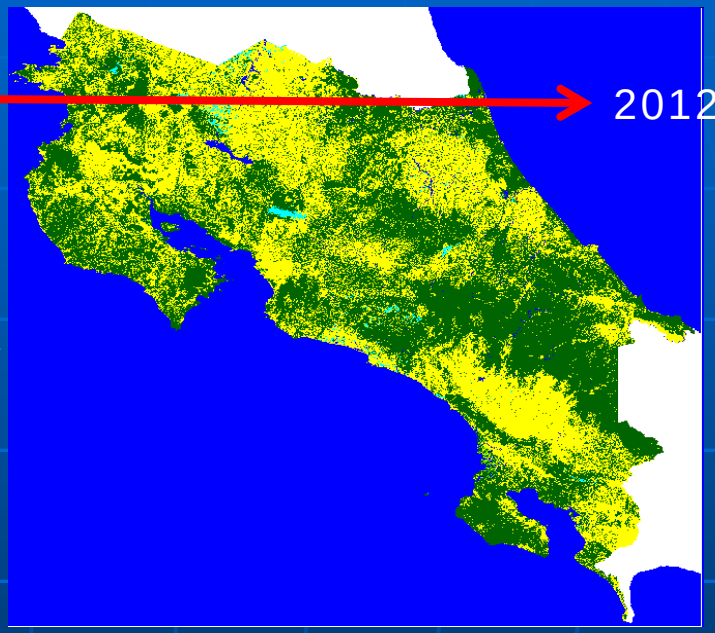
Natural Capital and Development



GDP /pc : $3,574.19

21% Forest cover

Population: 2.7 million

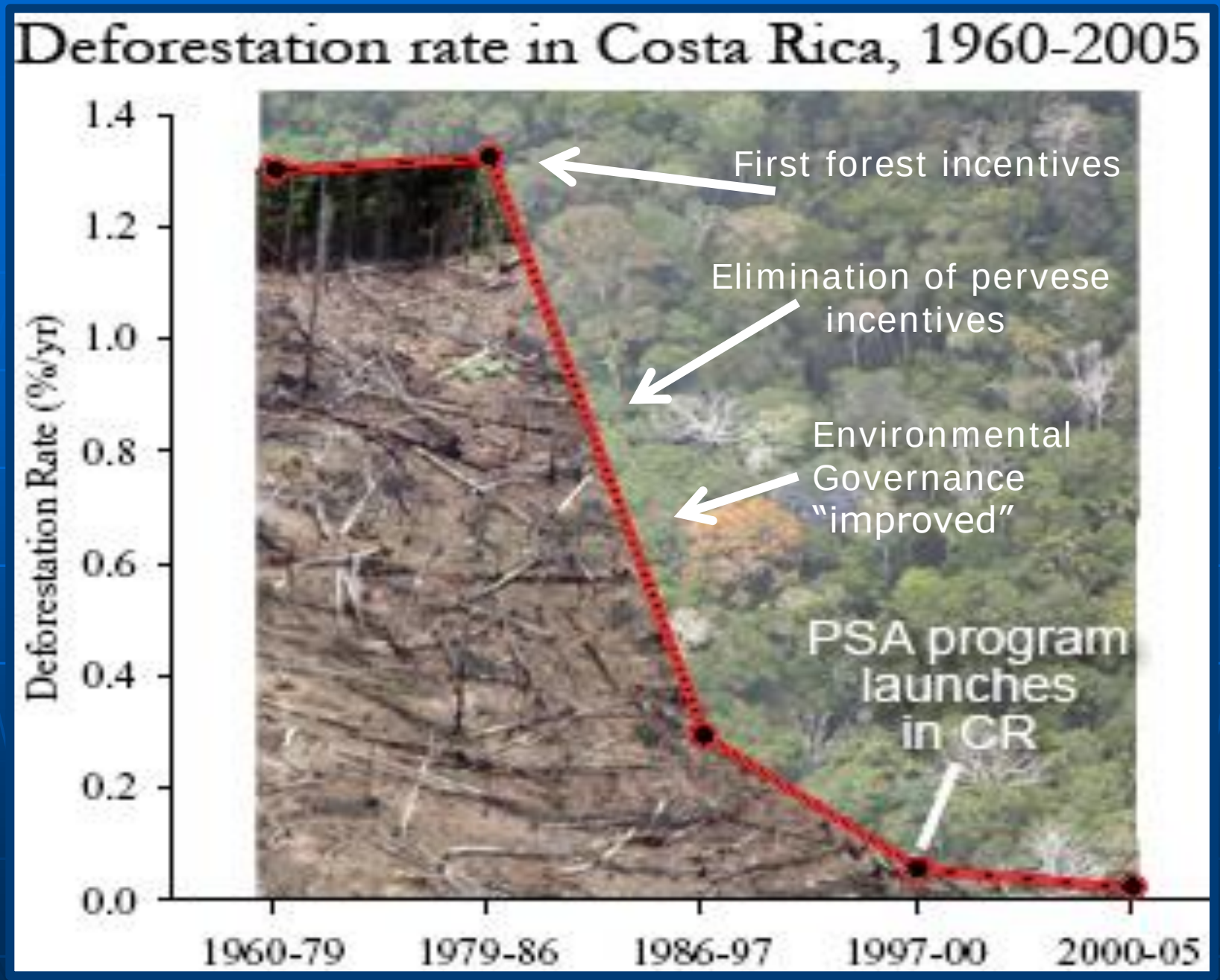
Energy: 80% Hydro, 20% fossil fuel

GDP /pc : $9,219.00

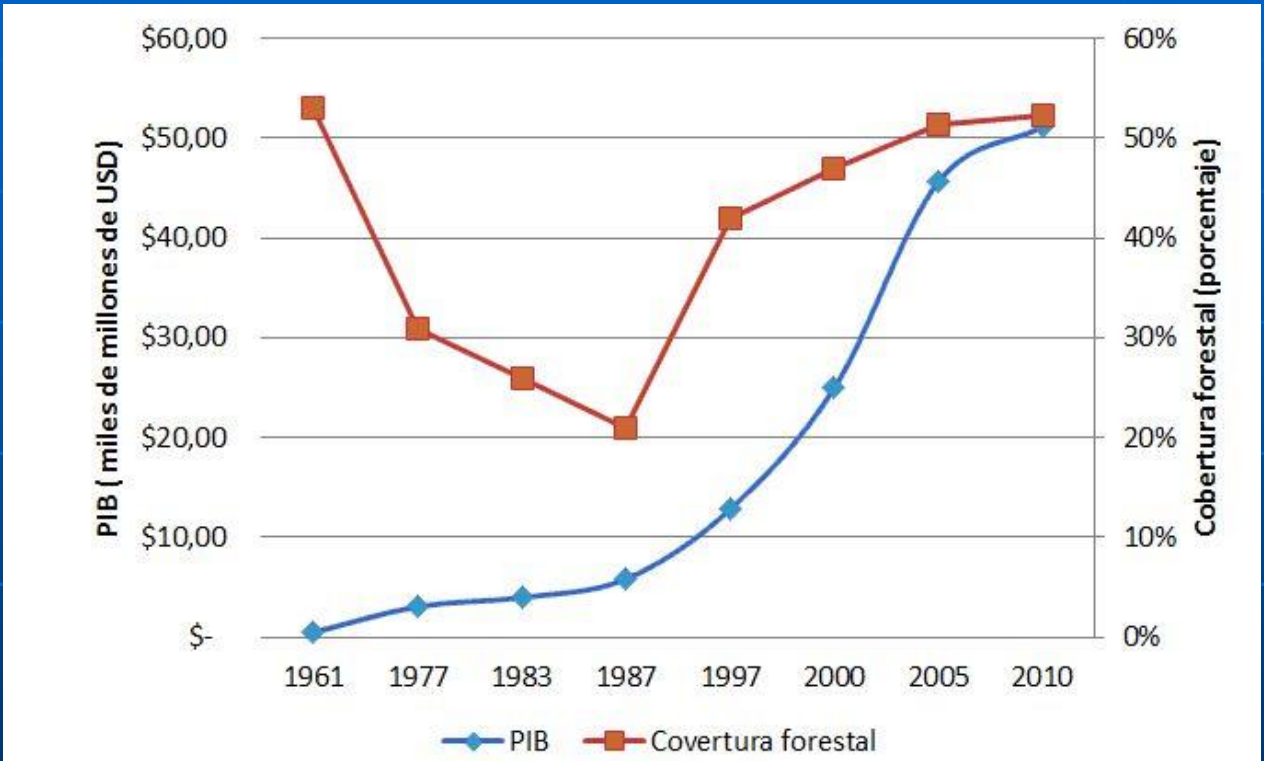
52% Forest Cover

Population: 5 million

Energy: 95% Hydro, Wind & Geothermal, 5% fossil fuel


Deforestation rate in Costa Rica, 1960-2005
Deforestation Rate (%/yr)
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
1960-79
1979-86
1986-97
1997-00
2000-05
First forest incentives
Elimination of pervese incentives
Environmental Governance "improved"
PSA program launches in CR

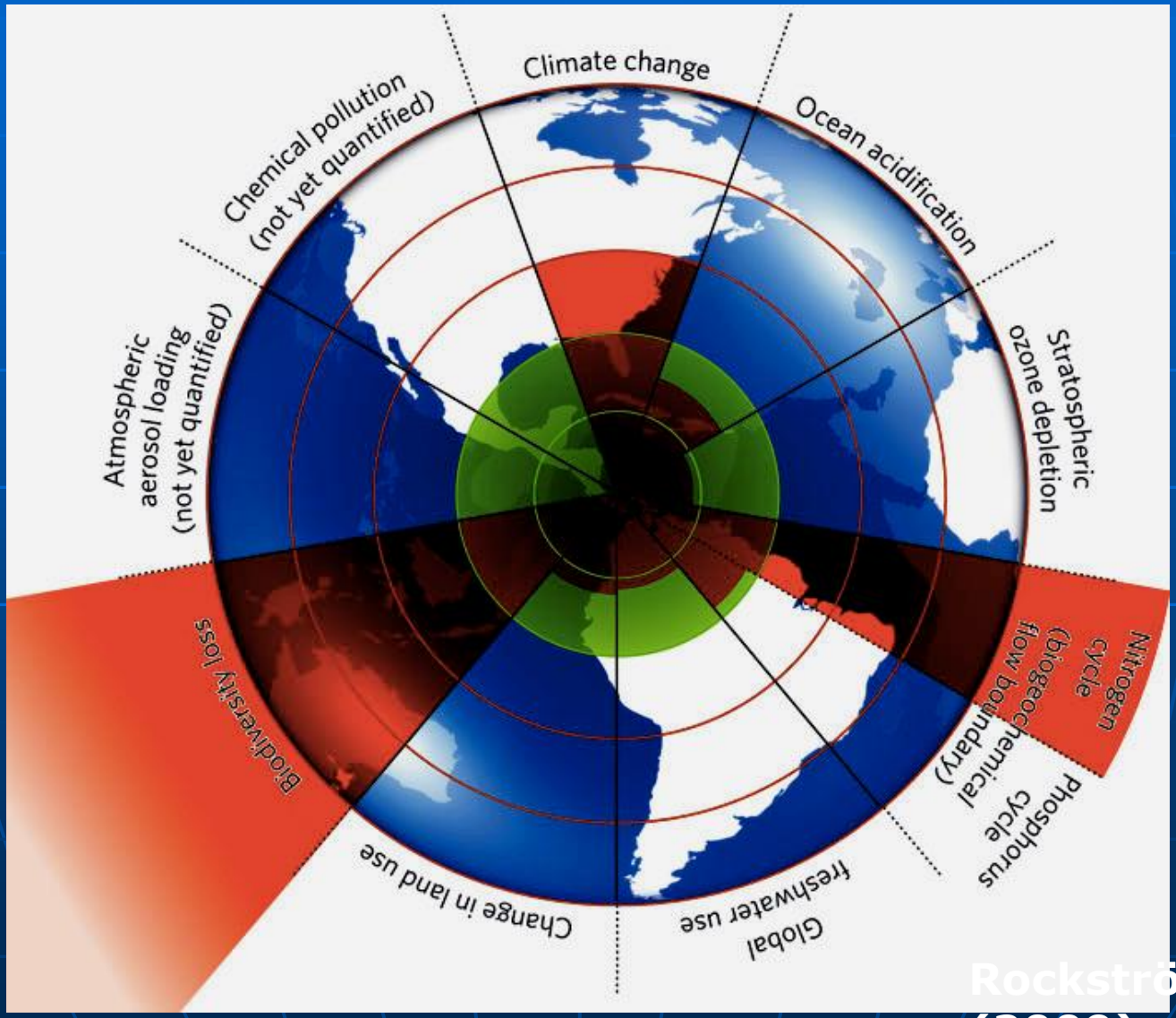
GDP and Forest Cover



Fuente: Index Mundi, Nation Master, FONAFIFO, MINAET

Elaborado por: G. Aguilar

Planetary Boundaries



Rockström *et al.* (2009)

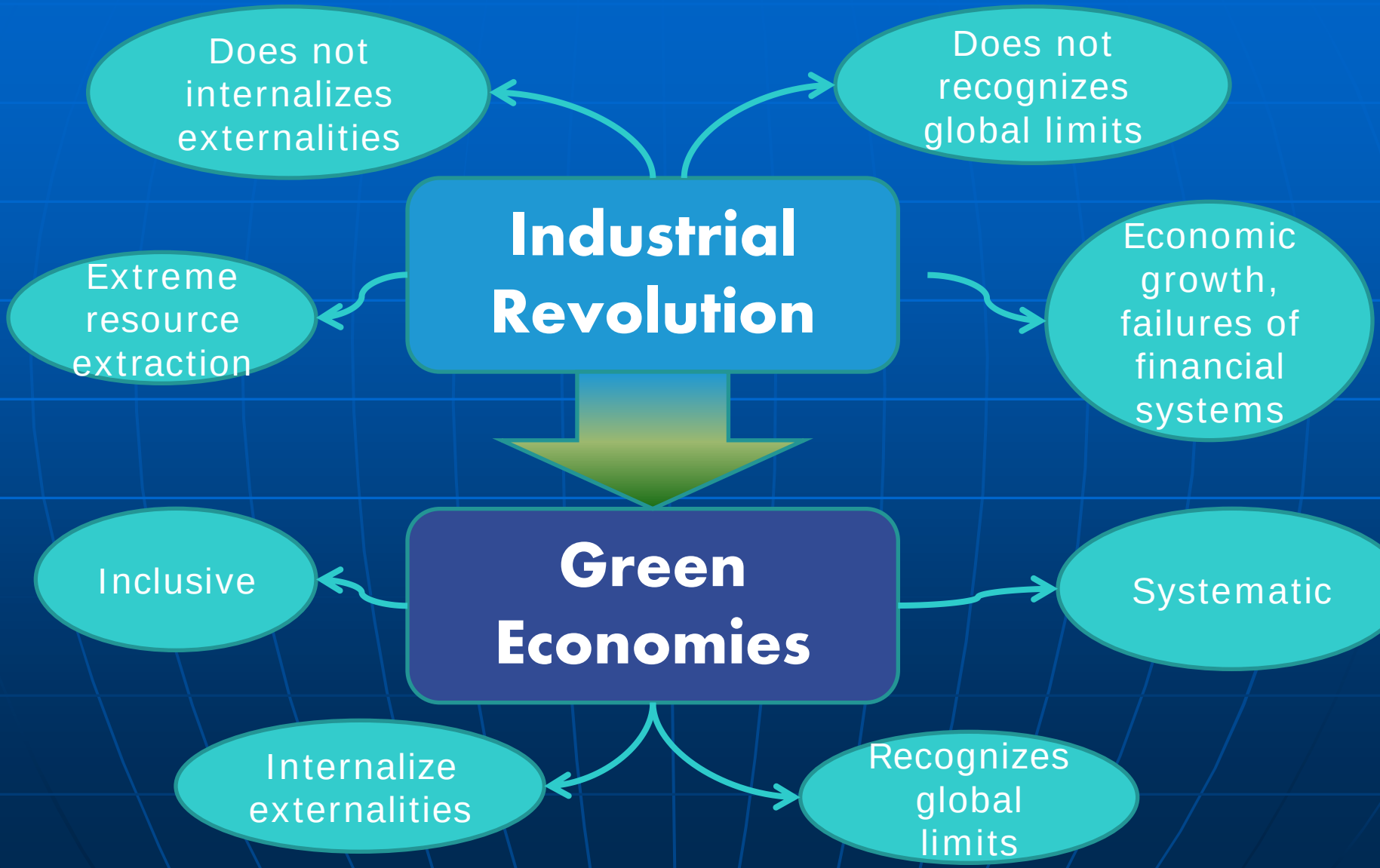
1957


CAUGHT ON
BOAT
GREYHOUND II
GOING FISHING?
YOU'LL BEER RIGHT HERE

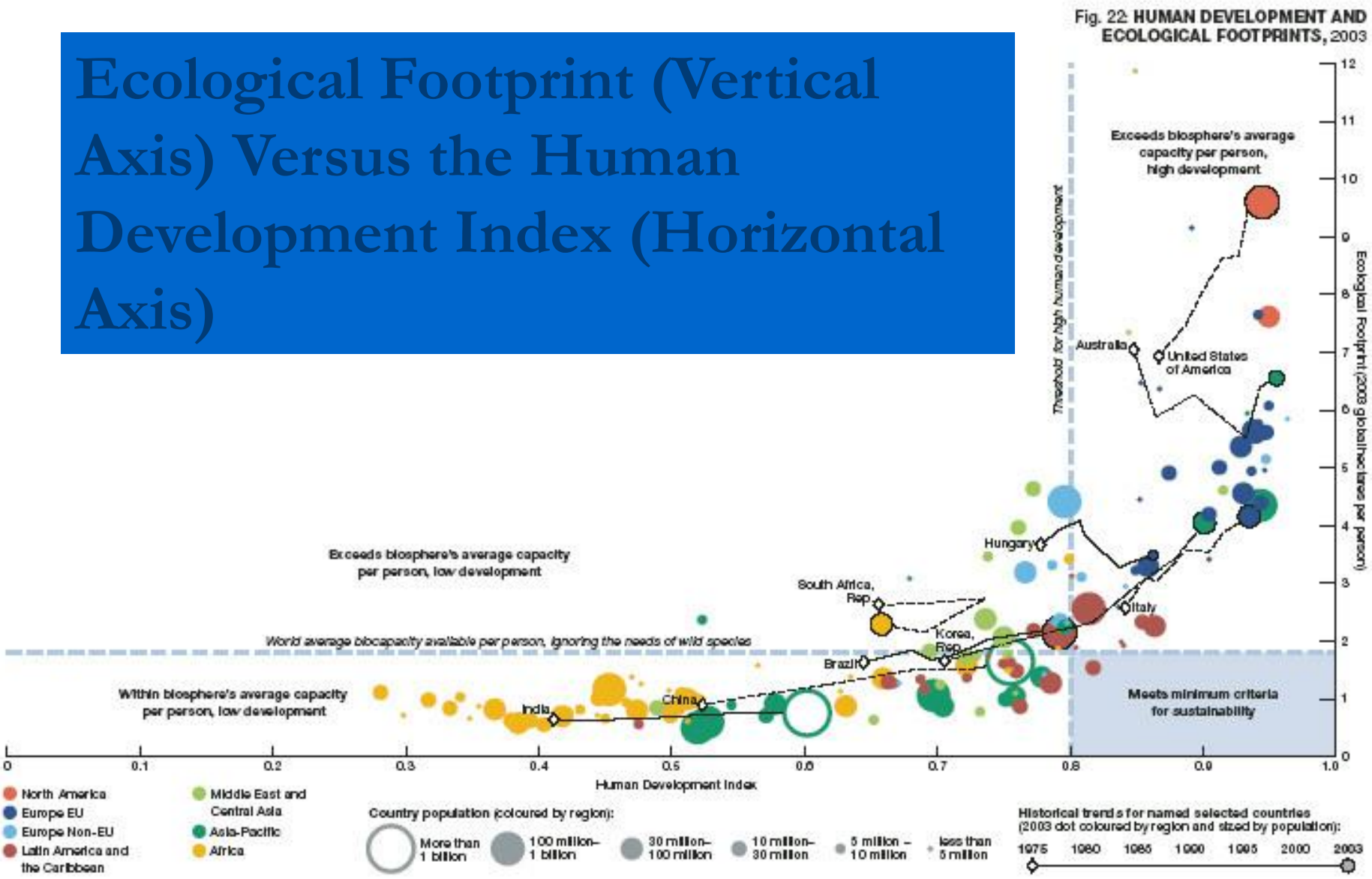
1974

2013

The Challenge is of Global Dimension

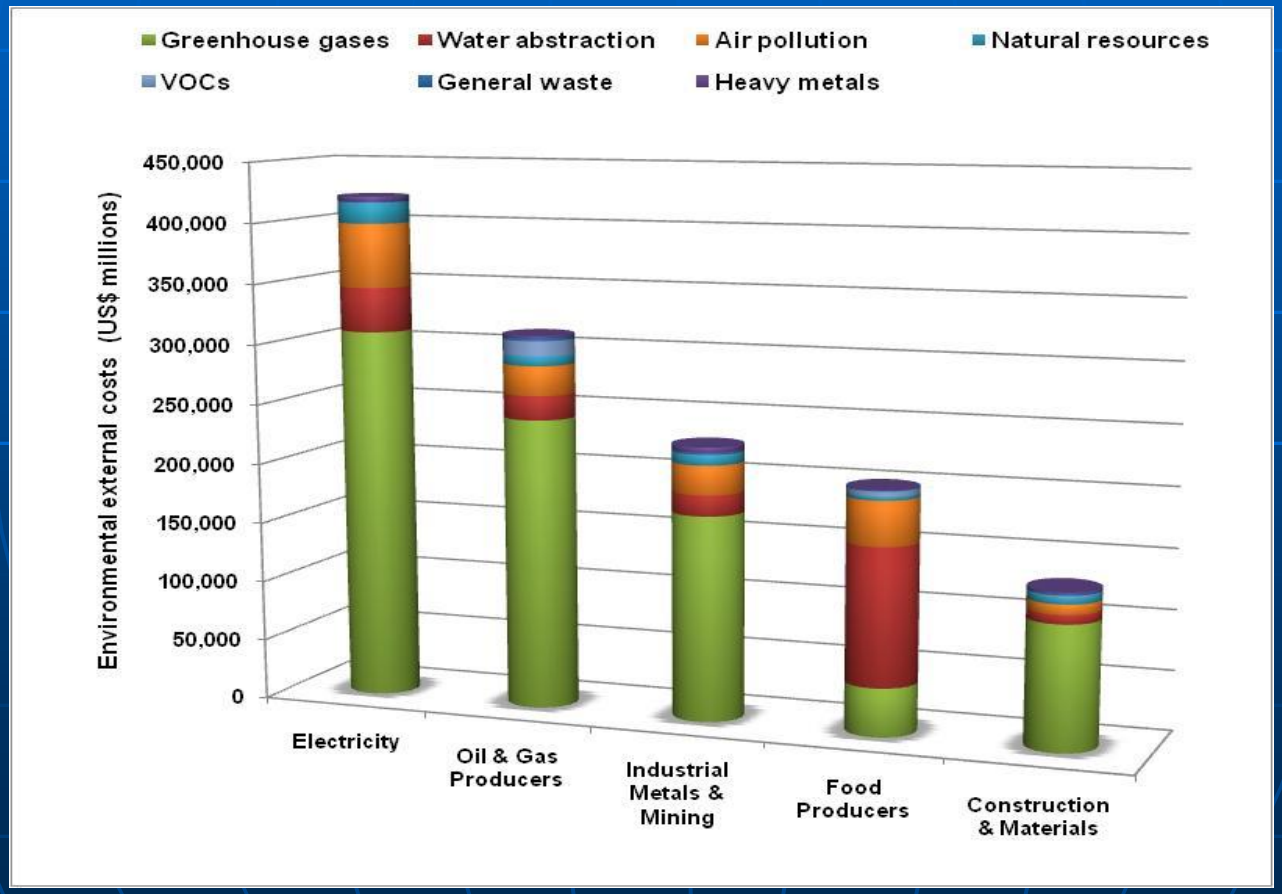


Ecological Footprint (Vertical Axis) Versus the Human Development Index (Horizontal Axis)



Wackernagel et al 2007

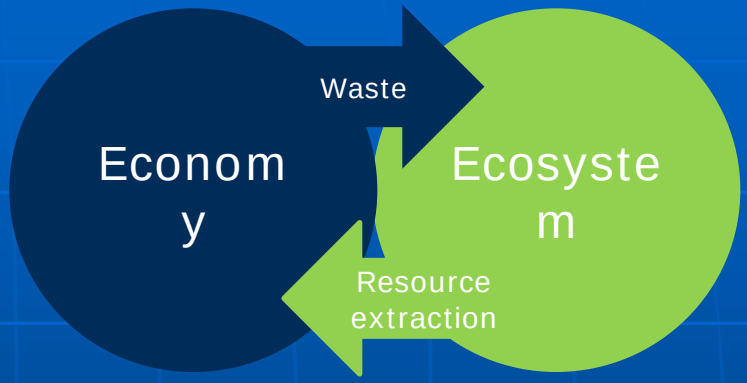
Costos ambientales de las 3.000 empresas mas grandes del mundo: US$ 2.15 Trillones por año



Today's global economy

Does not value natural resources
Assumes natural resources are limitless
Waste is only a nuisance
Requires perpetual growth driven by consumption

The fialure of the Neo-classical economic model



The real economy

Everything is connected to everything
Everything's got to go somewhere
Beyond GDP
Environmental costs are fully internalize
Green Tax system

United Nations Decade on Biodiversity

Living in harmony with nature

HIGH-LEVEL PANEL ON GLOBAL ASSESSMENT OF RESOURCES FOR IMPLEMENTING THE STRATEGIC PLAN FOR BIODIVERSITY 2011-2020

Convention on Biological Diversity

Results of the **High-Level Panel** (Phase I)

For further information, visit
http://www.cbd.int/financial/hlp/
or email hlp@cbd.int

Through simple addition of the resource requirements identified for each Target, the costs for implementing the twenty Aichi Biodiversity Targets were estimated at **between US$ 150 billion and US$ 440 billion per year**.

However, it is expected that these resource requirements neither should nor could be met by biodiversity finance alone, and there is potential for considerable synergies among the Targets, so that **coordinated action could substantially reduce the total estimate**.

Results of the High-Level Panel (Phase I)

For further information, visit
http://www.cbd.int/financial/hlp/
or email hlp@cbd.int

Strategic Goal	Target	Investment needs (US$ million)	Recurrent expenditure per annum (US$ million)	Average annual expenditure (2013 – 2020) (US$ million)
A: Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society	1: Awareness raising	54	440 – 1,400	280 – 890
	2: Biodiversity values	450 – 610	70 – 130	100 – 160
	3: Incentives	1,300 – 2,000	8 – 15	170 – 270
	4: Sustainable consumption & production	55 – 107	8 – 15	12 – 23
B: Reduce the direct pressures on biodiversity and promote sustainable use	5: Reducing habitat loss (forests and wetlands)	152,300 – 288,800	13,300 – 13,700	39,200 – 52,100
	6: Fisheries	129,900 – 292,200	800 – 3,200	16,900 – 40,000
	7: Sustainable Agriculture, Aquaculture and Forestry	20,800 – 21,700	10,700 – 11,000	13,200 – 13,600
	8: Pollution	77,600 – 772,700	24,400 – 42,700	35,400 – 139,200
	9: Invasive alien species	34,100 – 43,900	21,005 – 50,100	23,300 – 52,900
	10: Coral reefs	600 – 960	6 – 10	80 – 130
C: To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity	11: Protected areas (terrestrial and marine)	66,100 – 626,400	970 – 6,700	9,200 – 85,000
	12: Species conservation	–	3,400 – 4,800	3,400 – 4,800
	13: Genetic diversity	550 – 1,400	15 – 17	80 – 190
D: Enhance the benefits to all from biodiversity and ecosystem services	14: Ecosystem restoration	30,000 – 299,900	–	3,750 – 37,500
	15: Restoration of forests	100	6,400	6,400
	16: Nagoya Protocol	55 – 313	–	7 – 39
E: Enhance implementation through participatory planning, knowledge management and capacity building	17: NBSAPs	114 – 1,100	110 – 560	50 – 170
	18: Traditional knowledge	210 – 340	210 – 340	210 – 340
	19: Science base	1,800 – 4,200	1,400 – 1,600	1,600 – 2,100
	20: Mobilisation of financial resources	10 – 79	3 – 20	4 – 30

Emerging Key Findings of the High-Level Panel (Phase 2)

For further information, visit
http://www.cbd.int/financial/hlp/
or email hlp@cbd.int

7. All countries need to **invest in institutions and policy frameworks**, direct conservation and sustainable use actions, incentives and economic instruments

Developing and operationalizing cohesive, well-designed institutions, and effective policy frameworks that are a prerequisite for effective and efficient biodiversity financing systems.

8. Design and implementation of **appropriate policy and financial instruments** is essential to halt the loss of biodiversity

Much can be gained by phasing-out perverse incentives and unsustainable practices, good land-use and marine planning and the development of green fiscal policies.

Emerging Key Findings of the High-Level Panel (Phase 2)

For further information, visit
http://www.cbd.int/financial/hlp/
or email hlp@cbd.int

9. The monetary and non-monetary benefits of biodiversity conservation and sustainable use **far outweigh the costs**

The top-down estimates of resource needs in the High-Level Panel's first report are broadly consistent with available assessments at the national, regional and global levels. **This translates to investment requirements ranging from 0.08 to 0.25% of global GDP.**

10. There is a **need to increase investments substantially** to bridge financing gaps

Closing the financial gap can only be achieved through realigning existing expenditures with biodiversity objectives, particularly those which currently lead to biodiversity loss, and improved sectoral integration





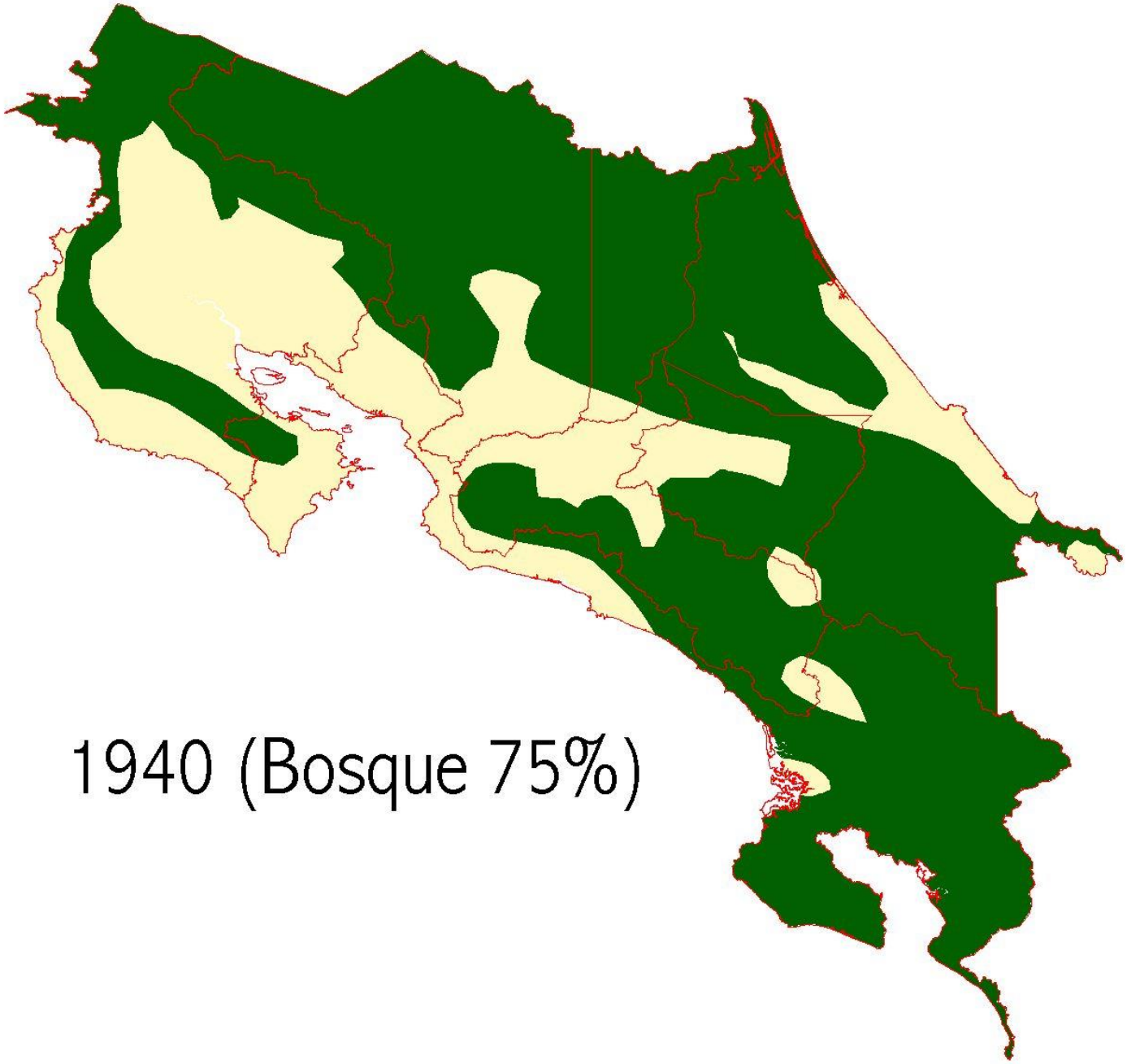


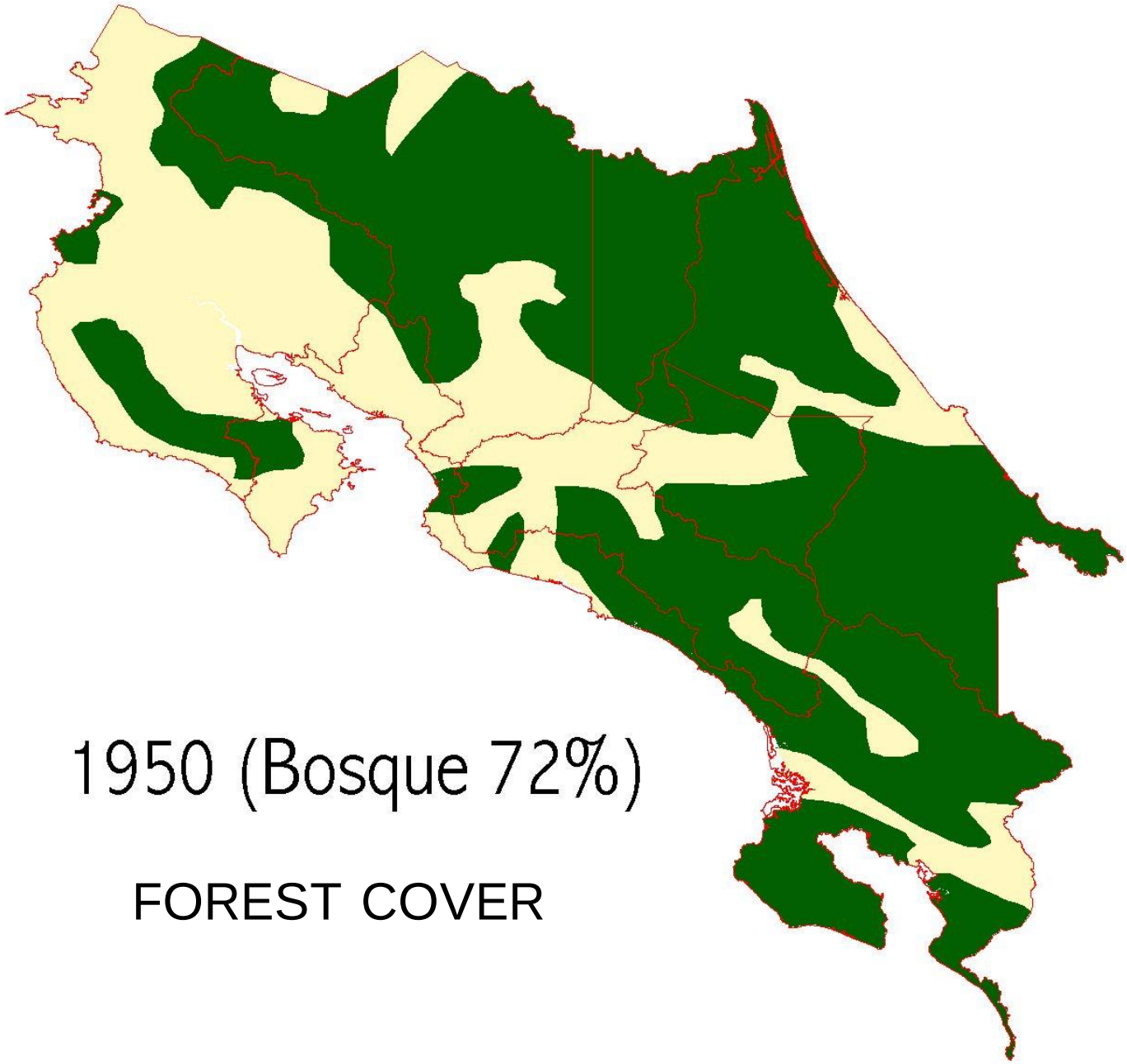


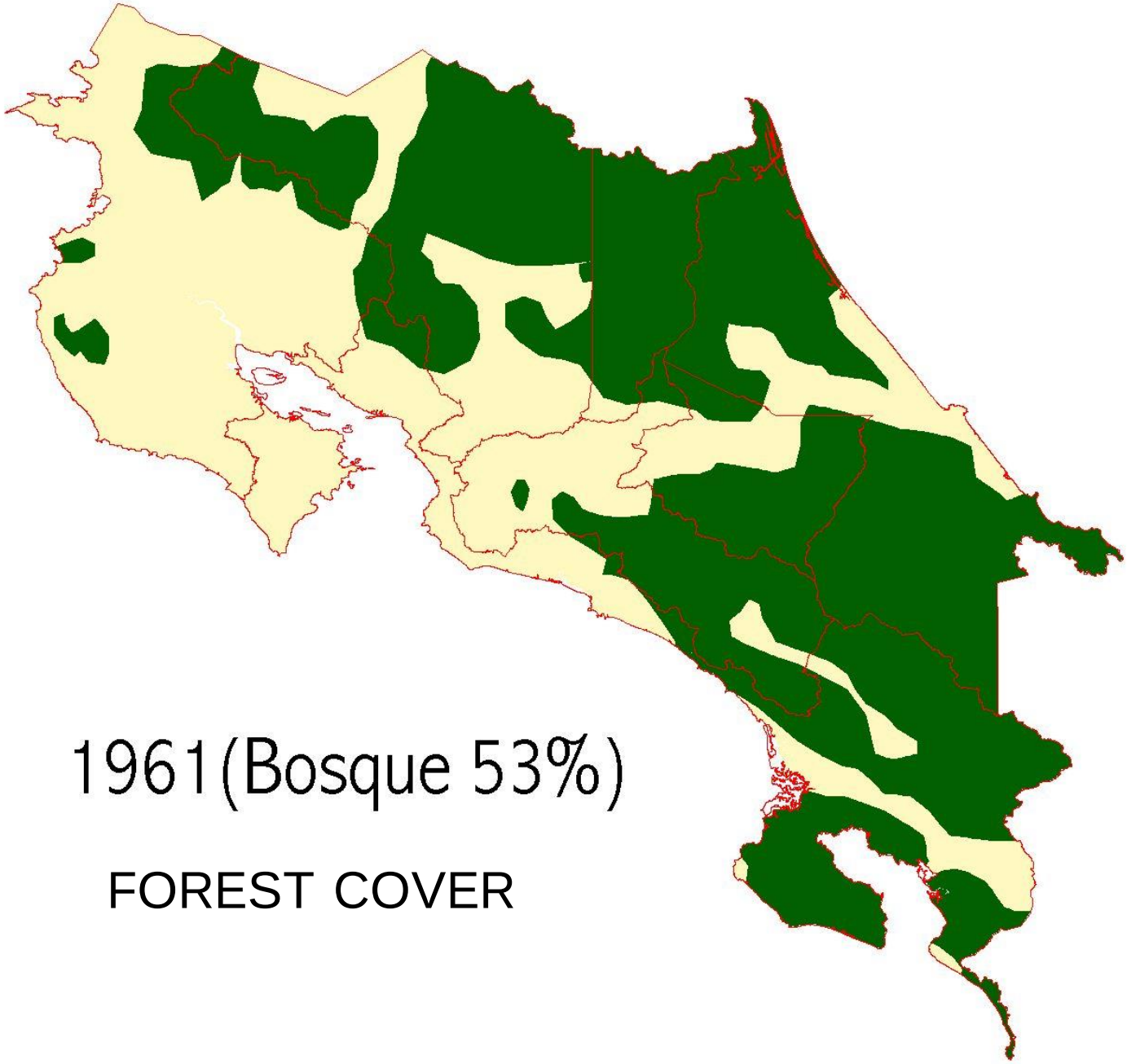

mimundo.org

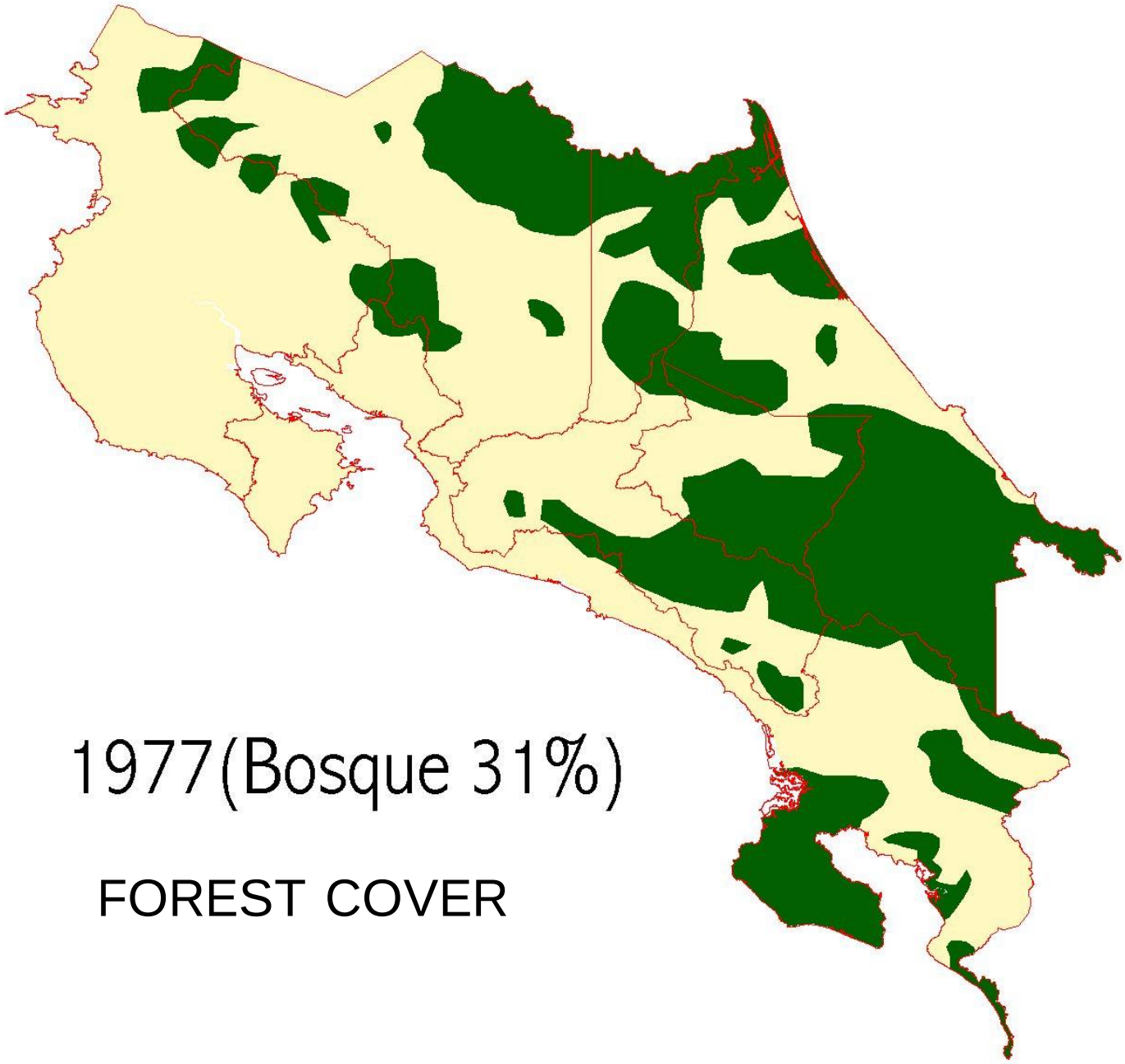

GREENPEACE

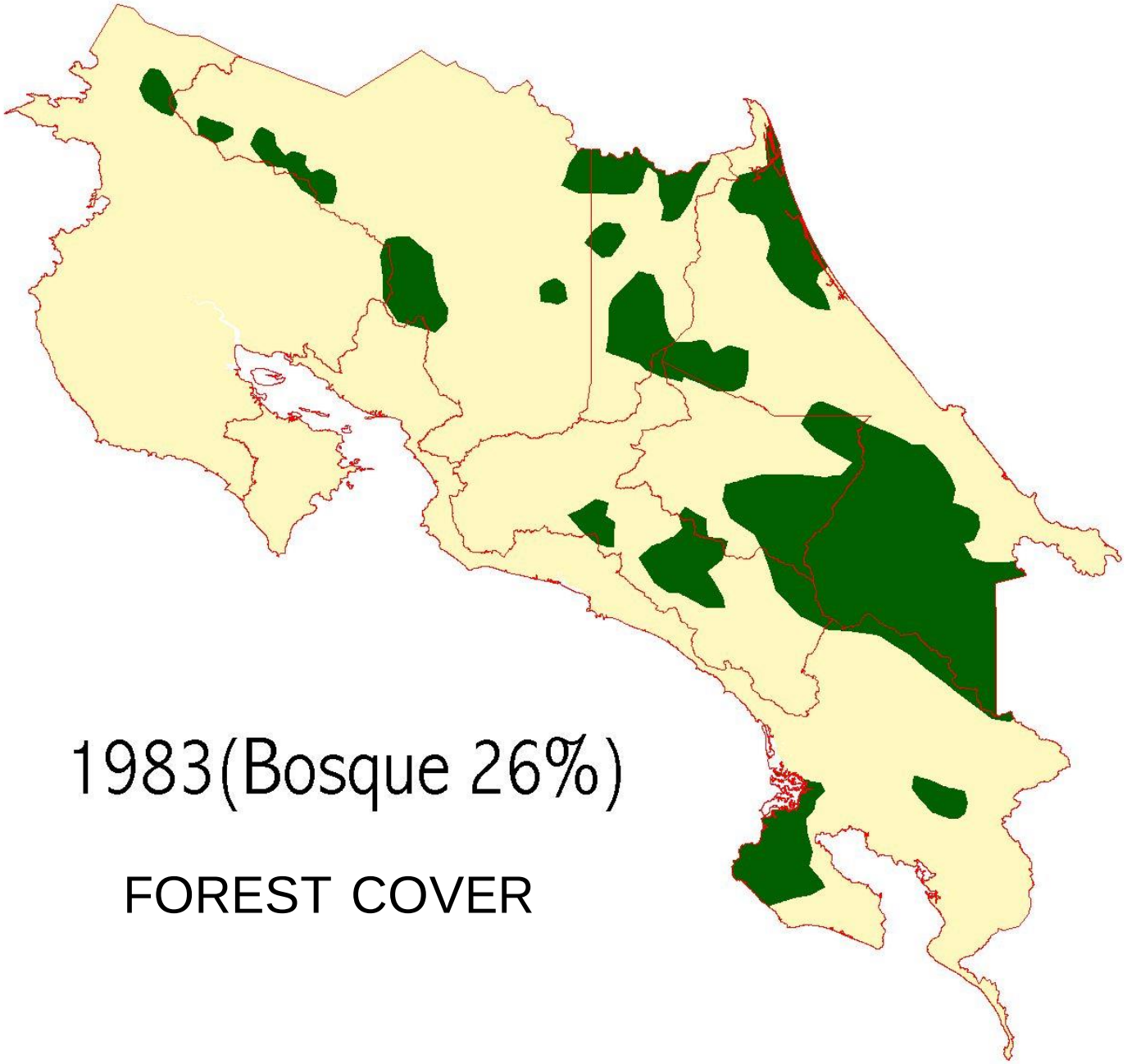

© mongabay.com

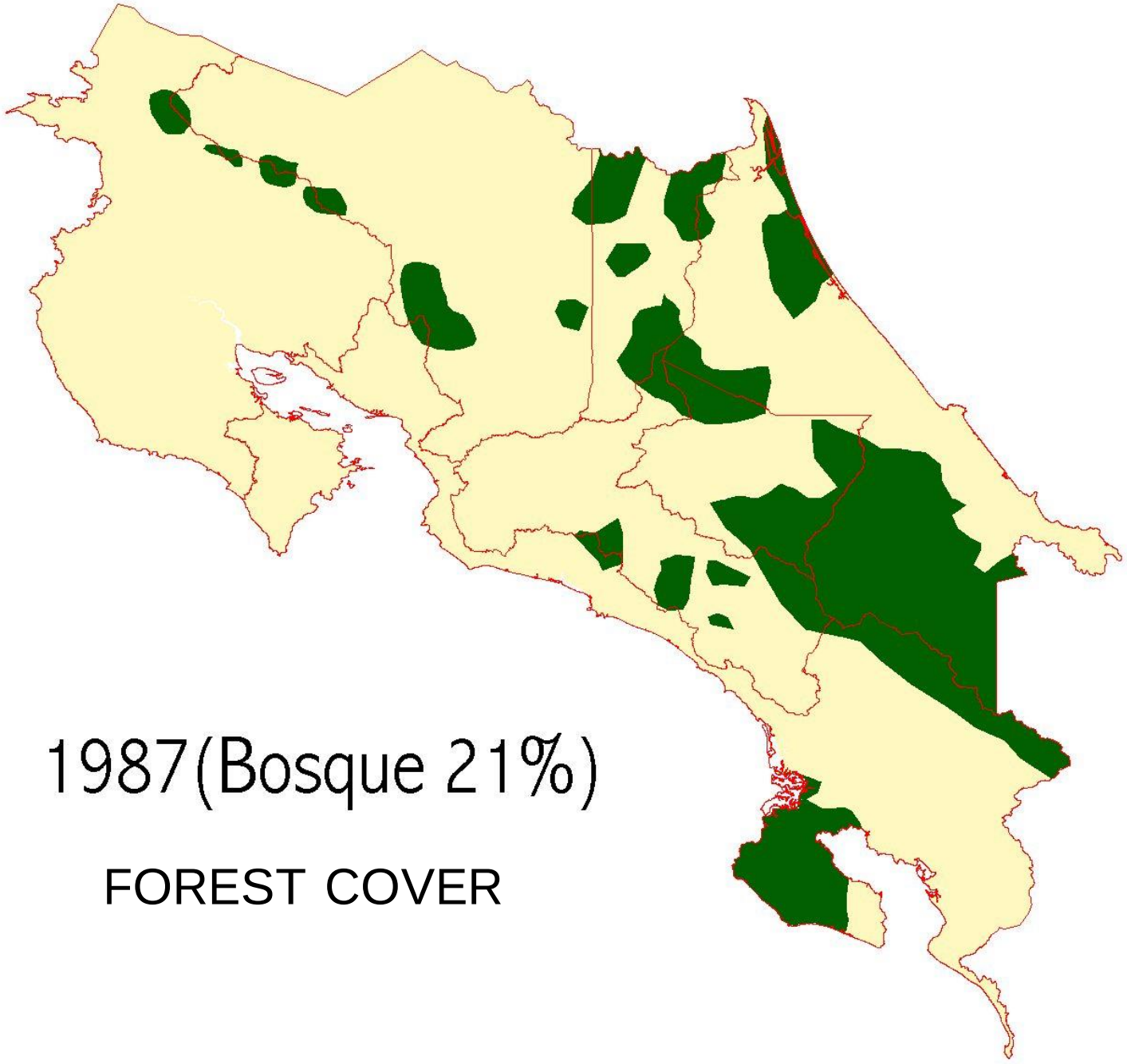

1940 (Bosque 75%)


1950 (Bosque 72%)
FOREST COVER


1961(Bosque 53%)
FOREST COVER


1977(Bosque 31%)
FOREST COVER


1983(Bosque 26%)
FOREST COVER


1987(Bosque 21%)
FOREST COVER

Unfortunately, conservation has not been seen as contributing to economic and social development.

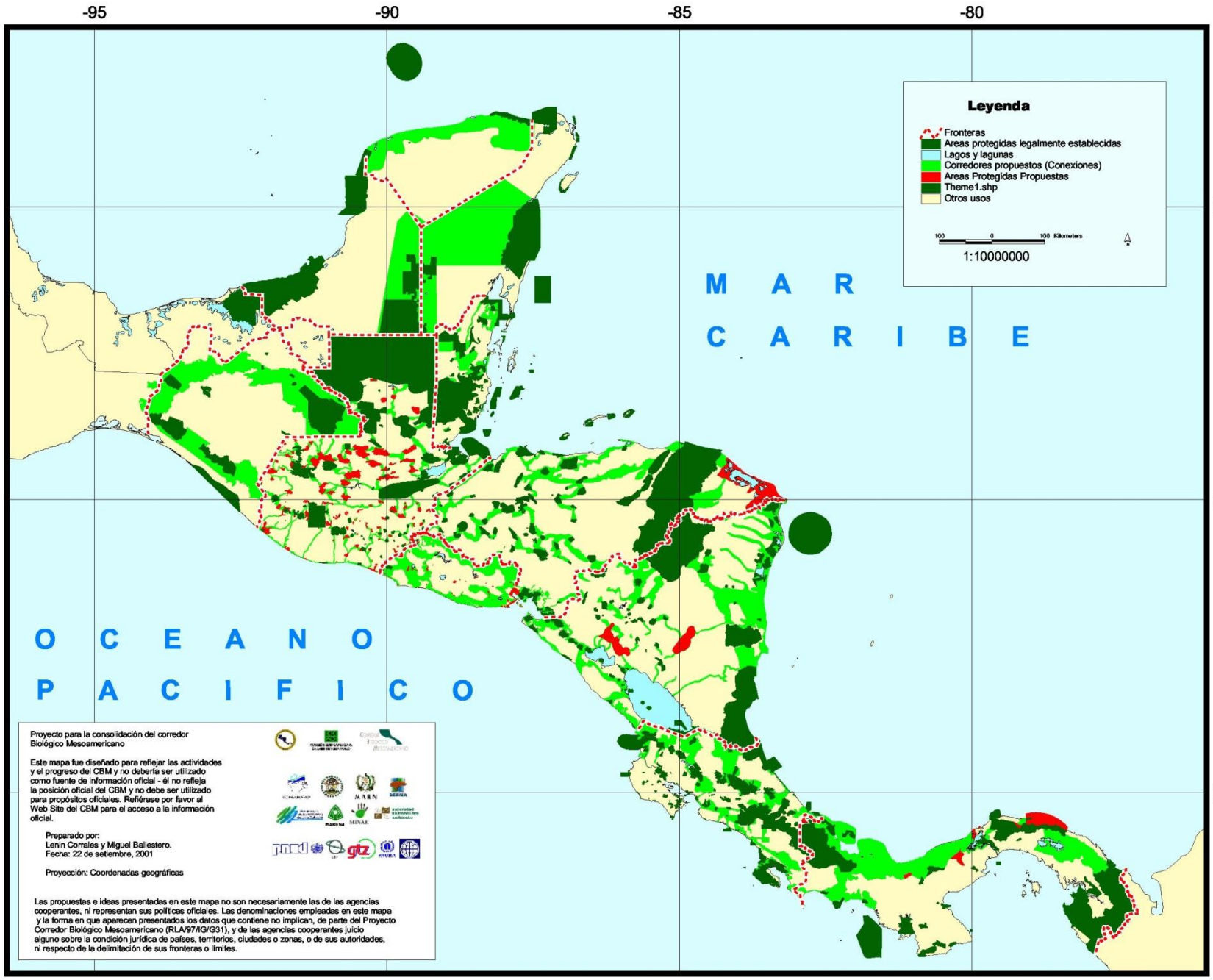
Obstacles:

- Lack of integrated knowledge and awareness
- Hard to assign monetary value to nature's services/public good
- Short-term benefits outweigh long-term value
- Difficult to scale up successes

HOW DO WE DO IT ?

- “We can’t solve problems by
- using the same kind of thinking
- we used when we created them.”
- Albert Einstein

- “We can’t solve problems by
- using the same Institutions
- we used when we created them.”
-


Corredor Biológico Mesoamericano
Versión de Trabajo, 22 de setiembre, 2001
-95
-90
-85
-80
20
15
10
Leyenda
Fronteras
Areas protegidas legalmente establecidas
Lagos y lagunas
Corredores propuestos (Conexiones)
Areas Protegidas Propuestas
Theme1.shp
Otros usos
100 0 100 Kilometers
1:10000000
M A R
C A R I B E
O C E A N O
P A C I F I C O
Proyecto para la consolidación del corredor Biológico Mesoamericano
Este mapa fue diseñado para reflejar las actividades y el progreso del CBM y no debería ser utilizado como fuente de información oficial - él no refleja la posición oficial del CBM y no debe ser utilizado para propósitos oficiales. Refiérase por favor al Web Site del CBM para el acceso a la información oficial.
Preparado por:
Lenin Corrales y Miguel Ballestero.
Fecha: 22 de setiembre, 2001
Proyección: Coordenadas geográficas
Las propuestas e ideas presentadas en este mapa no son necesariamente las de las agencias cooperantes, ni representan sus políticas oficiales. Las denominaciones empleadas en este mapa y la forma en que aparecen presentados los datos que contiene no implican, de parte del Proyecto Corredor Biológico Mesoamericano (RLA/97/IG/G31), y de las agencias cooperantes juicio alguno sobre la condición jurídica de países, territorios, ciudades o zonas, o de sus autoridades, ni respecto de la delimitación de sus fronteras o límites.

INSTITUTO COSTARRICENSE DE ELECTRICIDAD
UEN DE TRANSPORTE DE ELECTRICIDAD
INTERCONEXIÓN REGIONAL Y ESTUDIOS PRELIMINARES.

SISTEMA DE TRANSMISIÓN CENTROAMERICANA. AÑO 2006

SIMBOLOGIA

- CIUDAD CAPITAL
- CENTRAL HIDROELECTRICA
- CENTRAL TERMICA
- SUBESTACION DE INTERCONEXION
- CENTRAL GEOTERMICA
- SUBESTACION
- SUBESTACION DE SIEPAC
- LINEA DE 400 KV
- LINEA DE 230 KV, SIEPAC.
- LINEA DE 230 KV
- LINEA DE 138 KV
- LINEA DE 115 KV
- LINEA DE 69 KV

PROYECCION AL 2006.

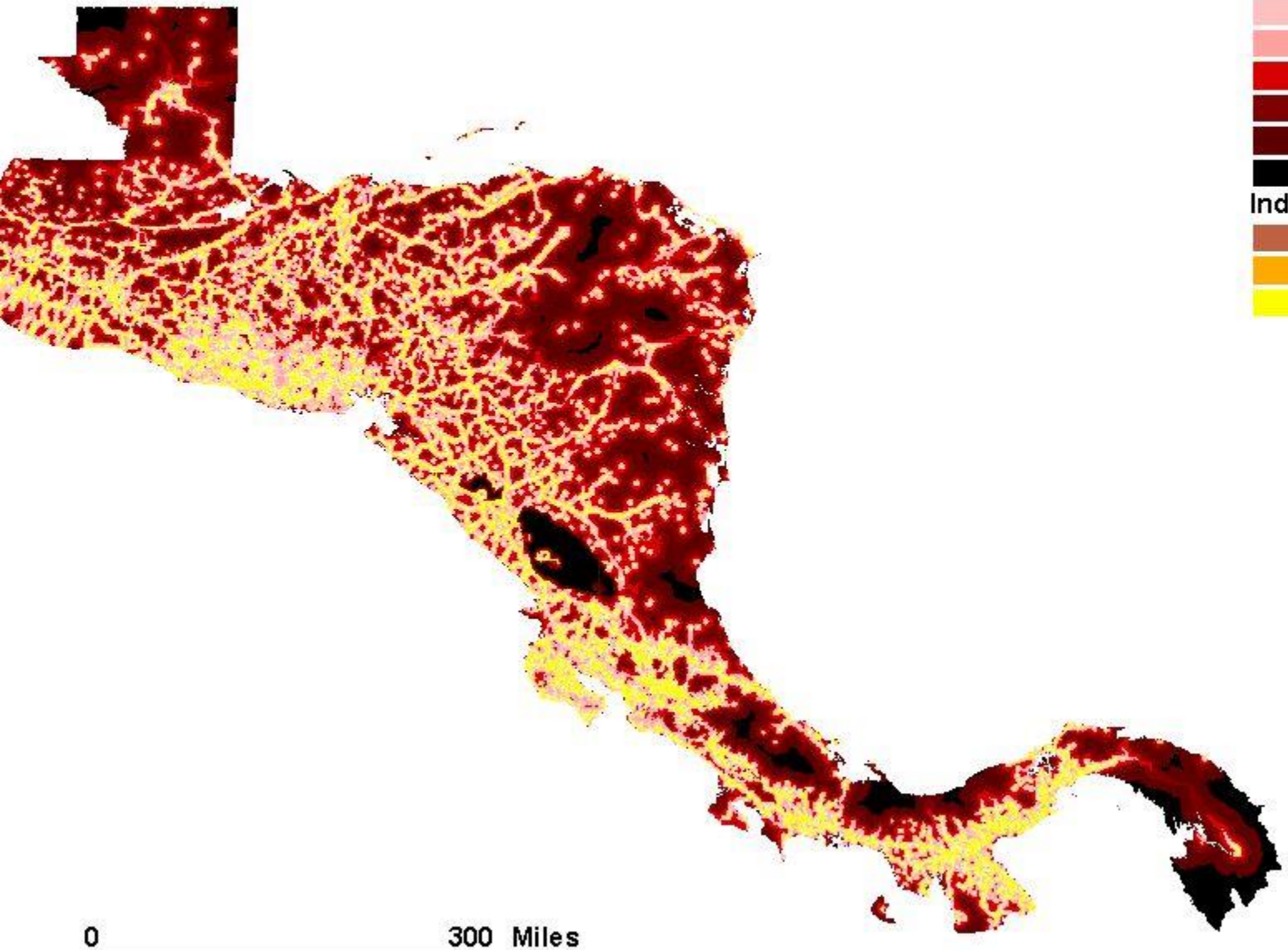
FECHA
10/03/04

DIBUJO:EDUARDO ALFARO ALFARO

- IMAGEN SATELITAL SUMINISTRADA POR LA COMISIÓN NACIONAL DE EMERGENCIAS DE LA REPÚBLICA DE COSTA RICA.
- UBICACIÓN DE LINEAS DE TRANSMISIÓN Y SUBESTACIONES TOMADAS DE LOS ARCHIVOS DEL INSTITUTO COSTARRICENSE DE ELECTRICIDAD PARA EL ESTUDIO DE REFUERZOS NACIONALES DE TRANSMISIÓN C.R 2004.

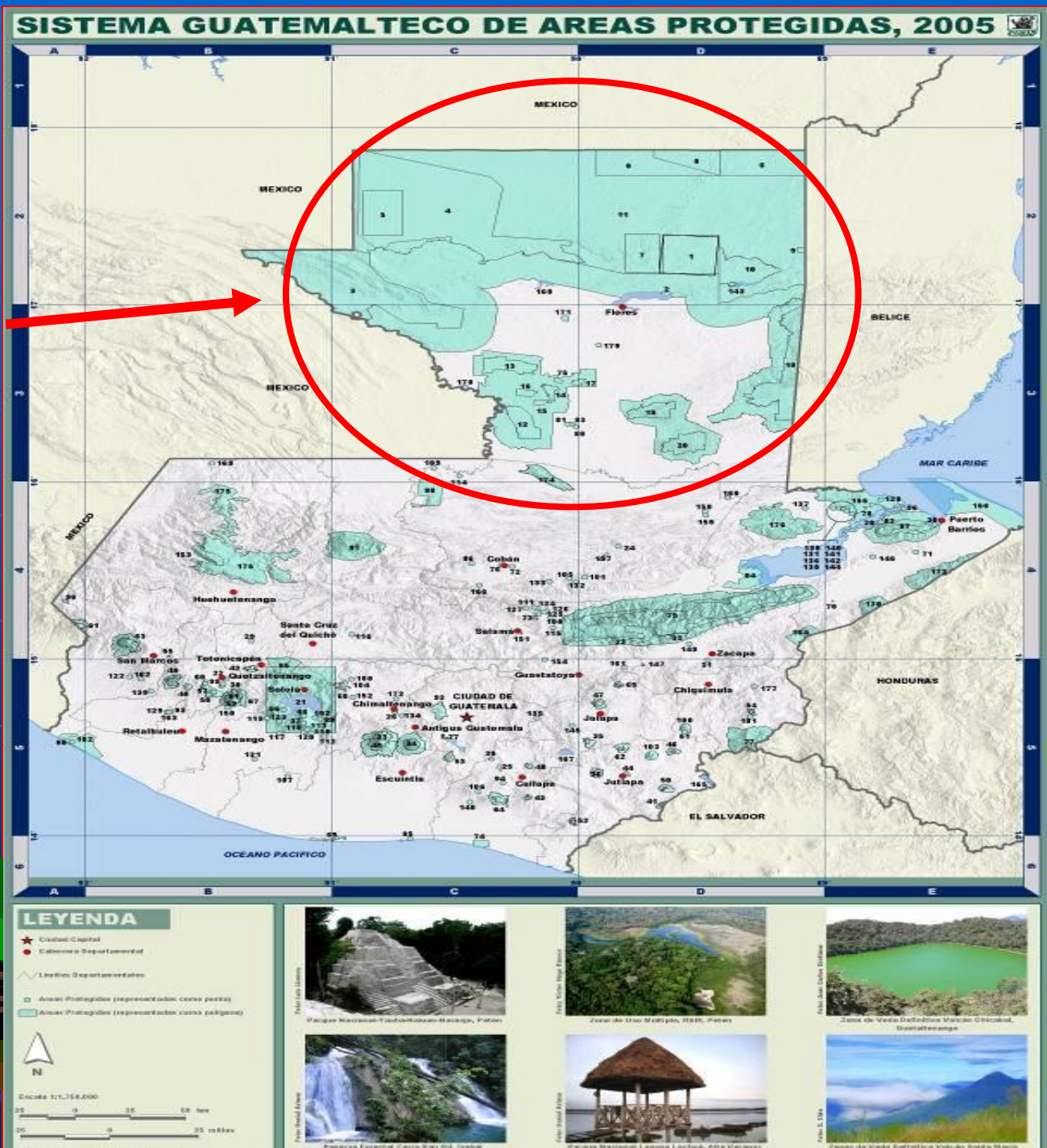
Corredor Pacífico de Centroamérica

Accesibilidad y Desarrollo Urbano en Centroamerica



Maya Biosphere Reserve,
40 million dollars
Investment

- -usaid
- -kwf
- -wb
- -gef
- -ong's
- -bilateral
- -idb

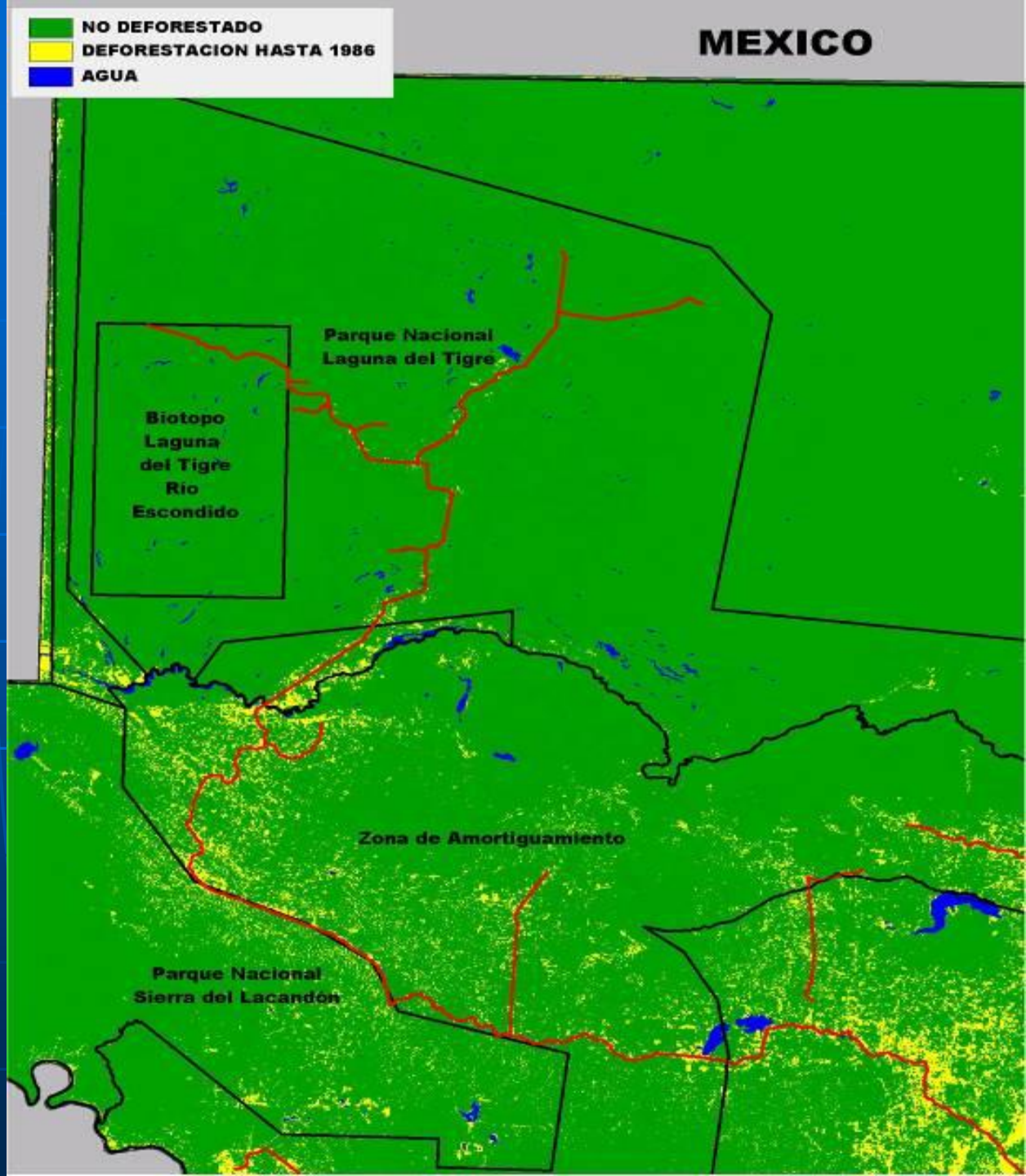


Guatemala's Protected Areas threatened by economic activites

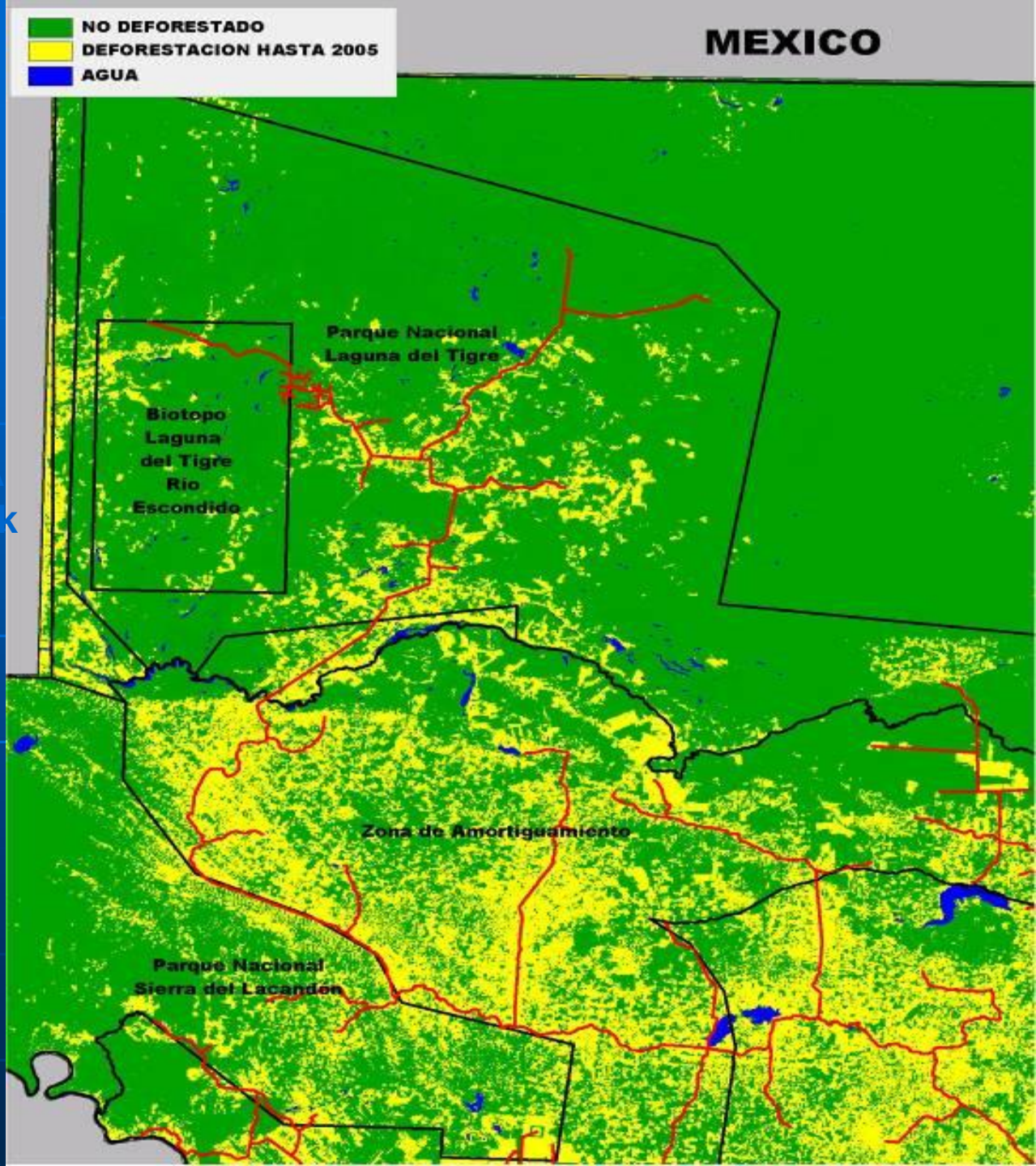
OIL DRILLING

Parque Nacional
Laguna del Tigre

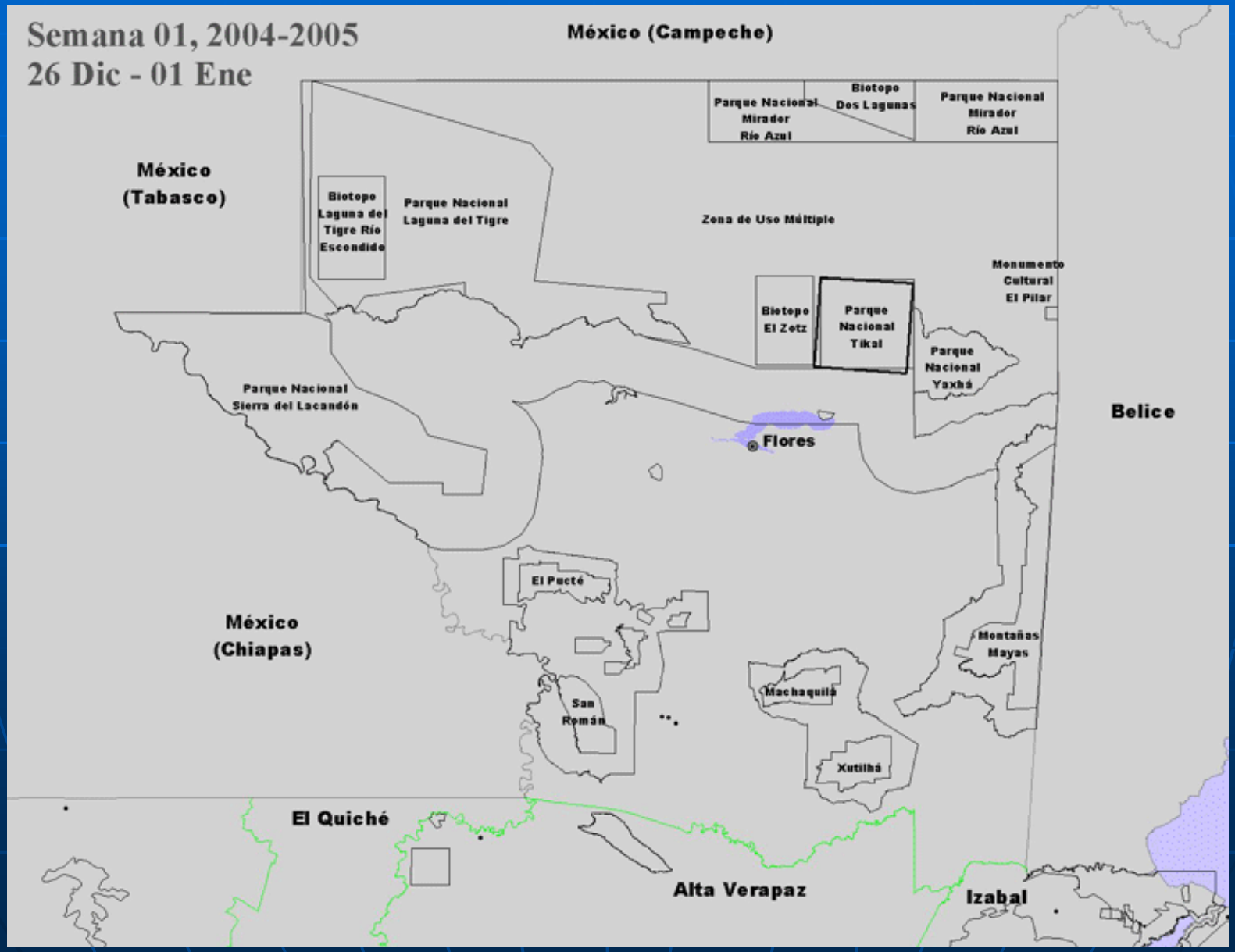
Deforestation in 1990



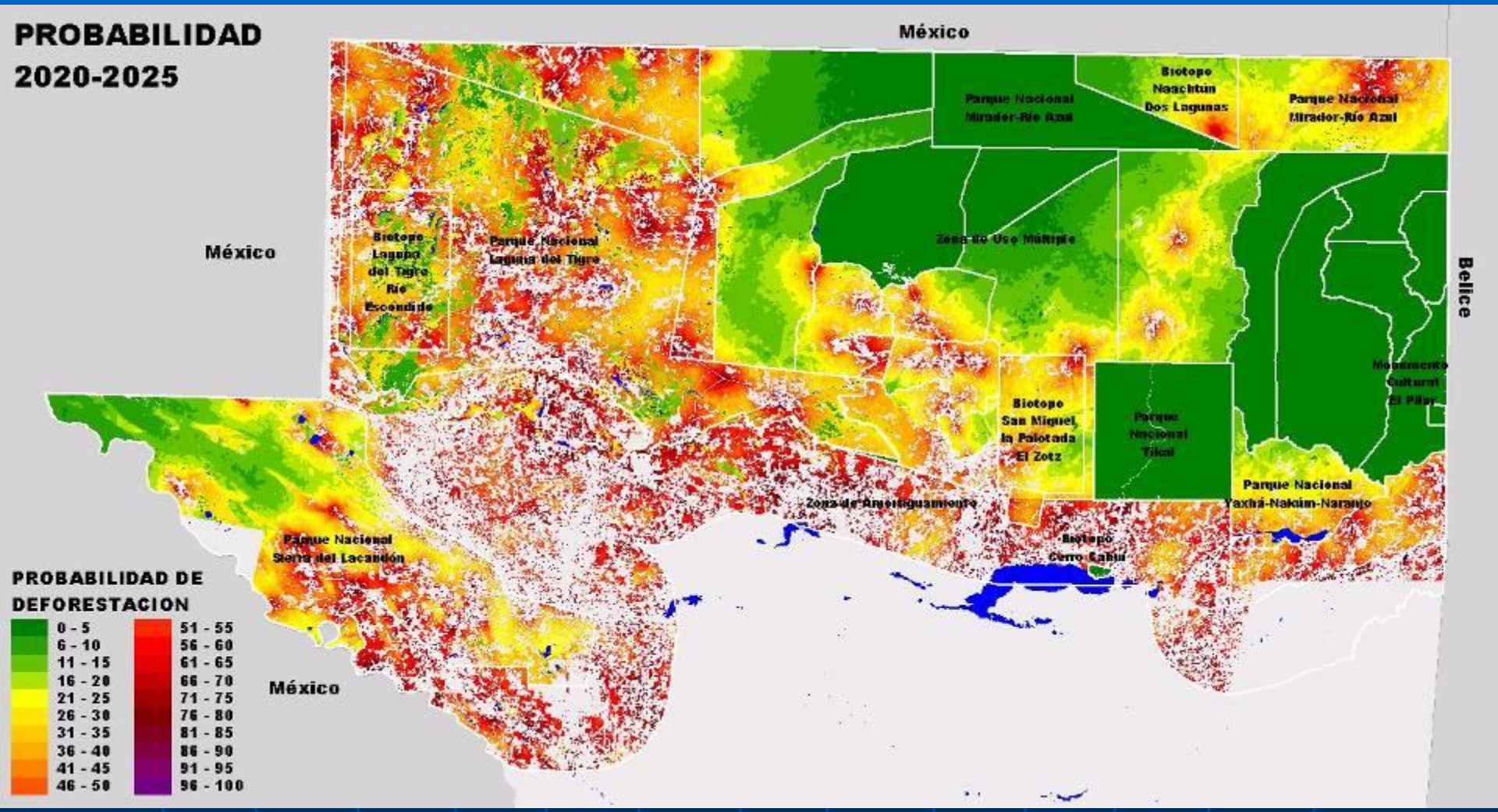
Deforestation LAGUNA DEL TIGRE National Park 1998



FOREST FIRES - 2005



Estimated Deforestation with a Highway to Tikal



Tropico Verde

CONSERVATION INTERNATIONAL

CONAP

CRITICAL ECOSYSTEM PARTNERSHIP FUND

CSF

WILDLIFE CONSERVATION SOCIETY

Producción nacional petrolera

Año	Producción neta en barriles	Ingresos al Estado en dólares
1990	1,439,335	4,106,931
1991	1,352,942	2,440,561
1992	2,051,061	2,571,781
1993	2,515,483	3,015,325
1994	2,629,673	4,974,654
1995	3,414,614	4,664,299
1996	5,329,676	13,535,519
1997	7,134,029	11,224,1[illegible]
1998	9,234,131	5,846,[illegible]24
1999	8,489,145	28,[illegible]29,713
2000	7,571,160	[illegible],397,467
2001	7,695,352	39,979,724
2002	9,004,952	52,657,448
2003	2,199,552	15,305,749[illegible]

OIL ROYALTIES $200 MILLON

Environmental Cost

* Valor estimado anual en millones de quetzales

El precio de la naturaleza

Valor económico estimado del Sistema Guatemalteco de Areas Protegidas (es el costo que se necesitaría para recuperar esas áreas si se perdieran)

66.2 maderas	**857.2** Turismo	**604.5** Sumidero de carbono
200.3 Bienes no maderables	**38.0** Regulación caudal de agua	**87.0** Opción [illegible]
137.2 Bienes agropecuarios	**24.8** Protección del suelo	**2,015,2** Total

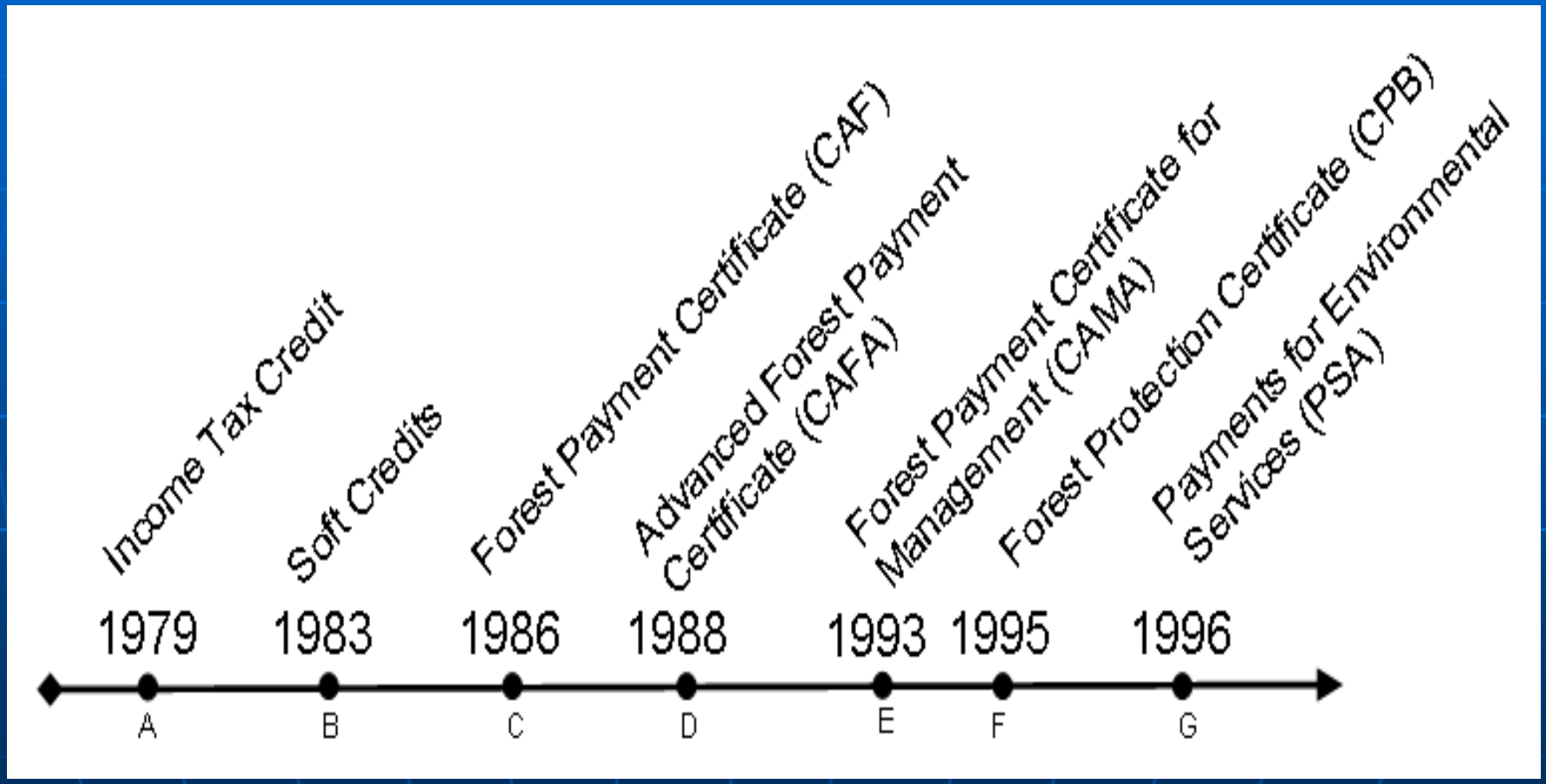
MARKET FAILURES: GDP is a specialized tool

Includes: activity

- Net Exports
- Consumption Expenditures
- Government Expenditures
- Built Capital

Excludes: Quality

- Natural resource assets
- Ecosystem Services
- Social Capital
- Democracy
- Education
- Planetary limits
- Quality of life
- Pollution


Income Tax Credit
Soft Credits
Forest Payment Certificate (CAF)
Advanced Forest Payment Certificate (CAFA)
Forest Payment Certificate for Management (CAMA)
Forest Protection Certificate (CPB)
Payments for Environmental Services (PSA)
1979
1983
1986
1988
1993
1995
1996
A
B
C
D
E
F
G


natural
benefits from healthy ecosystems
Food
Water
Fibers
Housing Materials
Medicines
Pollination
Carbon Storage
Waste disposal

1995-1998 New legal and institutional framework for sustainable development policy

- 1995 General Environmental Law enacted
- 1996 New Forestry Law
- 1998 Biodiversity Law

- Sustainable development become… …onal Constitution and Environmental la…
- Creation of the National System … …ed management of natural resources…
- Abolition of the change of use of …
- FONAFIFO legally consolidated
- The Forest National Office was cr… … the private and public forest stakehol…
- Transformation of incentives into … …he main financial mechanism to pror… …use
- Creation of a funding source for E…

Target 3

By 2020, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio economic conditions.

…NAFIFO

WHAT IS PES ?

- The PES is a financial instrument that fully recognize ecological services between providers and users. So, we can say its a private transaction between them, were the Government is in the middle setting policies, rules, procedures, institutional administration and the political will to internalize them.

Environmental Services Payment Program: Legal framework

The Forestry Law states

“ Forests, forest plantations and other ecosystems provide essential services to the people and economic activities, at the local, national and global levels”.

Protection of water resources for different uses

Mitigation of greenhouse effect gases and carbon fixation

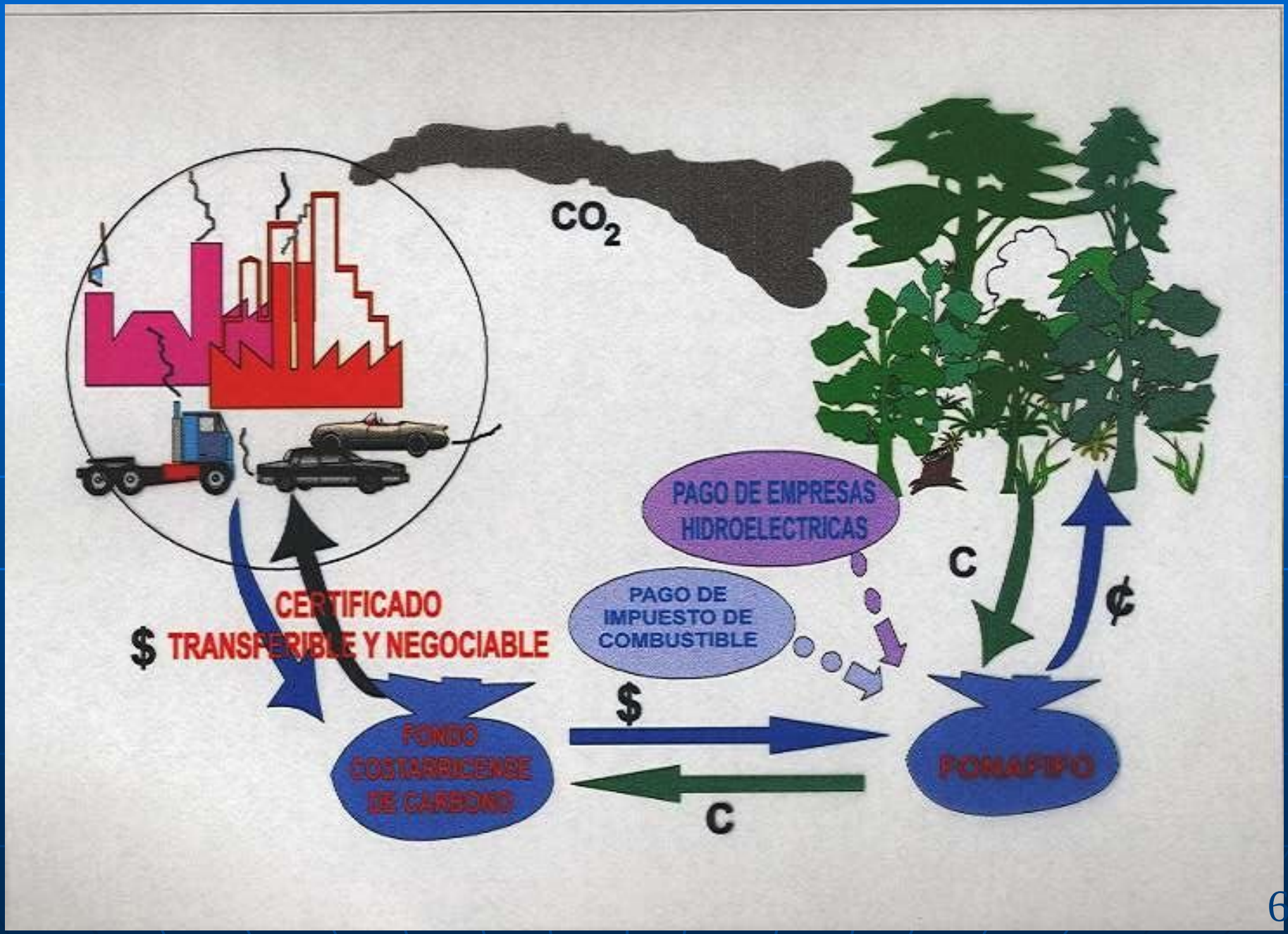
Protection of biodiversity

Landscape/scenic beauty

Payment for environmental services is the mechanism implemented to pay the owners of land by the above mentioned services provided to the society

THE CARBON BANK

RATIONALE OF THE ESPP



Ecomarket Project goals/targets

- Payments for contracted projects (+200.000 Has)
- Increase volume of existing contracts in 100.000 Has
- Increase by 30% participation of women in ESP
- Increase by 100% participation of indigenous peoples
- Strengthen FONAFIFO and SINAC institutional capacities

Ecomarkets project

- Need to increase forest conservation and forest cover recovering by enhancing the development of private markets for environmental services provided by forests such as biodiversity protection, greenhouse emissions reduction and water resources protection.

Source of funding	$ US
BIRF 4557-CR	32,630,000
GEF 23681-CR	8,000,000
PJN 50508	302,250
Government	8,500,000
TOTAL	**49,432,250**

Economic Benefit of National Parks to the Local Economy- 2002

Total: $834,600.000

- **Tourism (87,48%):**
- **Hydroenergy (10,45%):**
- **Conservation Funds (1,10%)**
- **Others (0,97%):**

Economic Benefit of National Parks to the Local Economy 2009.

Total: 1.357 millons de US$

- Turismo Nacional (70,18%). Más importantes: hospedaje
- Generación de electricidad (26.38%). Aproximación empl a ASP.
- Generación de empleo directo e indirecto (1,73%).
- Ingresos por concepto de entradas (0,93%)
- Fondos para Conservación de ASP (0,63%).
- Otros (0,15%). Fondos para la investigación, visitación, tierras.

* TC: 573.3 colónes por dólar

Target 1
By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.

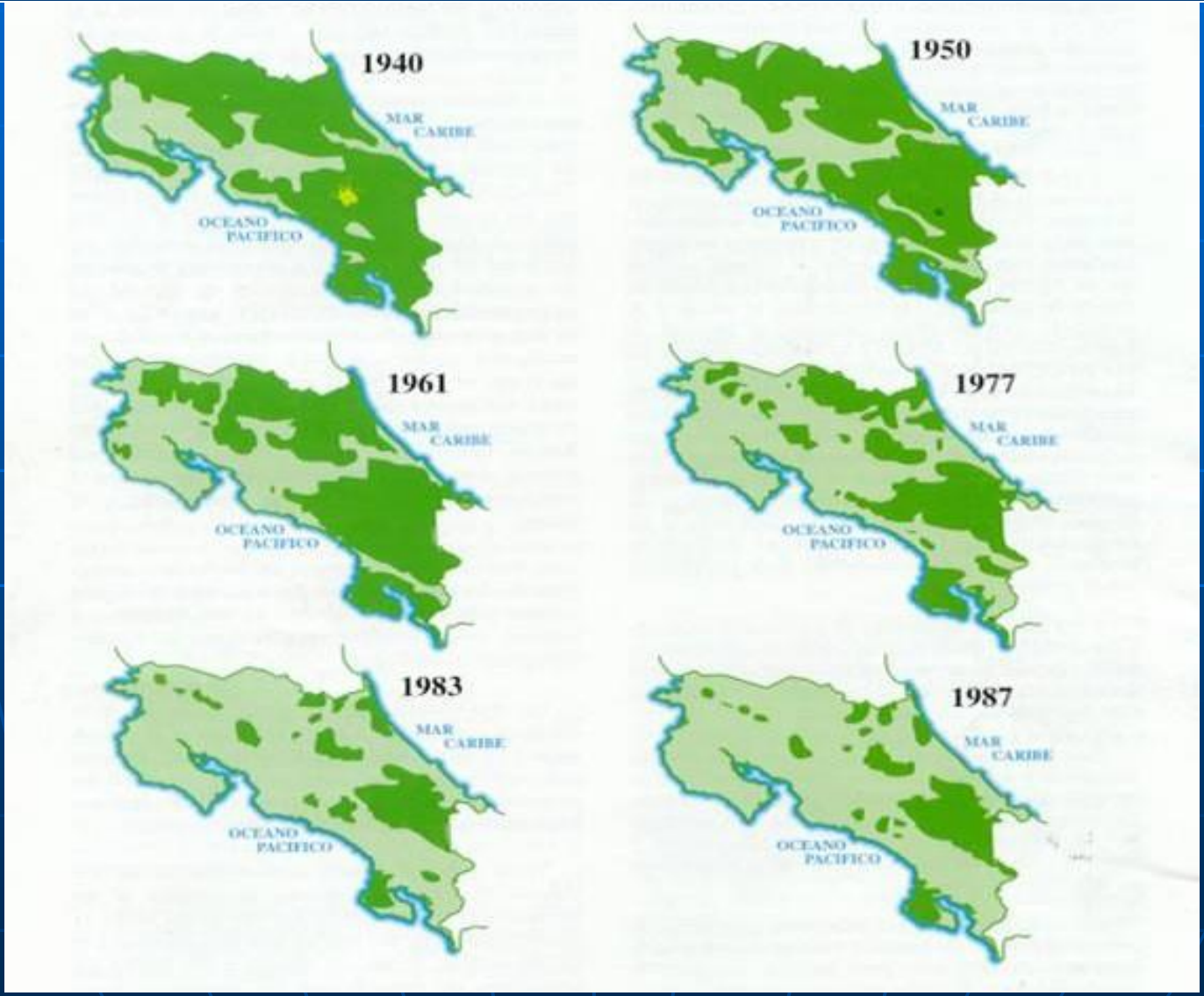
National Parks Contribution to the GNP 2002

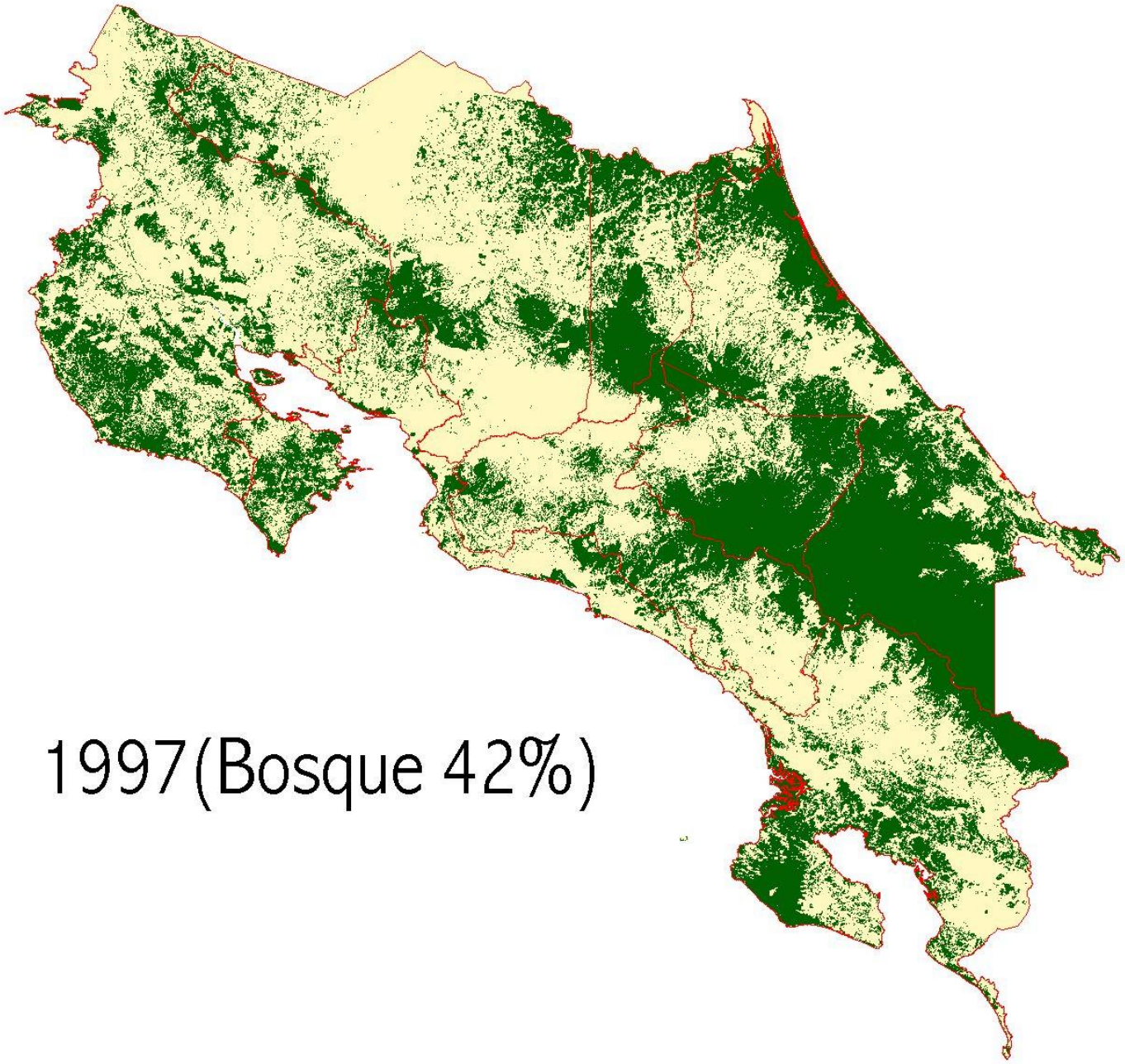
	%
National Parks	5,5

Agriculture	7,7

"If governments invest seriously as Costa Rica has done it, they will no longer be flying blind" The Economist

Evolution of forest cover 1940 - 1987

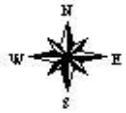



1997(Bosque 42%)

Forest Cover 2000 45%

Cobertura Forestal 2005

52%



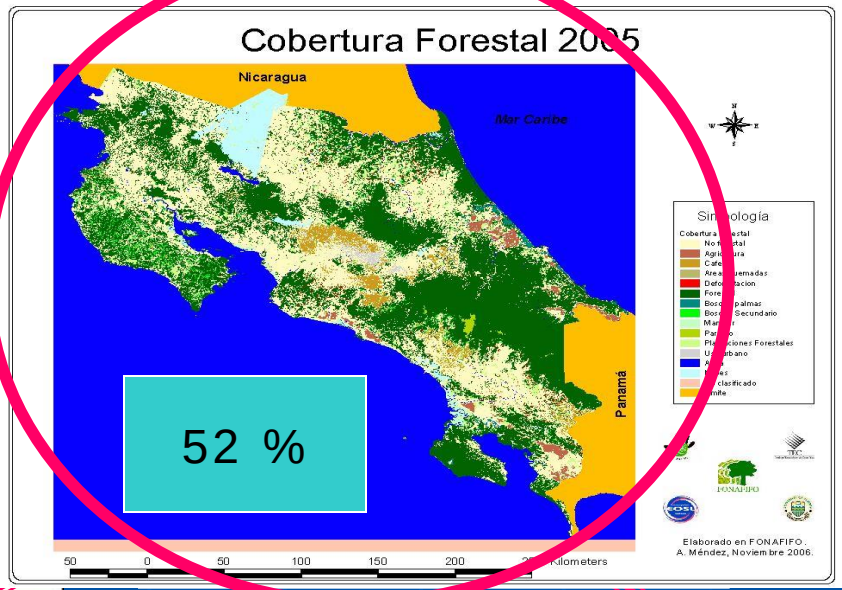
Simbología

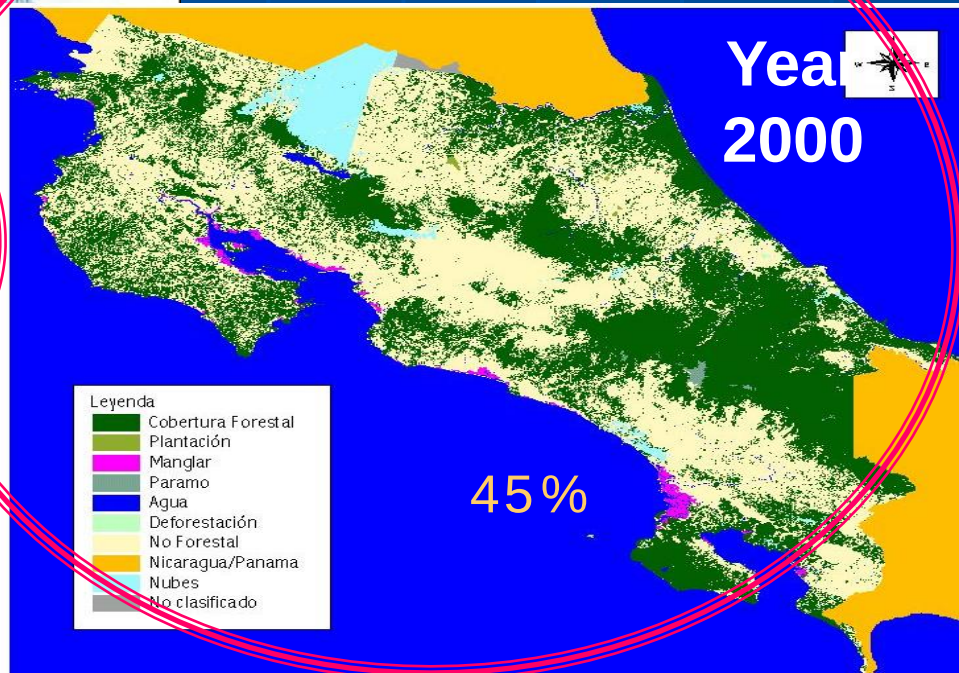
Cobertura Forestal
- No forestal
- Agricultura
- Cafe
- Areas quemadas
- Deforestacion
- Forestal
- Bosque palmas
- Bosque Secundario
- Manglar
- Paramo
- Plantaciones Forestales
- Uso urbano
- Agua
- Nubes
- No clasificado
- Limite

PONAFIPO

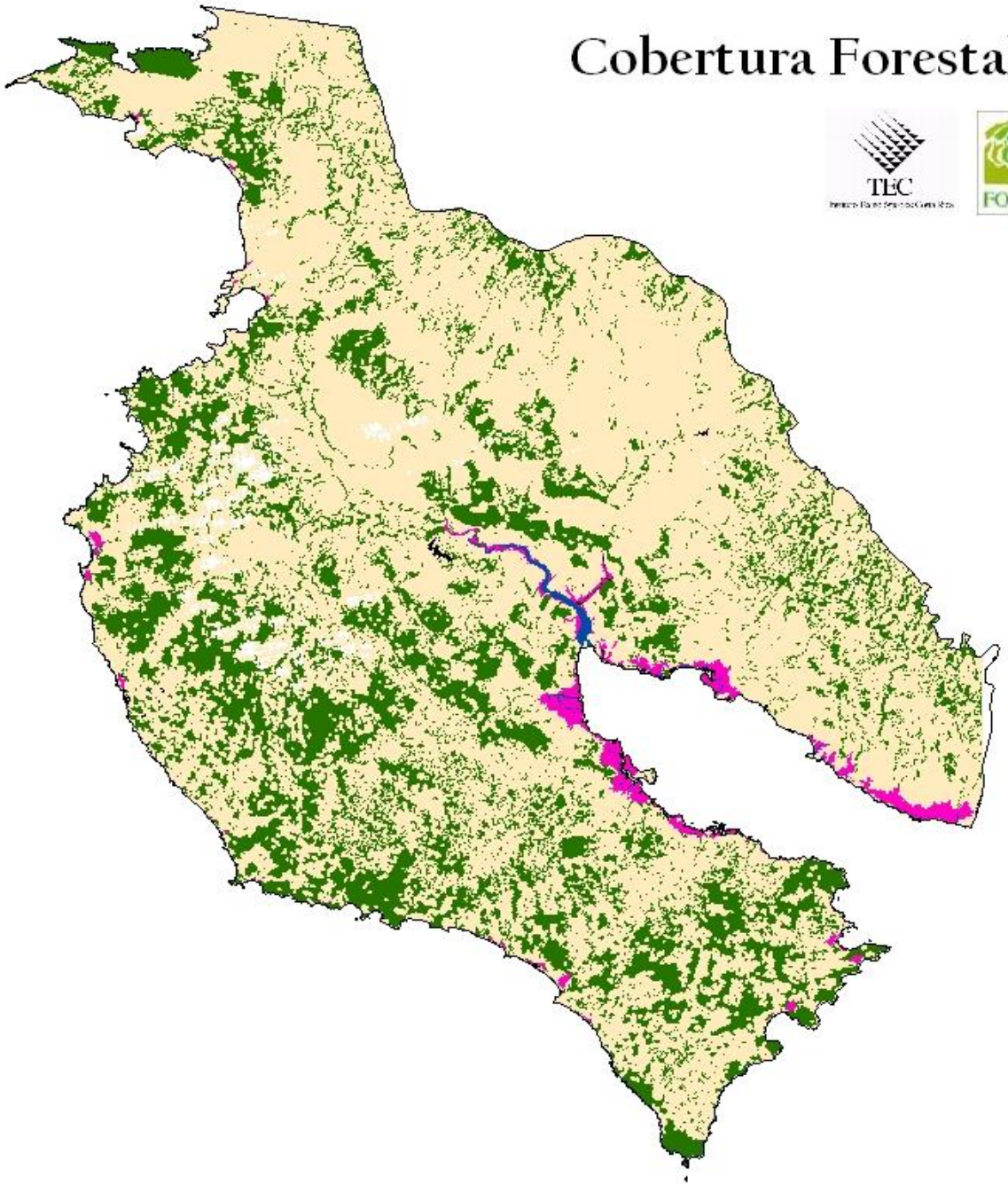
Elaborado en FONAFIFO.
A. Méndez, Noviembre 2006.

Cobertura Boscosa Densa (80-100% de cobertura del suelo) en Costa Rica en los años 1940, 1950, 1961, 1977, 1983, 1987, 1996/1997





Cobertura Forestal Guanacaste 1986



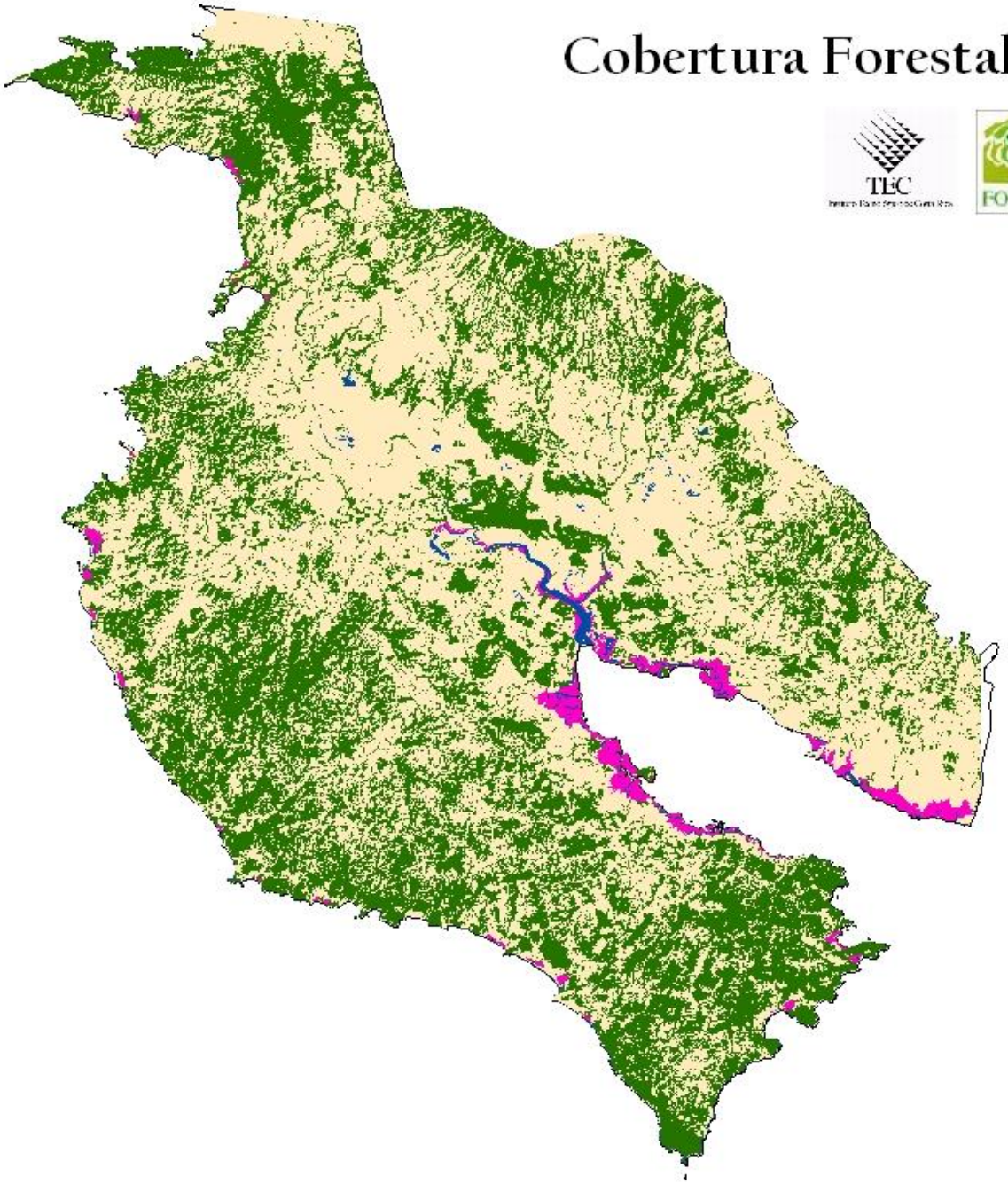
Simbología

- Bosques
- Agropecuario
- No datos
- Nubes
- Manglares
- Cuerpos de Agua

N
W
E
S

0 12.5 25 50
Kilometers

Cobertura Forestal Guanacaste 2000



Simbología

- Bosques
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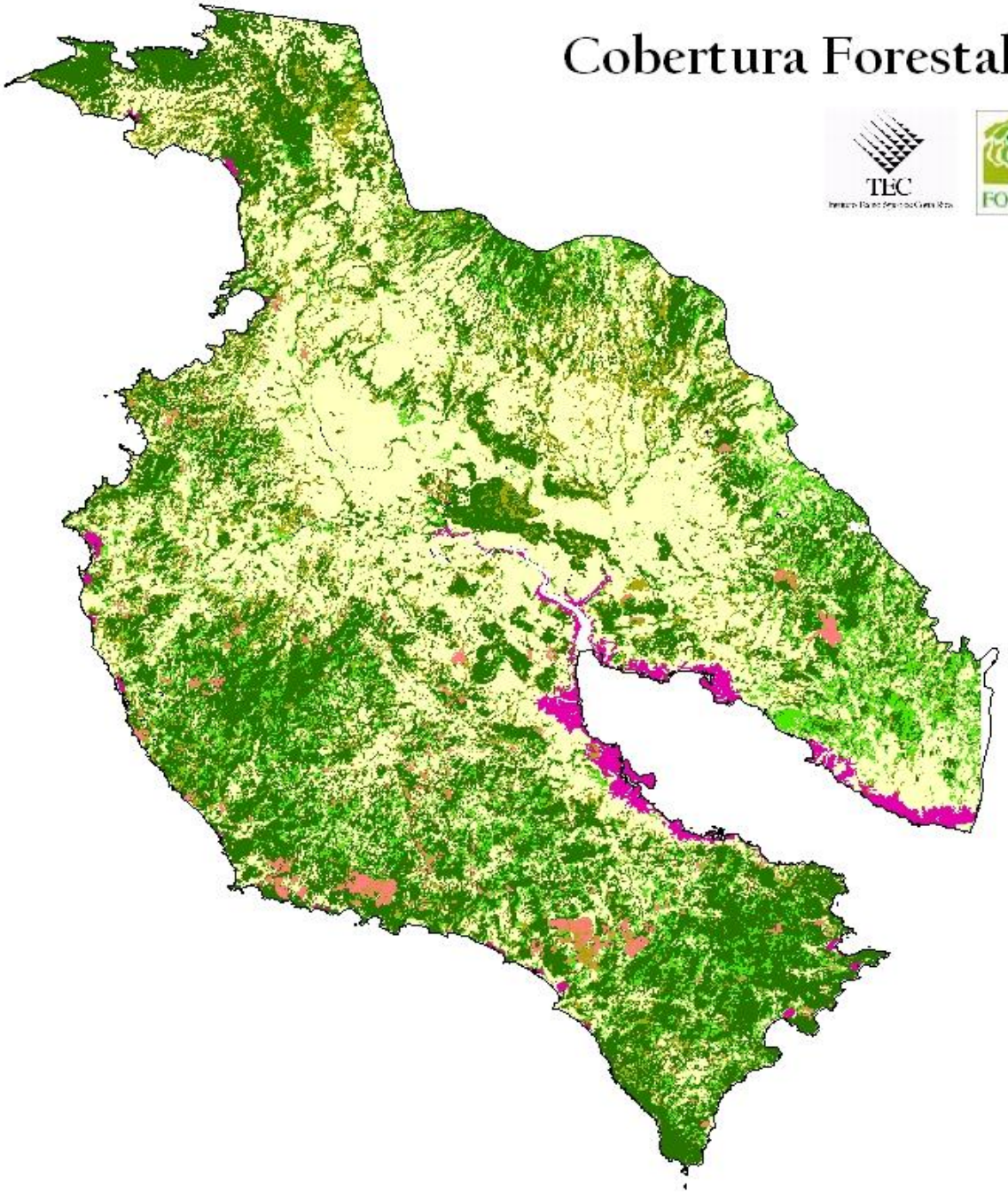
Cobertura Forestal Guanacaste 2005



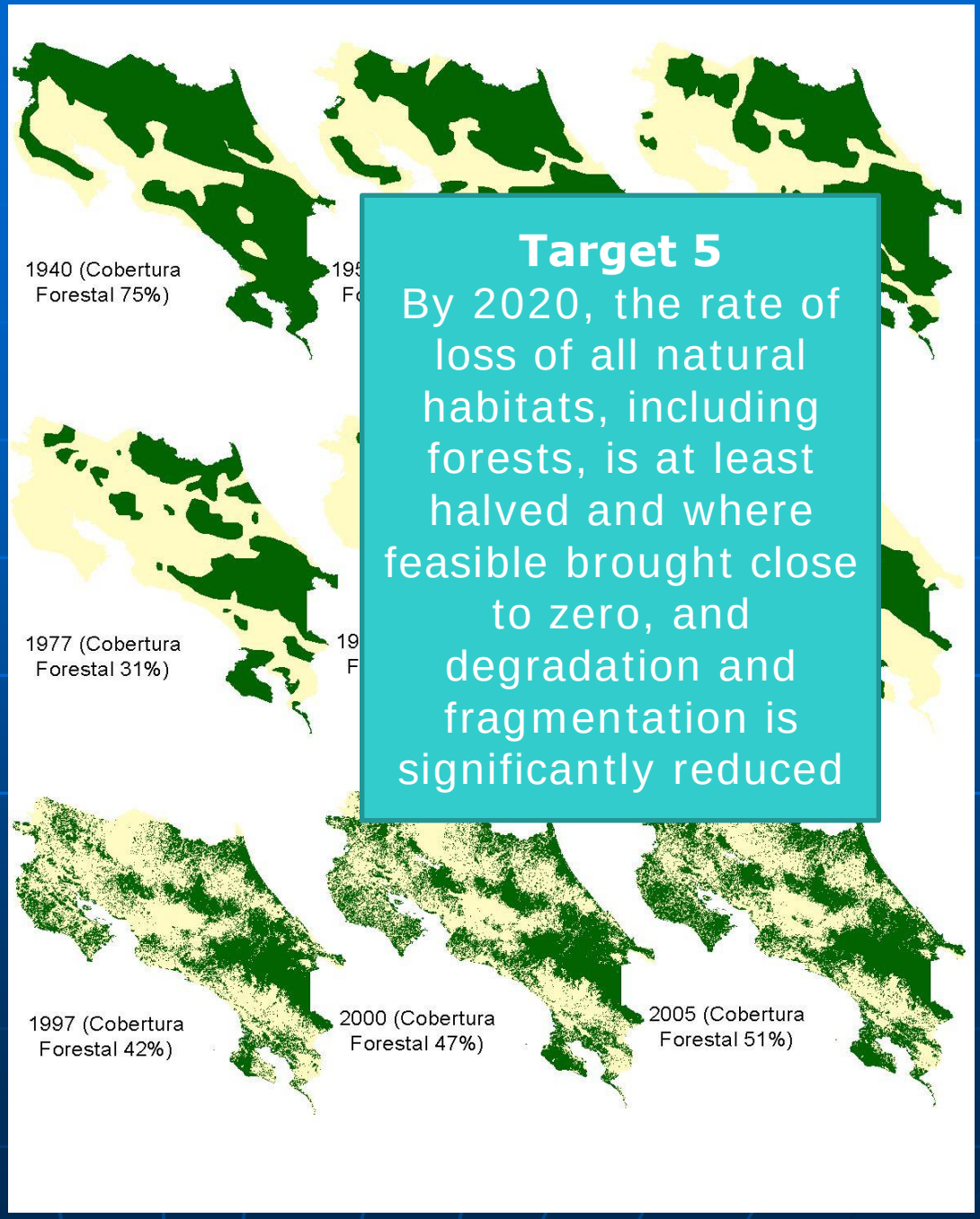
Simbología

- Sucesión tardía
- No Bosque
- Sucesión Temprana
- Manglares
- No datos
- Plantaciones forestal
- Sucesión intermedia

N
W E
S

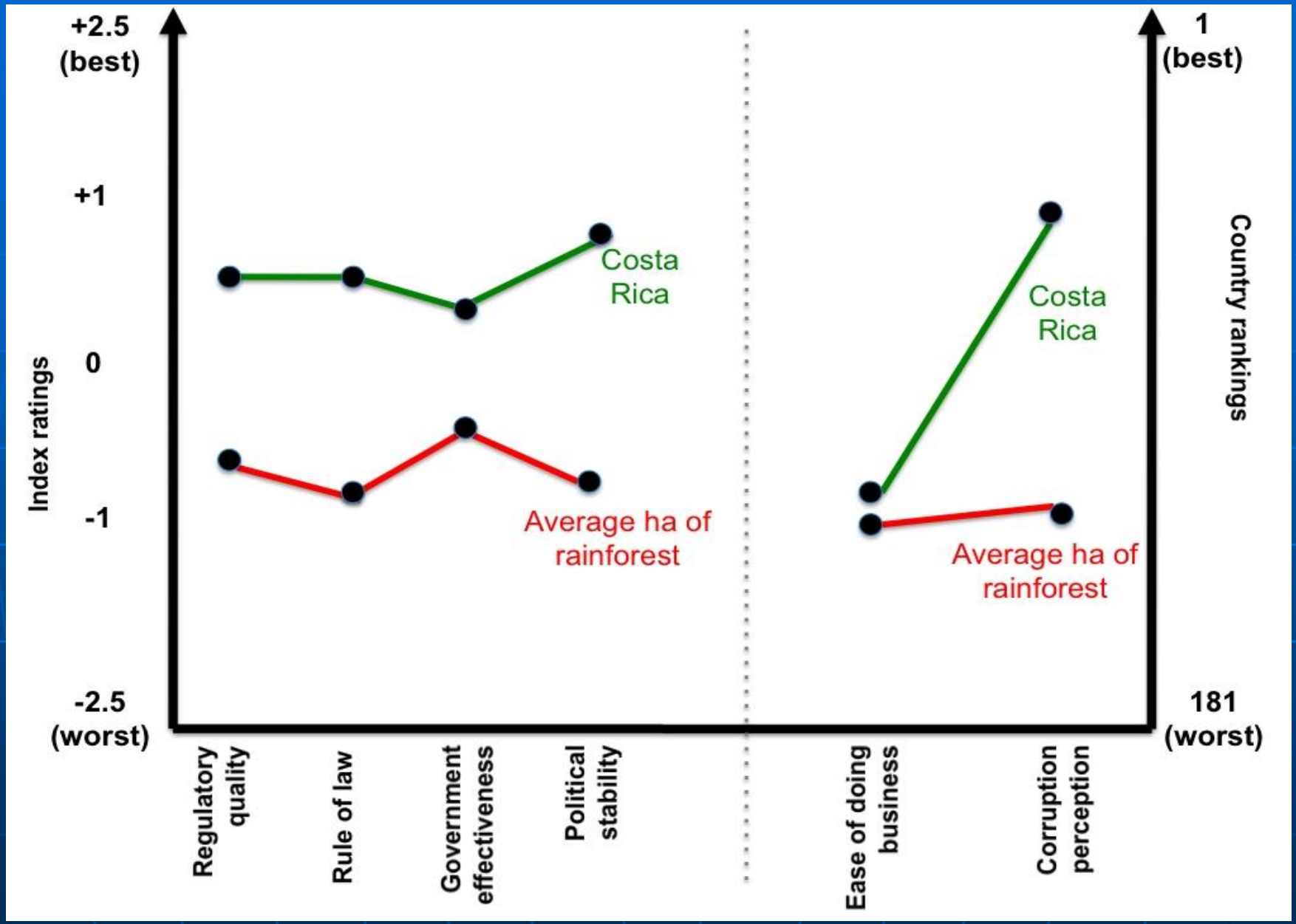
0 12.5 25 50
Kilometers

Good public policies, elmination of perverse incentives and the payment for environmental services has proveen to be succesful for stopping deforestation and forest restoration

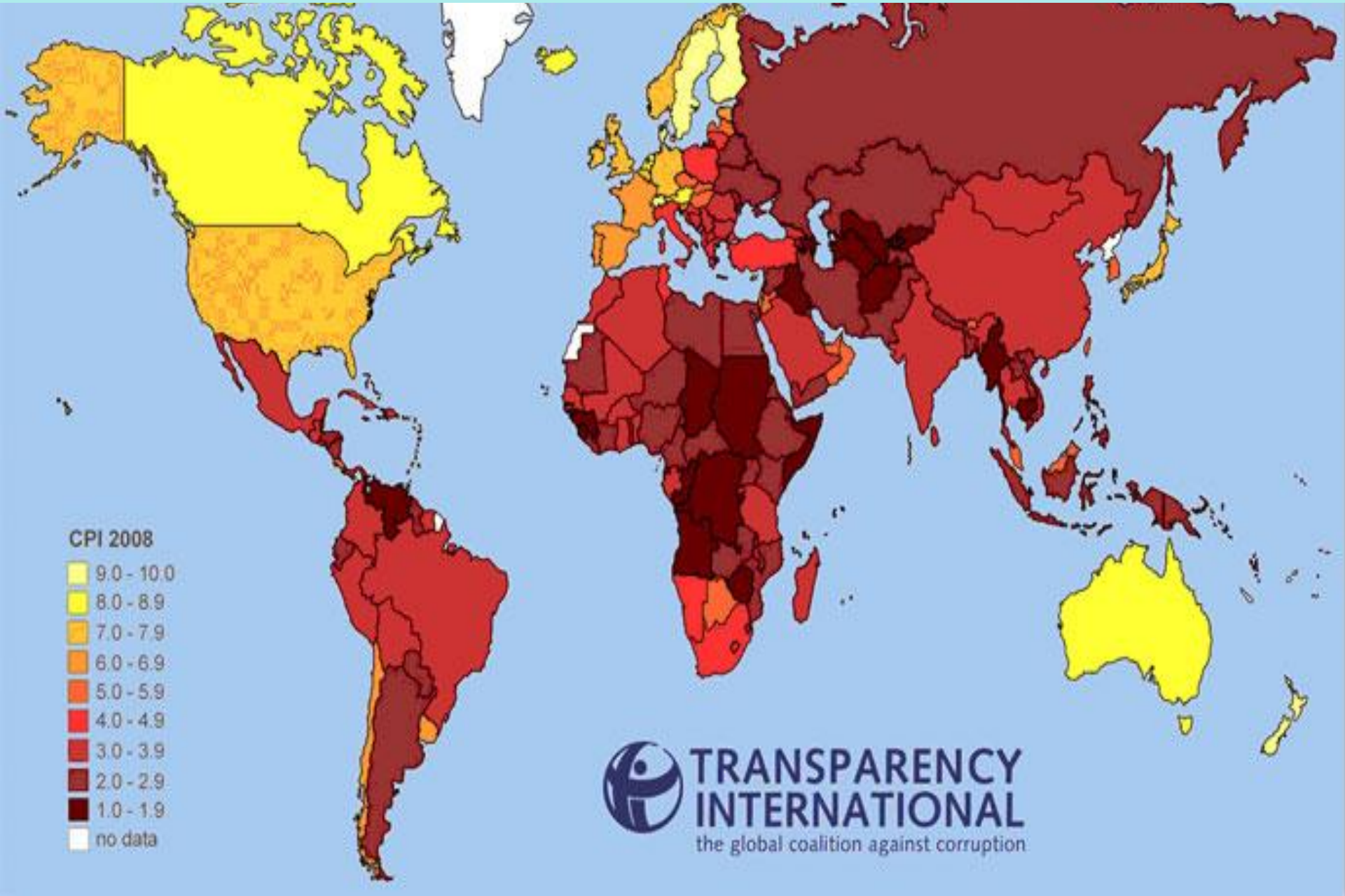


Target 5
By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced

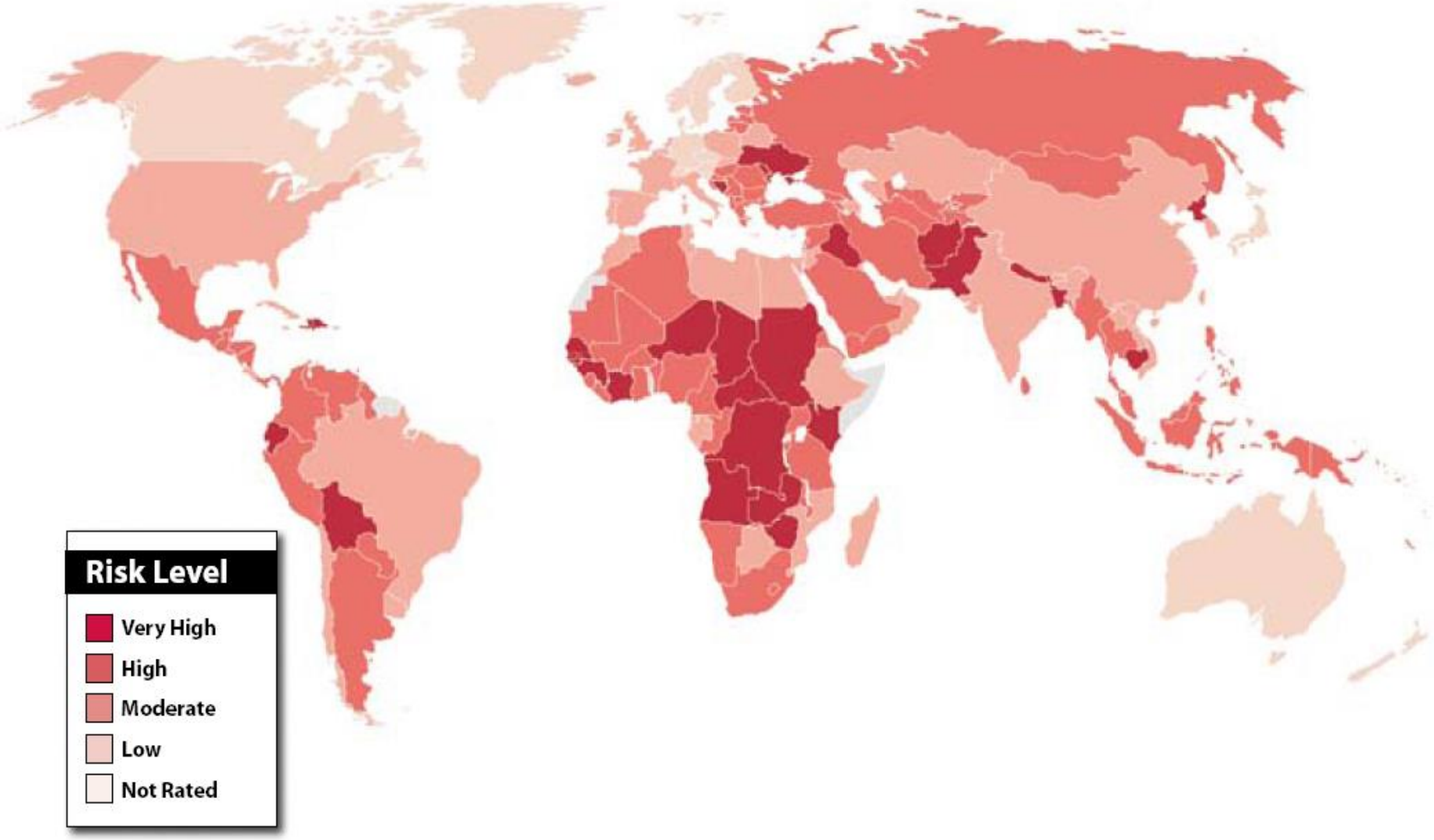
	Regulatory Quality (World Bank) 2007	Rule of Law (World Bank) 2007	Corruption Perception (Transparency International) 2008	Government Effectiveness (World Bank) 2007	Political Stability (World Bank) 2007	Ease of Doing Business (World Bank) 2009	Country Risk (OECD) 2008
Scoring	+2.5=best -2.5=worst	+2.5=best -2.5=worst	1=best 180=worst	+2.5=best -2.5=worst	+2.5=best -2.5=worst	1=best 181=worst	1=best 7=worst
Costa Rica	+0.49	+0.48	47	+0.38	+0.75	117	3
Average hectare of rainforest	-0.61	-0.80	118	-0.57	-0.72	119	5


+2.5
(best)
+1
0
-1
-2.5
(worst)
Index ratings
Costa Rica
Average ha of rainforest
Regulatory quality
Rule of law
Government effectiveness
Political stability
1
(best)
181
(worst)
Country rankings
Costa Rica
Average ha of rainforest
Ease of doing business
Corruption perception

Corruption perception index



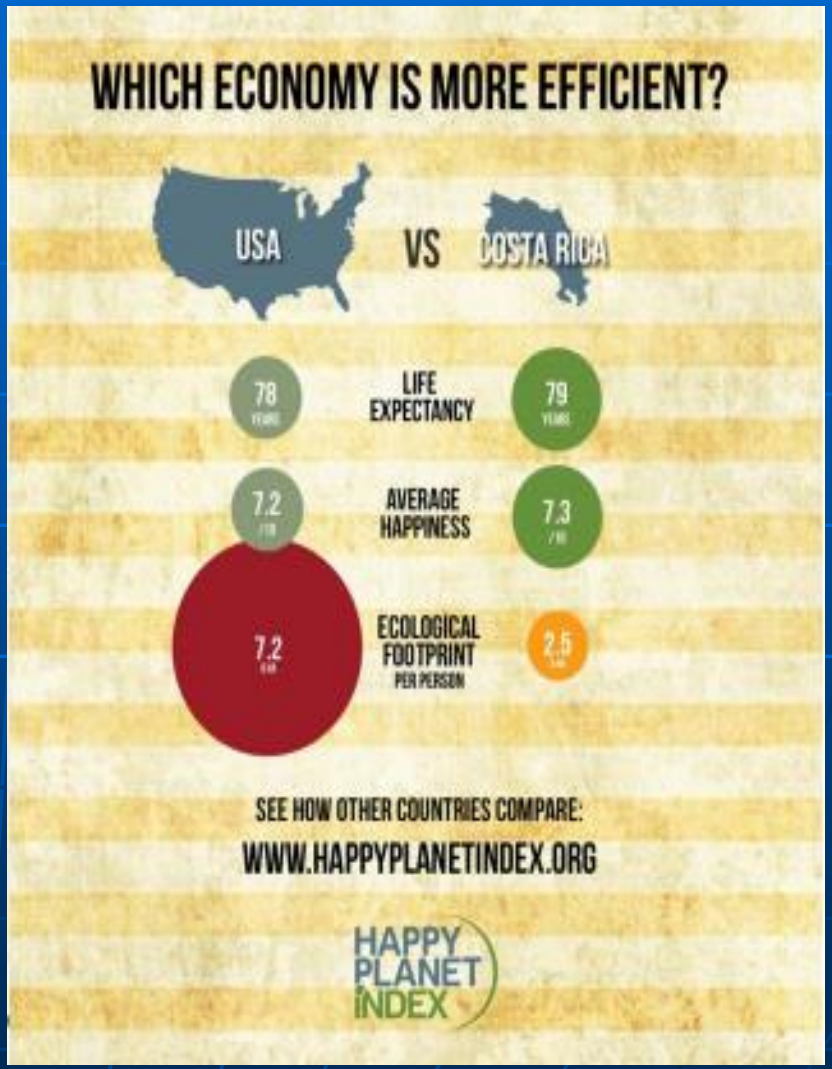
Political instability level



SOURCE: Economist Intelligence Unit

The Innovations that made Costa Rica nicer are institutional (good governance) not technological !!

- Rule of law
- Transparancy and accountbility
- Easy of doing business
- Respect private property
- Democratic government
- Impartial courts
- Credit
- Consumer regulations
- Welfare state
- Copyright
- Free press
- Education



lessons learned

- Large-scale conservation is possible
- Innovative policies depend on Economic “arguments” on the social benefits of ecosystem services
- Long-term sustainability will rely on:
- Structural political reforms
- Addressing market failures
- Linking healthy ecosystems and human well being
- Capacity-building

CONSERVATION INTERNATIONAL

Some one is using my grandson’s credit card !!