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"Leading the Change"

Business-based Solutions to Environmental Problems: A worldwide Review of Private Sector Contributions Towards Sustainable Development:

A Review of Best Practices and Opportunities for the African Region

A Report Prepared for USAID Africa Bureau by:

Strategic Environmental Associates

Under Subcontract to LABAT-ANDERSON Incorporated

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I Introduction/Executive Summary

Introduction

- This report was commissioned by Mike Unger, of USAID's Africa Bureau (Private Enterprise Division) to investigate the extent to which the private sector has been able to make contributions towards both tackling environmental problems in Africa--at the same time as providing an engine for economic development.
- The report was prepared by Sue Hall, of Strategic Environmental Associates, during May/June 1994.
  - SEA was serving as a sub-contractor to Labatt Anderson Inc. Special thanks to Peter Leifert and George Callen
- The report draws primarily upon publicly available research data and case studies, although a more limited number of interviews with both key environmental and business stakeholders were held to supplement these findings
  - no field work has yet been undertaken in Africa
  - research data has primarily been collected from on-line sources, (news media etc), business publications and environmental/development databases (see bibliography)
  - principle interviews with stakeholders are detailed below
- The report seeks to profile the most innovative and practical steps that leading edge companies and industries have already been undertaking to tackle environmental concerns worldwide--rather than provide a more theoretical critique of their efficacy or appropriateness
- The reports seeks to serve as a point of departure for further discussions regarding how business--in conjunction with AID--could take concrete steps to more powerfully contribute towards sustainable development--particularly in the African region

Acknowledgements

Following often extensive interviews, special thanks are due to

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Our Objectives

This report seeks to achieve the following:

1. To "map" out the most pressing environmental concerns that face the African region
   - relative to other parts of the world

2. To understand how and why companies around the world have been able to contribute towards more sustainable practices
   - how markets have been restructuring around environmental concerns to provide companies with innovation opportunities
   - how companies--particularly in South America and Asia--have been able to begin to gain competitively by supplying business-based solutions to these problems
   - to examine the role that non-business stakeholders played in this innovation

3. To understand the ways in which African-based companies have been able to demonstrate such leadership

4. To draw out the domains in which USAID could help catalyze stronger business-based solutions to both help tackle these problems and contribute towards more sustainable development in the African region
   - identifying arenas in which AID could bring businesses together with other environmental stakeholders to learn how to jointly design businesses that contribute towards tackling the most pressing challenges

To these ends, this report sets out the following sections:

1. "Problem Mapping": Africa's Most Pressing Environmental Concerns

2. Market Restructuring: How Companies Have Lead the Change Towards More Sustainable Practices
   - profiling companies that have "lead the change"
     - in South America, Asia
     - in USA and Europe in partnership with the developing world
     - in Africa
   - organized by key market sector:
     - oil & mining
     - ecotourism
     - pharmaceuticals
     - forestry
     - alternative fibres
     - organic cotton
     - conservation & offsets
   - with market sector implications for AID

3. Overall implications for AID re:
   - the stakeholder forums that AID should consider creating
   - leveraging proactive companies' commitments in the African region

Executive Summary

- Africa's environmental concerns are principally "green" not "brown" or "global"
  - they center upon large systemic problems connecting land degradation, soil erosion, agricultural practices, deforestation and desertification--appropriate to the current stage of Africa's development
- However, some of Africa's most valuable assets are these same "green" resources
  - its forests, its biodiversity, its wildlife
- With concern rising in the developed world around "global" issues ...
  - biodiversity, global warming etc
- ... opportunities have arisen for OECD-based companies to tackle their own "global" concerns--eg biodiversity--by addressing the "green" concerns in LDC's--eg deforestation
  - a series of innovative business partnerships across OECD/LDC borders have arisen as a result
- These companies have been encouraged to create business-based "solutions" to help tackle these problems by a series of major market restructurings in Europe and the US
  - markets in these regions have begun to restructure around environmental concerns--rewarding companies that have provided business-based solutions to tackle these problems

Executive Summary (cont'd)

- Many of these companies have been able to gain some competitive advantage as a result of these innovations
  - this competitive advantage has benefitted their businesses by, for example, increasing their market share world-wide or increasing profit margins
  - they have restructured traditional value chains to create "win-win" innovations throughout their new "green" supplier relationships
  - they have created new financial instruments through which to hedge their environmental performance in future years

- A broad range of environmental stakeholders have been instrumental in helping to design these business innovations and create these new solutions
  - ranging from indigenous peoples in the Amazon, to US environmental groups to local farmers and poachers in Africa

- The majority of these innovations have taken place outside of Africa
  - African based companies have contributed leadership to some degree in the tourism and oil & gas sectors

Executive Summary (cont'd)

- However, given both Africa's "green" capital and the principal composition of its natural resource-based economy, the region could be well positioned to partner more deeply with these innovative companies to both tackle its environmental problems and to leverage the OECD market restructurings to its own advantage
  - the opportunities offered by the market restructurings are particularly important for some African countries that are highly dependent on end-use markets such as timber, paper and tourism
  - unless they can respond proactively to "ride the new wave" of sustainable products that these markets are increasingly demanding, they may find themselves losing market share worldwide.

- USAID can play a powerful role in bringing together businesses with other environmental stakeholders into learning forums to explore the possibilities of deepening such partnerships--particularly in the timber, organic cotton, oil, mining, tourism and alternative fibres sectors
  - AID could deepen partnerships in the pharmaceuticals and CO2 ofset sectors by working closely with leading edge companies to expand their activities to Africa

II "Problem Mapping": Africa's Most Pressing Environmental Concerns

As countries industrialize, their environmental problems shift from "green" through "blue" and "brown" to "global"

Principal Environmental Problems

Green	*Blue*	*Brown*	*Global*
Soil erosion Land degradation Deforestation/ Desertification	Coastal zone mgt Water quality Municipal waste mgt	Toxic waste mgt Industrial pollutants - air/water	Global Warming Ozone depletion Biodiversity Loss

Increasing Intensity of Development

Africa's most pressing environmental issues are "green" -- not "brown"

- South African research has indicated that business leaders view population growth as the country's most serious environmental problem
  - the research was conducted by the University of Cape Town, surveying 100 business leaders and 100 environmental leaders
- They also agreed on the next five most pressing concerns--mostly all of which were "green"

Africa's Most Pressing Environmental Concerns

1. *Population Growth*
2. *Water availability*
3. *Soil erosion*
4. *Rural development*
5. *Urbanization*
6. *Desertification*

Source: Business Council For Sustainable Development (BCSD): "Changing Course: An African Business Perspective on Development and the Environment"

This is reflected in AID's allocation of resources through ENRM

Selection of New Activities FY 1992/3 Report

"Green":	Madagascar Biodiversity Policy Reform	$36m
Forestry	Ghana: Castles and Parks	$9m
	The Gambia: Community Resource Mgt	$22m
	Southern Africa: NRM/Wildlife	39
Agriculture	Niger	$20m
	Senegal	$8m
	Cape Verde: Locust/Grasshopper	$33m
	Lesotho: Community NRM	$14
	Malawi	$15
"Blue"	Senegal: Water Management	$18
	Guinea Watershed Management	$12
	Cape Verde Watershed	$4
"Brown"	Energy projects	$0m
	Urban Industrial Pollution	$0m

This reflects the continent's economic emphasis on agriculture over industry

- Industry forms a lower percentage of Africa's GDP, reducing its exposure to "brown" concerns

Structure of Production
% of GDP (1990)

	Agriculture	Industry	Manufacturing	Services*
Sub-Saharan Africa	32	30	N/A	40
EAP	21	45	34	36
Latin America	10	36	25	54
OECD countries **	5	43	32	54

Source: World Development Report, 1992
** Includes unaccounted for GDP amounts*
*** OECD data dates from 1965. N/A for 1990*

"Brown" issues -- such as toxic wastes --are not Africa's most pressing environmental problems

- African countries are not monitored (eg by GEMS etc) for the following pollutants including:

1. Sulfur
2. Nitrogen
3. Carbon Monoxide
4. Particulate matter

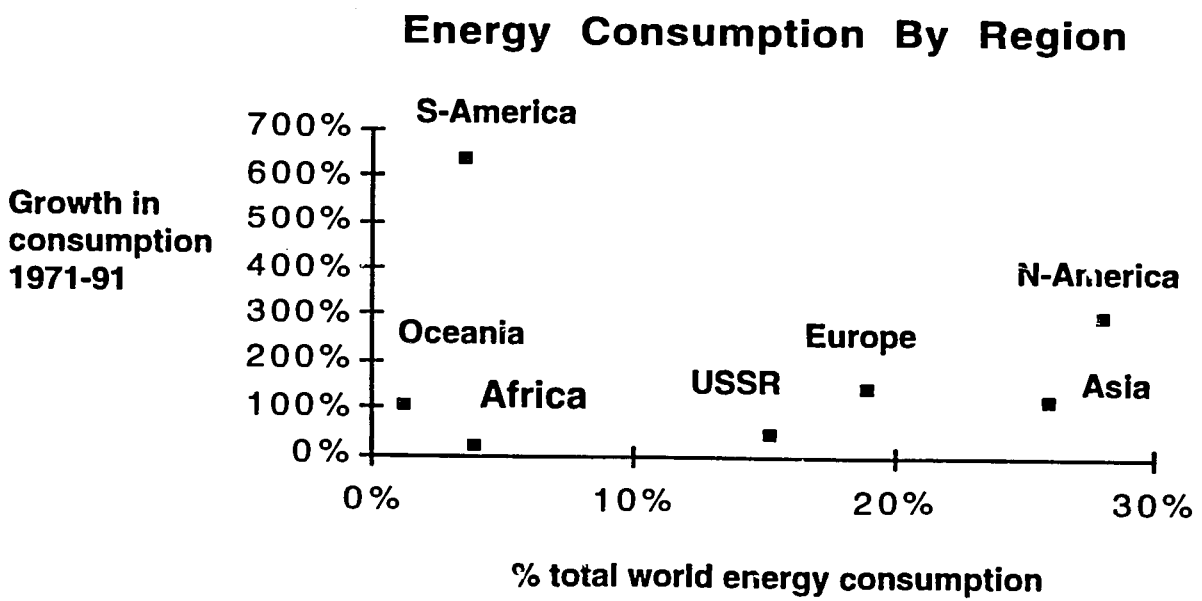
- Africa is not monitored for the following industrial activities including:

1. Waste water treatment
2. Industrial waste generation

- WRI does not list Africa countries under its world-wide synthesis of environmental data monitoring on any of these "brown" concerns, as yet

Neither is energy consumption--and its itinerant impacts--a pressing concern

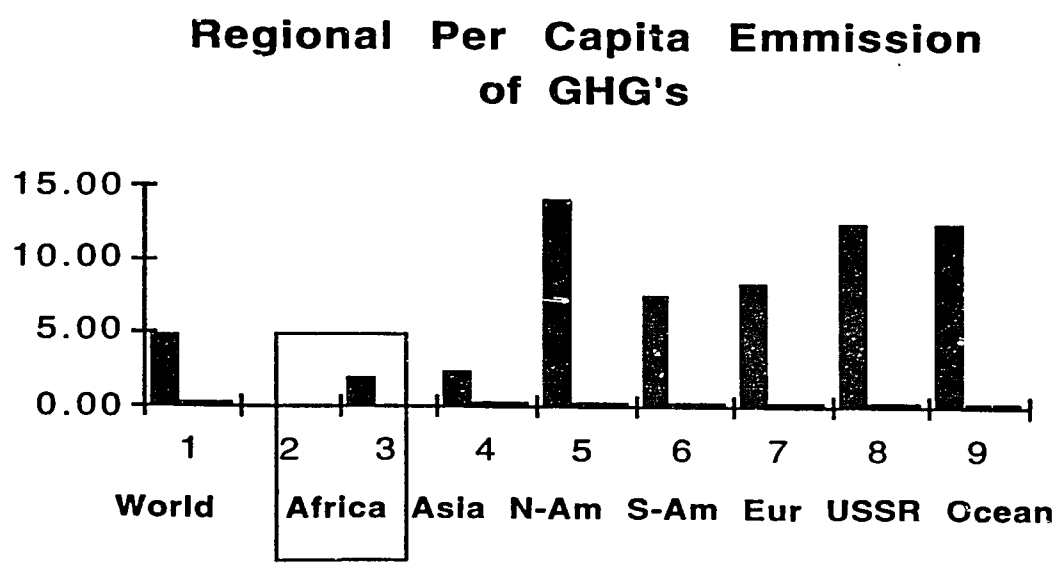
- Africa is one of the smallest consumers of total world energy--and has the world's lowest energy growth rate



Source: WRI

Africa's contribution to the "global" concerns--such as ozone depletion and the greenhouse effect--is very small

- Per capita contribution is below world averages
  - The only exception is contribution to CO_2 buildup from land clearance--which itself only accounts for less than 10% of CO_2 production



Source: WRI

However, concerns surrounding "blue" issues are rising rapidly

- Rapid urban development -- especially on the coasts -- is leading to:

1. Pressure on coastal eco-systems
   - eg mangrove swamps, fisheries, oil contamination etc
2. Further intensification of concerns re water supplies
   - both quantity and quality
   - particularly in the burgeoning cities
3. Inadequate systems to absorb urban wastes
   - municipal garbage
   - sanitation, sewage treatment

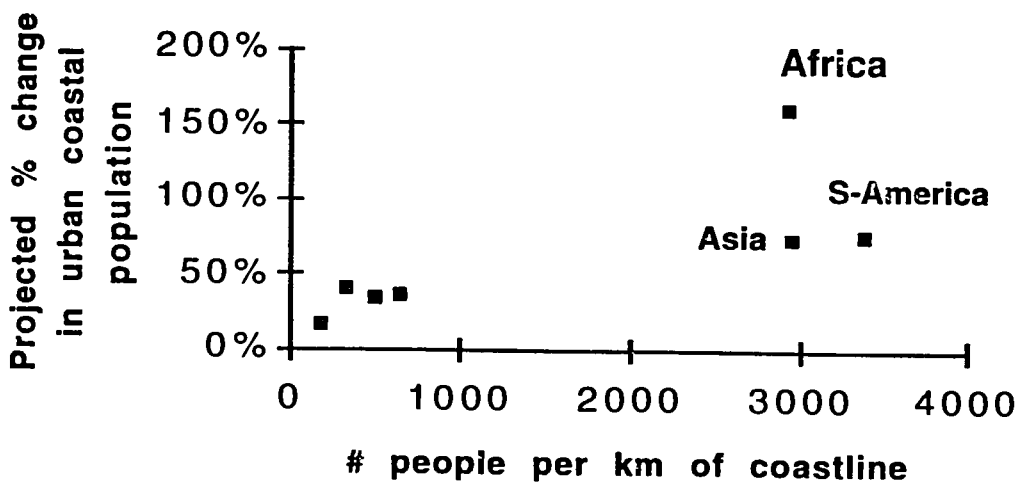
- These pressures are intensifying longstanding African water concerns:

1. Inadequate water supplies
   - in terms of both access to water and quantities available
2. Erratic and declining levels of rainfall
   - over 40 year period, especially in the Sahel

Coastal ecosystems are projected to come under increasingly intense pressure through 2000 as population centers expand ...

- African already has from some of the world's highest population densities in its coastal regions
- Coastal urban populations are set to increase dramatically in the next two decades--perhaps even double

Pressure on coastal regions



Source: WRI

... intensifying concerns over urban water quality...

- Africa currently has one of the world's lowest levels of sewage treatment, for example

Percent of Sewage Treated

Europe	72%
Mediterranean Sea	30%
Carribean basin	<10%
Southeast Pacific	almost zero
South Asia	almost zero
West and Central Africa	almost zero

Source: WRI

... and intensifying pressures on already heavily degraded fragile coastal ecosystems, such as mangrove swamps

Table 12.1 Loss of Mangroves in Selected Countries Since Preagricultural Times

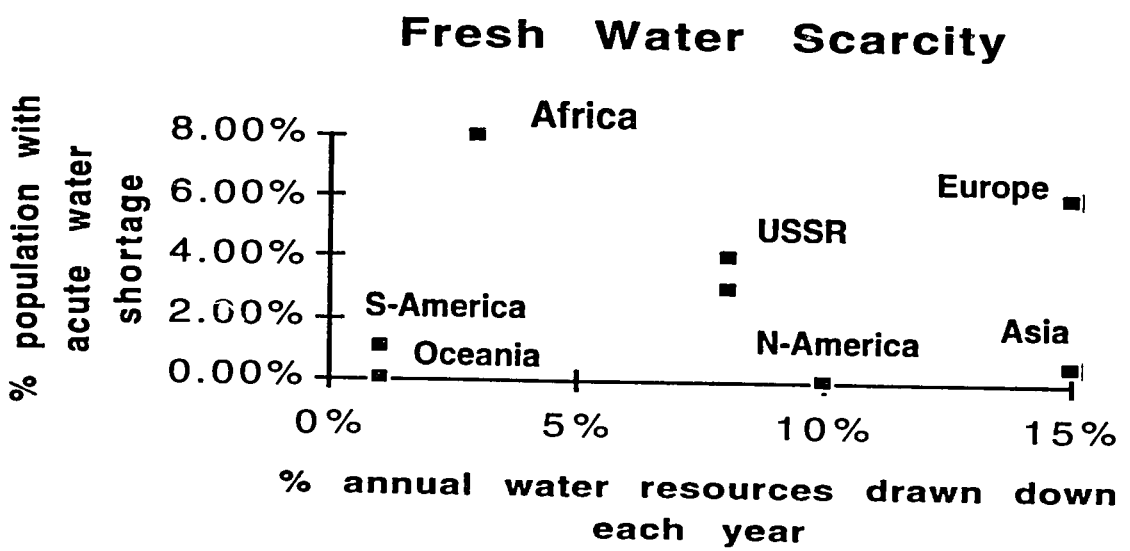
Location	Current sq km	Percentage Lost
Africa		
Angola	1,100	50
Cameroon	4,860	40
Côte d'Ivoire	640	60
Djibouti	90	70
Equatorial Guinea	120	60
Gabon	1,150	50
Gambia, The	510	70
Ghana	630	70
Guinea	1,200	60
Guinea-Bissau	3,150	70
Kenya	930	70
Liberia	360	70
Madagascar	1,302	40
Mozambique	2,760	60
Nigeria	12,200	50
Senegal	420	40
Sierra Leone	3,400	50
Somalia	540	70
South Africa	450	50
Tanzania	2,120	60
Zaire	1,250	50
Central America		
Guatemala	500	60
Asia		
Bangladesh	2,910	73
Cambodia	156	5
India	1,894	85
Indonesia	21,011	45
Malaysia	7,310	32
Pakistan	1,540	78
Philippines	777	61
Thailand	191	87
Viet Nam	1,468	62
Total	**76,939**	**56**

Source: World Resources Institute in collaboration with the United Nations Environment Programme and the United Nations Development Programme, *World Resources 1990-91* (Oxford University Press, New York, 1990), Table 20.4, pp. 306-307.

Source: WRI

Fresh water supplies have always been under distress...

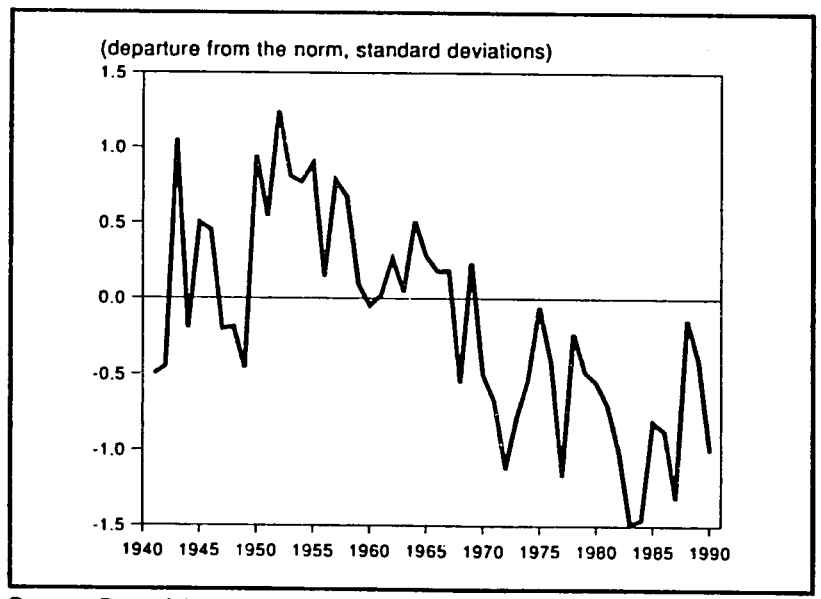
- Particularly in terms of water shortage
  - Only the middle east (not shown on chart) has more acute water problems



Source: WRI

... as rainfall has erratically declined in key areas such as the Sahel

Figure 11.1 Index of Rainfall in the Sahel, 1941–90



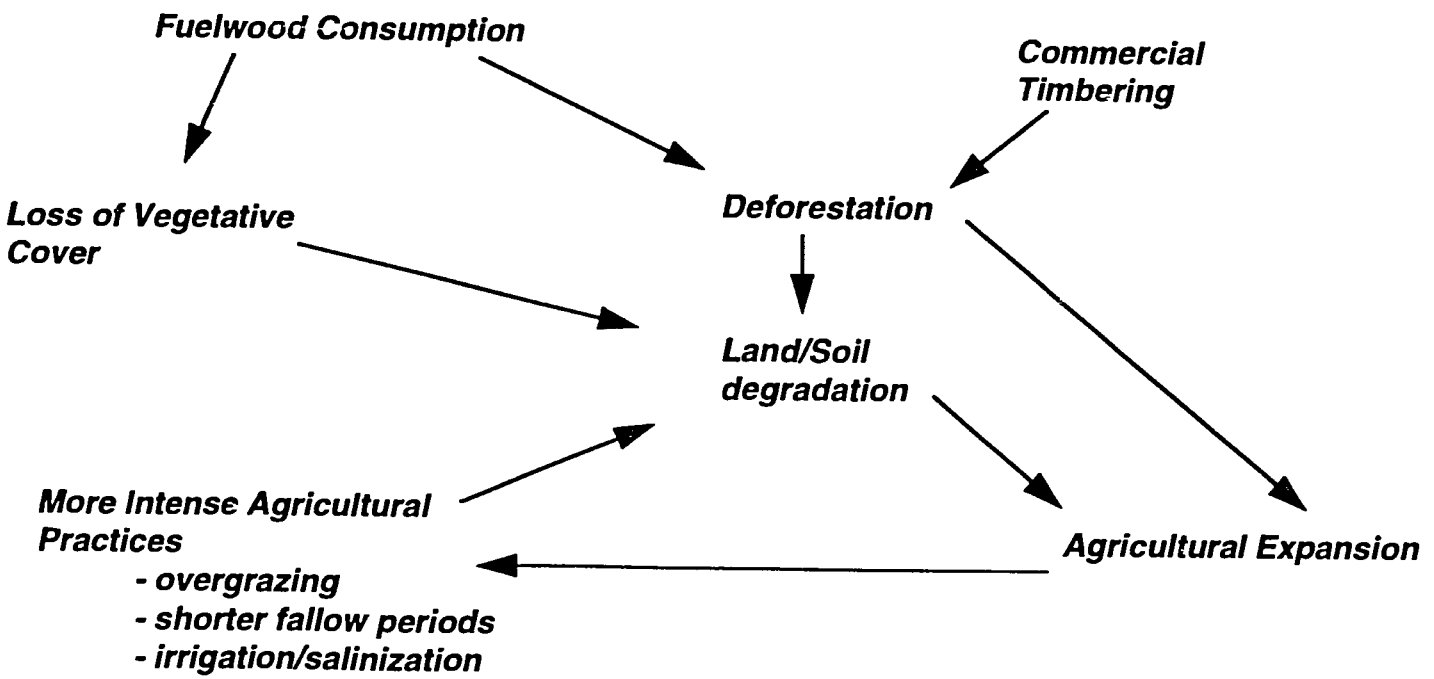
Source: Peter J. Lamb and Randy A. Peppler, "Further Case Studies of Tropical Atlantic Surface, Atmospheric, and Oceanic Patterns Associated with Sub-Saharan Drought," *Journal of Climate*, Vol. 5, forthcoming.

Note: Norm = 1941-82 average.

Source: WRI

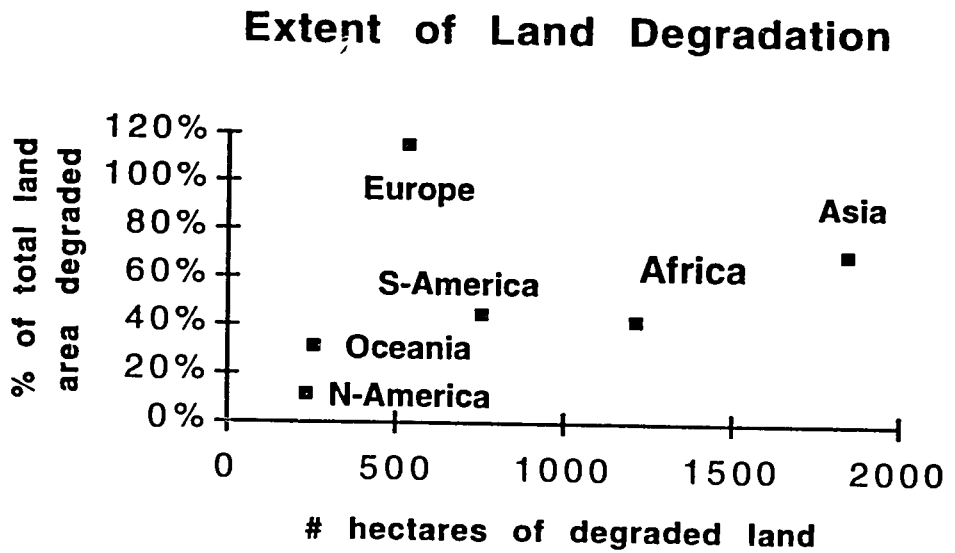
However, "green" issues present some of the most systemic challenges for African nations

- *Land and soil degradation, deforestation, agricultural expansion and loss of vegetative cover reinforce each other in an interconnected web to create a systemic problem*



Land and soil degradation are the most central concern

- Africa has the world's second largest area of degraded lands--affecting 43% of the total land mass

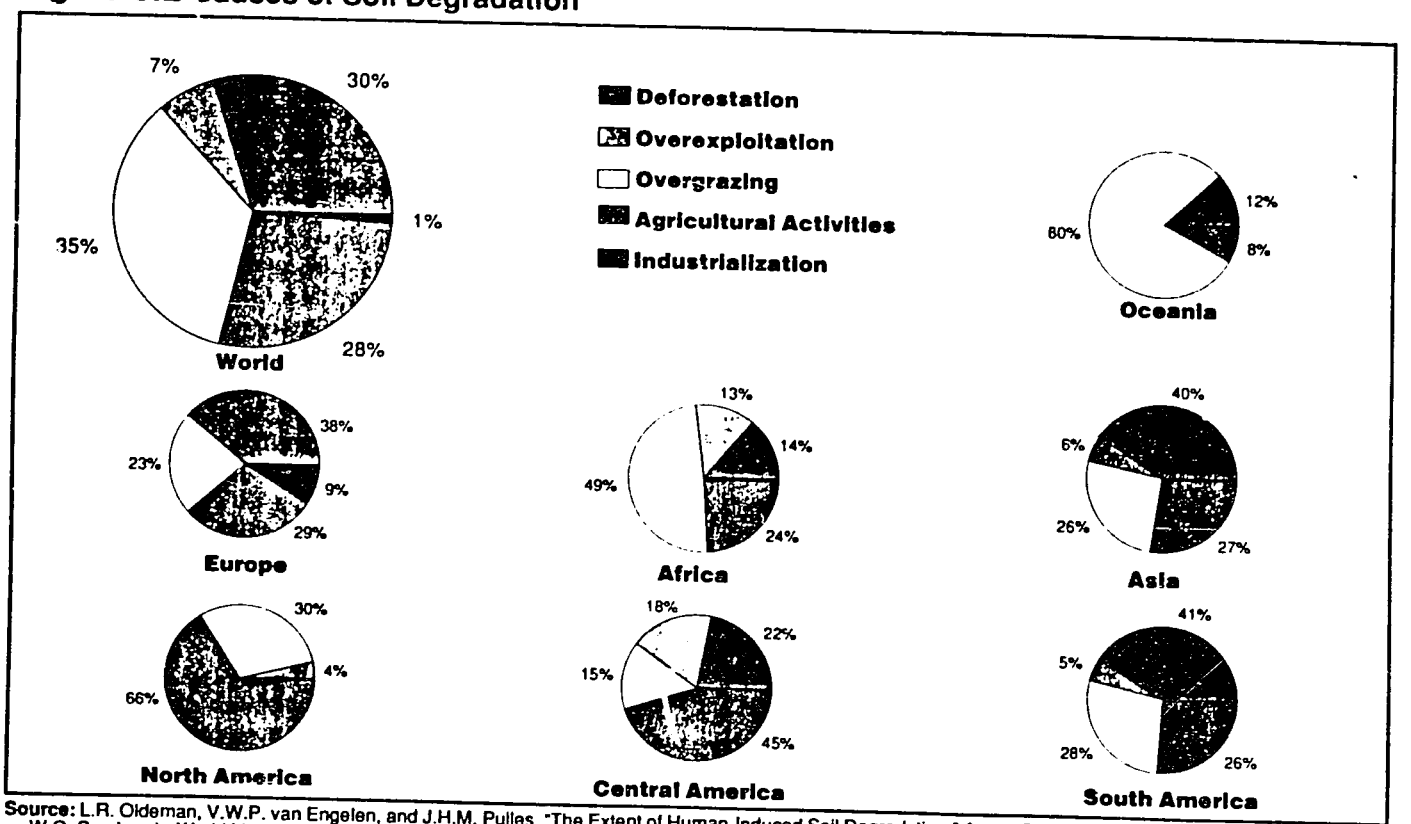


Source: WRI

Worldwide, there are three cause of this degradation-- overgrazing, deforestation and agricultural activities

- Overgrazing seems particularly significant in Africa

Figure 8.2 Causes of Soil Degradation



Source: L.R. Oldeman, V.W.P. van Engelen, and J.H.M. Pulles, "The Extent of Human-Induced Soil Degradation," Annex 5 of L.R. Oldeman, R.T.A. Hakkeling, and W.G. Sombroek, *World Map of the Status of Human-Induced Soil Degradation: An Explanatory Note*, rev. 2d ed. (International Soil Reference and Information Centre, Wageningen, the Netherlands, 1990), Figure 5. **Note:** Categories not shown in regions represent less than 1 percent.

Intensive agricultural activity has placed unusual pressures on Africa's fragile ecosystems

- This reflects Africa's relative reliance on agricultural commercial exports

Structure of Merchandise Exports
% breakdown (1990)

	Fuels, metals minerals	Other primary commodities (ag/timber)	Machinery transport equipment	Other Manuf-acturing	Textile, clothing
Sub-Saharan Africa	63	29	1	7	1
EAP	13	18	22	47	19
Latin America	38	29	11	21	3
OECD countries	7	12	42	39	4

Source: World Bank Development Report, 1992

Short-fallow practices tend to be particularly destructive

- They leave the land with inadequate time to recover--forcing farmers to move to newly cleared lands in the longer term

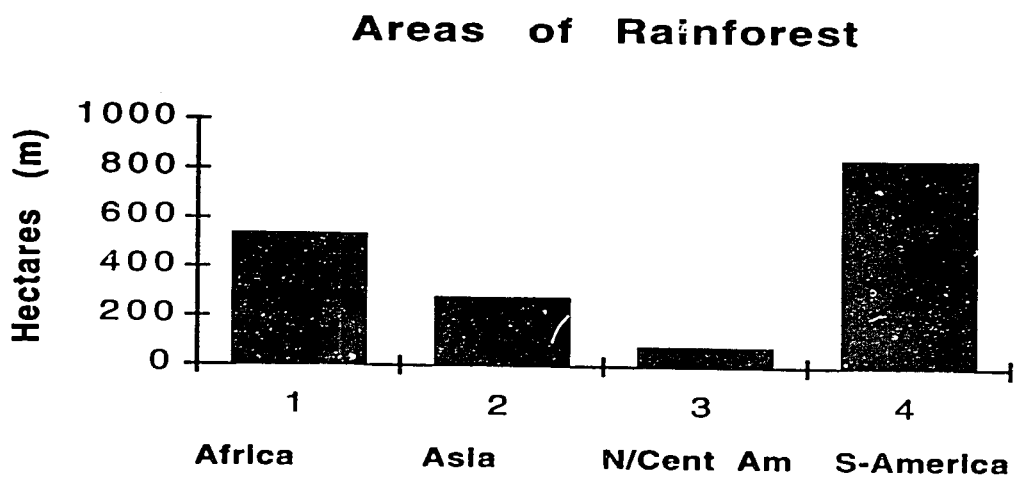
Factors Driving Loss of Forest Closed Cover in Africa

% closed cover lost	Short fallow agriculture	Degraded to open forest	Other land use eg permanent agriculture	Fragmented forest --small clearings in original
8.40%	34%	25%	16%	19%

Source: WRI

Africa faces one of the world's leading deforestation challenges...

- Africa has the world's second largest tropical forest with an average deforestation rate of 0.7% per annum



Rate of Deforestation	0.7%	1.2%	0.8%	0.2%

Source: WRI

... which is particularly acute in the more accessible regions surrounding Central Africa

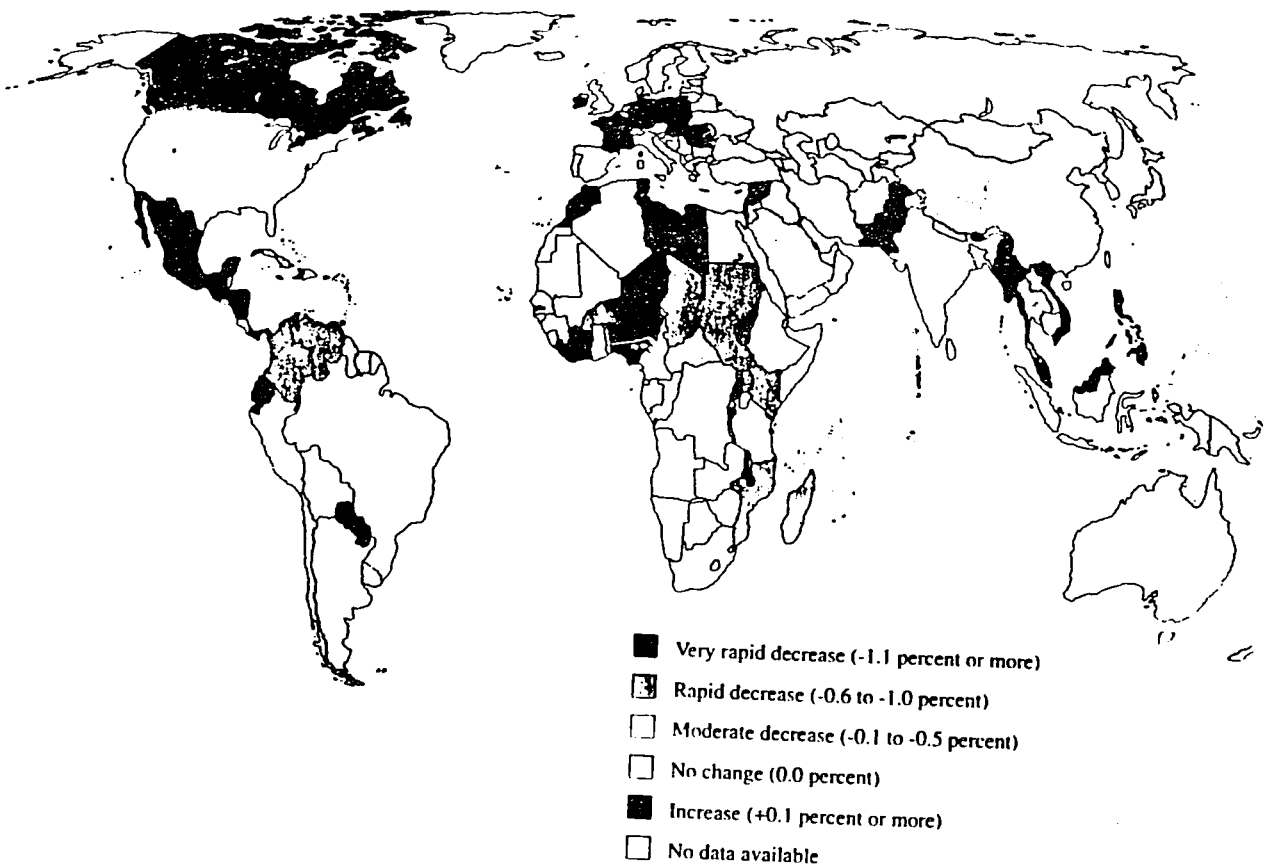
Deforestation Rates By Region

West Sahelian	0.7%
East Sahelian	0.8%
West Africa	1.0%
Central Africa	0.5%
Tropical Southern Africa	0.8%
Insular Africa	0.8%
African average	*0.7%*

Source: WRI

These regions are suffering some of the highest deforestation rates in the world

Map 2. Change in Forest and Woodland, 1989



Forest and woodland are decreasing most rapidly in developing countries. Many countries have no net loss of forest area—that is, the amount cleared is equal to the amount replanted. Some countries have a net increase.

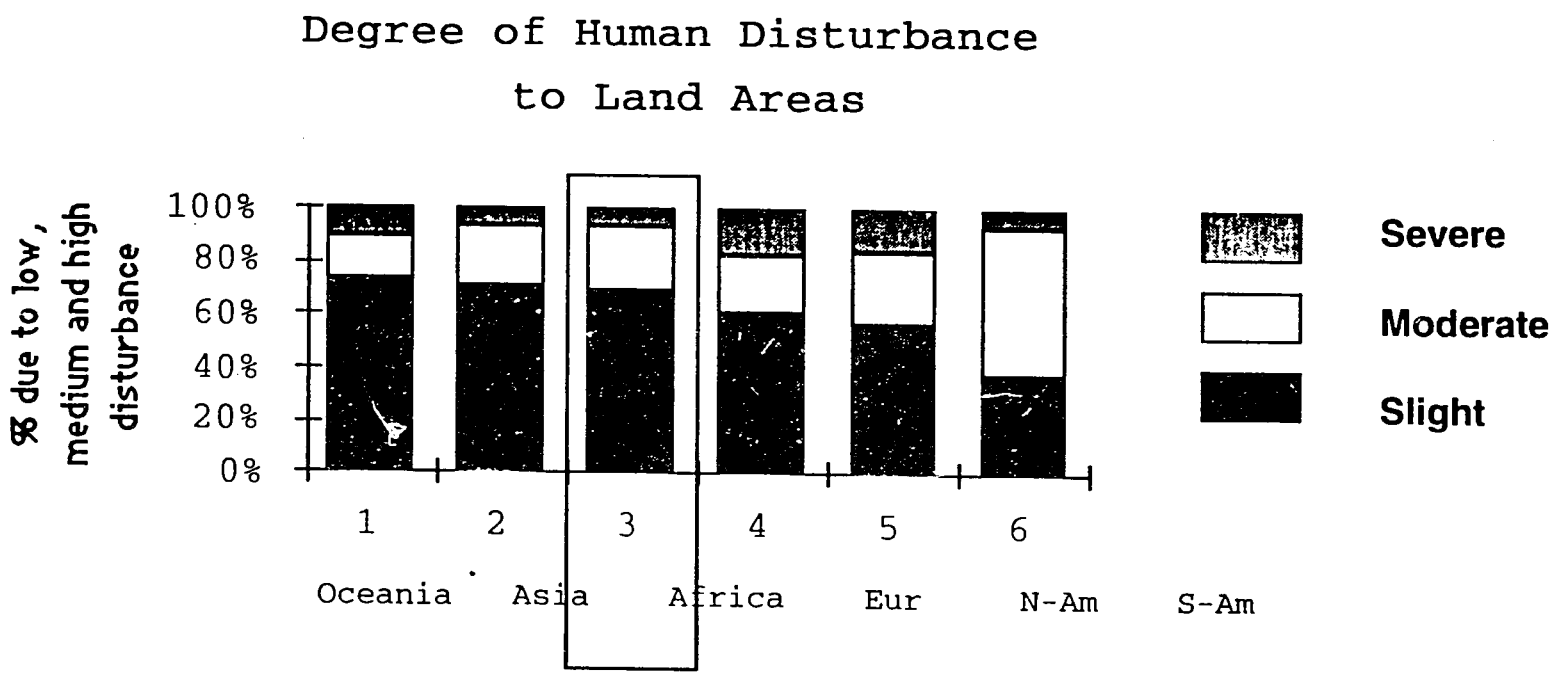
Source: WRI

Commercial timbering is now estimated to account for around 25% of forest destruction in Africa

	% of tropical forest under management for wood production	Direct conversion to timbering areas 1980-90	Edge effect/ exposure to newly cleared	Fragmentation
World	30%			
Africa	11%	25%	>>25%	
Asia	49%			
South America	11%	39%	58%	3%

Source: WRI

As a result, Africa has the world's third highest level of human disturbance to its lands

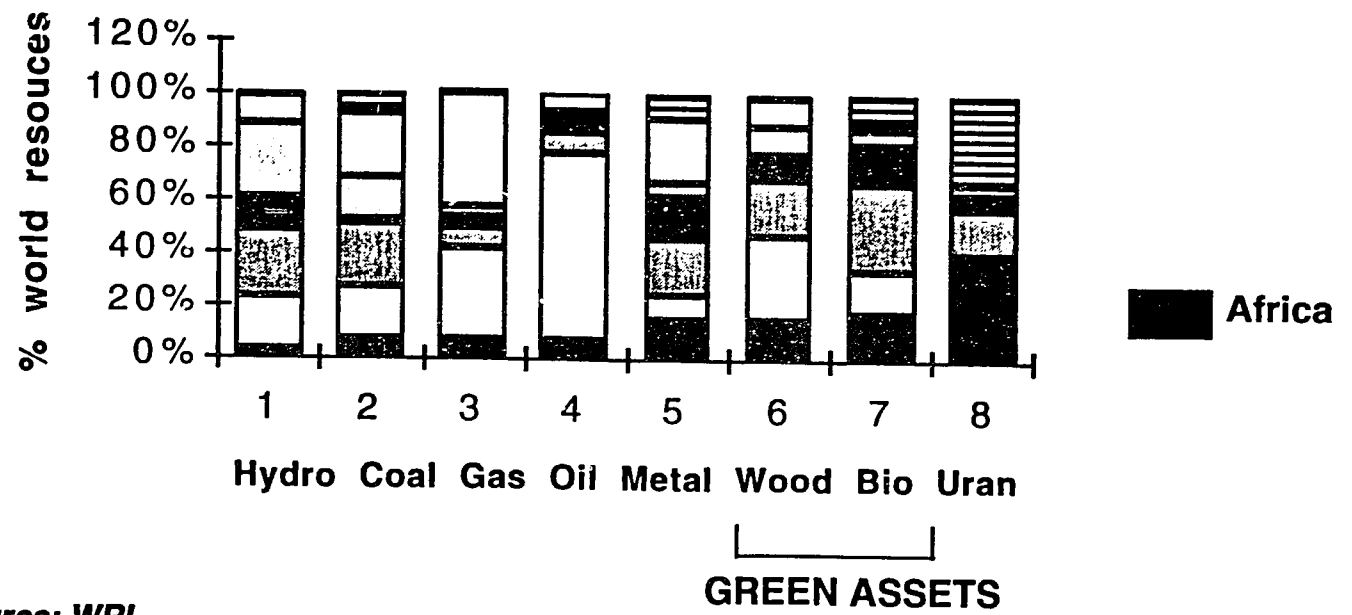


Source: WRI

However, these same "green" issues also represent some of Africa's strongest natural capital

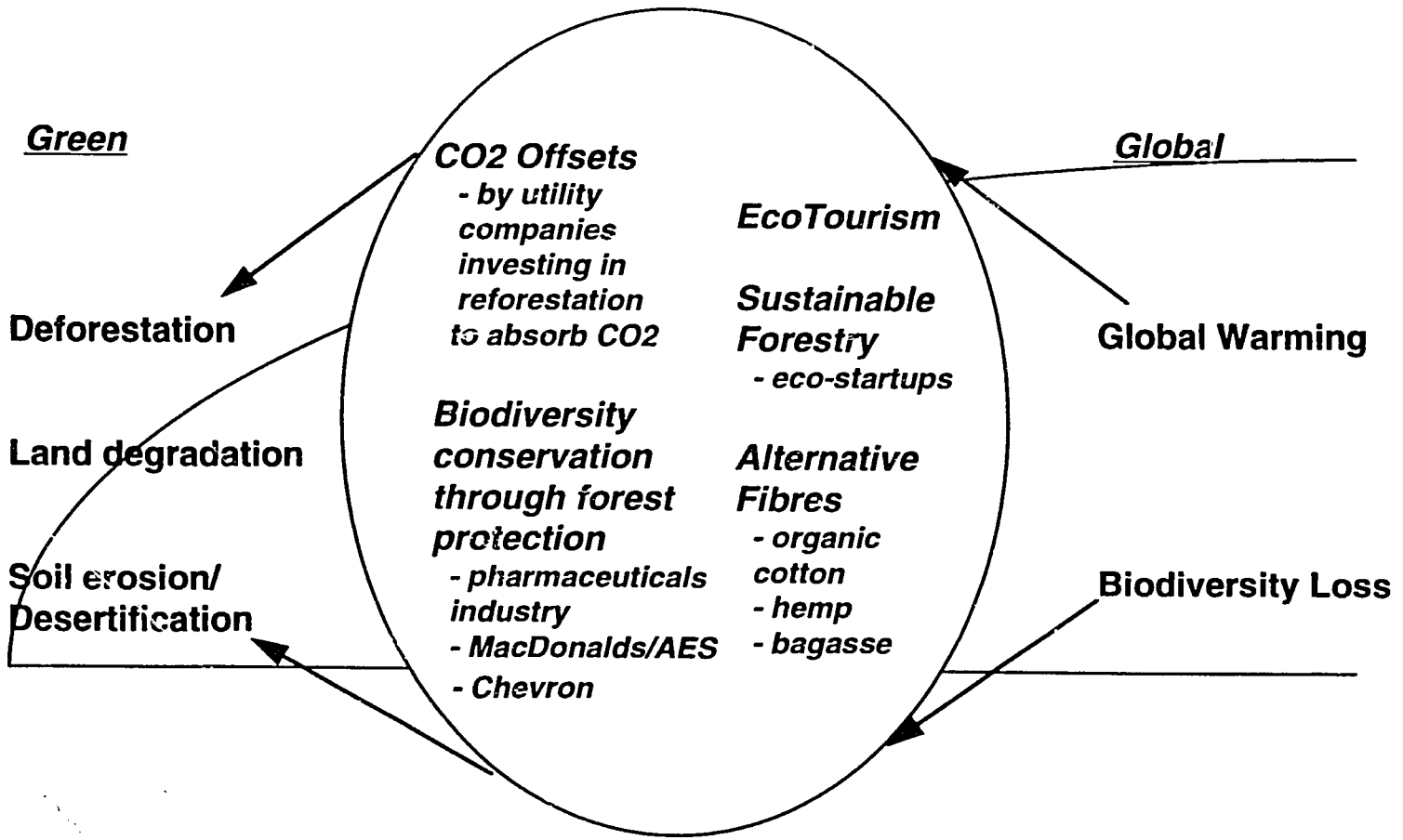
- Its comparative advantage is strongest in these same "green" domains -- particularly forestry and bio-reserves
  - Its share of worldwide resources is highest in these domains
  - only in uranium does it have a higher worldwide share

Share of Worldwide Resources



Source: WRI

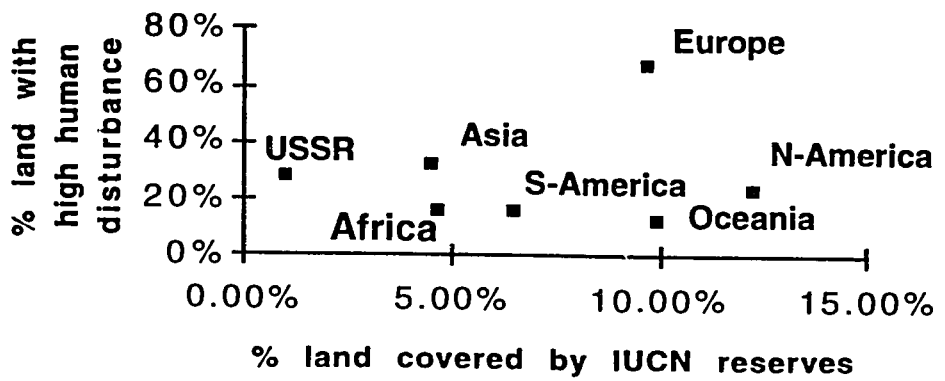
This "green capital" could form the basis for innovative business/environmental partnerships---particularly for companies seeking to tackle "global" concerns



Currently, this "green capital" is not as well protected or leveraged as in other parts of the world

- Although human disturbance is relatively low, Africa has not established as many reserves as other countries
- This is concerning when a high proportion -- 42% -- of Africa's wildlife habitat remains untouched
  - Asia, for example, only has 31%

Status of Protection for Natural Resources



Source: WRI

For example, far more forest in Africa currently remains intact, open and "unmanaged" than in other regions

	Unmanaged Forest	Wood prodn Production	Soil/water conservation	Wildlife protection
Africa	85%	11%	1%	3%
Asia	28%	49%	14%	9%
S America	76%	11%	10%	3%

Source: WRI

Communities also value their land for its green "ecological" capital--as much or more than its traditional forestry and agricultural uses

Value of Forests to Communities Living Near Forest/Wildlife Reserves (Ghana, % total score)

Maintenance of environmental/ ecological stability	27%
Source of timber	27%
Source of land for cultivation	18%
Source of food	12%
Source of household utilities	9%
Medicinal	4%
Direct income generation	3%

Source: BSP: African Biodiversity: Foundation for the Future

Africa's fragile ecosystems could therefore offer some unique opportunities for innovative business contributions

- In the following sections, we review how businesses have been able to contribute towards more sustainable practices--primarily focussed around tackling these "green" concerns
- We will review the ways in which markets in the US and Europe are restructuring around these "green" environmental issues
- We will review ways in which companies have begun to gain advantage by creating business-based solutions to leverage this restructuring--drawn mainly from South America and Asia
- We will also review the most impressive examples of how business leadership from African-based companies have been able to make significant contributions to more sustainable practices
- We will close by examining the ways in which AID could support deeper business-based contributions towards sustainable development--as it pertains to these "green" issues in the African region

III Market Restructuring: How Companies Have Lead the Change Towards More Sustainable Practices

During the following sections, we will review the ways in which markets are restructuring around environmental issues

- We will review eight international arenas around which:

1. Environmental issues have been restructuring major marketplaces
2. Companies, in conjunction with environmental stakeholders, have been able to produce business-based solutions to tackle these issues--and have begun to gain competitive advantage as a result

The Eight Arenas

Oil/Mining	*Alternative fibres*
Eco-tourism	*Organic Cotton*
Pharmaceuticals	*Fair Traded Products*
Forestry	*Conservation/offset investments*

We will review several cases in which companies have begun to gain advantage by creating business-based solutions to leverage this restructuring

Case Examples We Will Review of Business' Contribution to Sustainable Leadership

Oil/Mining
- Chevron, PNG
- MinAmerica, Panama

Eco-tourism
- Pew Foundation chain of eco-lodges

Pharmaceuticals
- Shaman Pharmaceuticals, South America
- Merck/INBio, Costa Rica
- Bristol Myers Squibb, Suriname

Forestry
- Small sustainable forestry companies in US
  - EcoTimber, Collins Pine, Seven Islands,
- Portico, Costa Rica
- Scott Paper, Malaysia
- Arracruz, Brazil

Alternative fibres
- Kenaf, USA
- EcoPaper, USA
- Karamjee in hemp in Tazmania

Organic Cotton
- Sally Fox, USA
- Esprit, USA & Europe
- Levi's
- VF Corp
- Patagonia

Fair Traded Products
- "Green and Black", Togo
- CafeDirect, UK
- Max Havellar Foundation, Europe

Conservation/offset investments
- AES, NEES etc, USA
- MacDonalds, Costa Rica

We will also review the most impressive examples of business leadership from African-based companies during these analyses

Oil/Mining

- Chevron, Nigeria
- Portland Cement, Kenya

Eco-tourism

- Conservation Corp, South Africa

Pharmaceuticals

- Shaman's initial explorations

Forestry

- No sustainable example, to date

Alternative fibres

- No case identified to date

Organic Cotton

- Sally Fox's initial African explorations
  - with interest from Esprit and Patagonia

Fair Traded Products

- "Green and Black" chocolate in Togo

Conservation/offset investments

- No activity to date

A brief review of African companies which have adopted sustainable practices to tackle other environmental concerns can be found in the Appendix

- These companies have focussed more on "brown" issues--not "green" issues--which we consider to currently be of less pressing concern in Africa and have therefore not reviewed in any depth

The companies include:

Alternative Energy

- Mumias' Bagasse plant
- Central African Batteries
- Triangle Ltd, Zimbabwe

Waste Management

- Nampak
- Ecobott

Financial Sector

- Nedbank
- International Capital Markets Group

These companies could be investigated further in future assignments if AID chooses to focus on business contributions to "brown" and other non-"green" issues

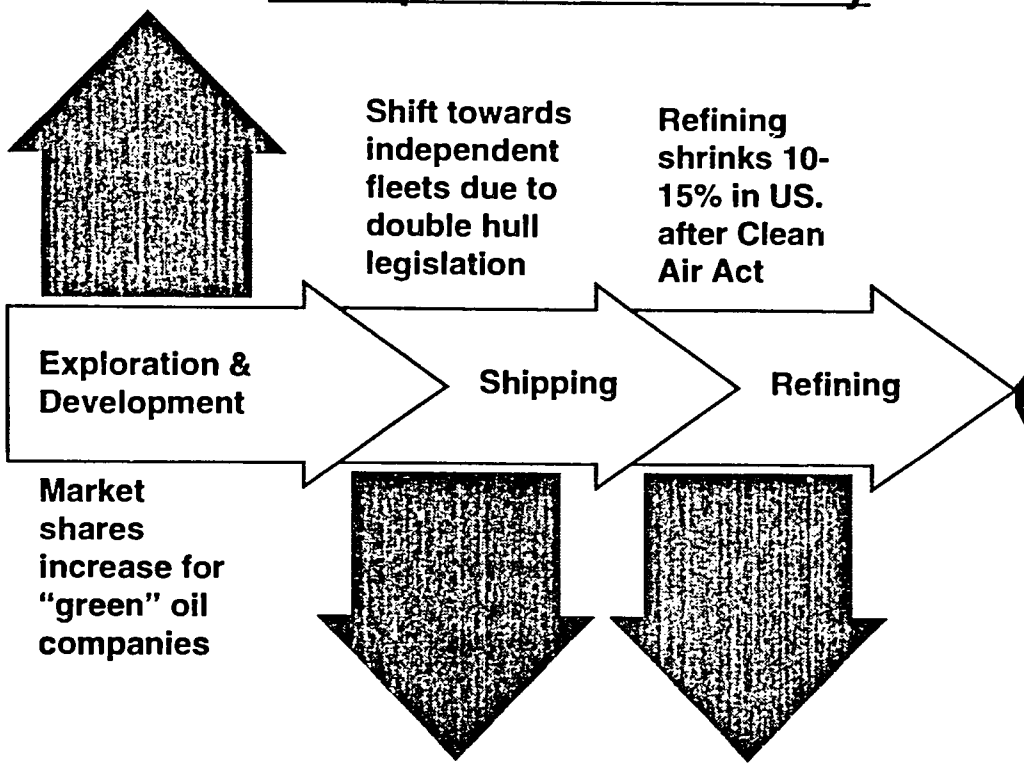
Executive Summary

- Markets are restructuring around environmental issues throughout the US and Europe -- particularly around "global" issues
  - eg particularly biodiversity, deforestation as well as pesticide use and fair trade practices
- Companies which have helped "lead this change" toward more sustainable solutions have gained competitively
  - certainly in US and European but increasingly from LDC markets
- These companies' initiatives have usually focussed on tackling "green" and "global" issues
  - eg Chevron's conservation project in PNG; Shaman Pharmaceutical's investments indigenous medicinal knowledge to encourage economical alternatives for rainforests
- Countries are increasingly wondering whether similar advantage can be gained for nations which commit more strongly to sustainable development
  - notably Canada, Costa Rica, Indonesia
- Companies--and countries--which have been most successful in pursing this approach have used an integrated stakeholder approach
  - new sustainable solutions have been created through learning partnerships between companies, governments, local communities and environmental groups
- To date, most of these initiatives have taken place outside of Africa
  - although a few companies have provided leadership in Africa, notably Chevron in Nigeria, Portland Cement in Kenya and Conservation Corp in South Africa
- However, the vulnerability of Africa's natural resources to environmental degradation--to "green" issues--positions it well to increase its participation in these business-based sustainable initiatives--with AID's support

Oil & Mining

Throughout its value chain, the oil industry is restructuring around environmental issues

Example: The Oil Industry



End Use Markets

Utilities switch to cleaner energy sources -- natural gas and DSM

Energy

Gasoline under intense competition from alternatives in California

Transportation

Petrochemicals -- especially plastics-- increasingly recycled

Plastics

Key trends include:

- Companies are seeking to gain advantage from stronger environmental track records in exploration and development
  - eg Conoco on Block 16 in Ecuador
  - eg Chevron with WWF in Papua New Guinea
- The oil transportation industry will become increasingly operated by independent fleets following US legislation requiring double hulled tankers
  - Shell has already withdrawn from the shipping market, stating rising costs of ship construction
  - liabilities for oil spills may not be so easily covered as a result
- US oil refining capacity is set to shrink by 10-15% due to the increased costs of the US Clean Air Act legislation
- Oil's higher environmental burden is leading to substitution pressures from natural gas and alternative fuels across its principal end-use markets
  - emissions of CO_2, SO_x and NO_x are higher per unit of energy than natural gas -- which is gaining share of the energy markets world-wide
  - recycling pressures in the petrochemicals and plastics markets are also reducing virgin oil demand

Oil exploration and development has increasingly moved towards environmentally sensitive parts of the world

Exhibit 2 Worldwide Shifts in Oil Production, 1980-1990 (million tons)

	1980		1990	
North America	567.6	(18.7%)	510.9	(16.2%)
Latin America	298.6	(9.7)	373.7	(11.7)
Western Europe	121.5	(3.9)	201.9	(6.4)
U.S.S.R./Central Europe	625.9	(20.3)	584.9	(18.6)
Middle East	927.4	(30.1)	843.3	(26.8)
Africa	301.7	(9.8)	313.5	(10.1)
Asia/Australasia	241.1	(7.8)	320.7	(10.2)
Total World	3,083.8	(100.0%)	3,148.9	(100.0%)

Allocation of the World's Primary Forest Areas and Oil Reserves

	% Primary Forest	% World Oil Reserves	Oil Ranking Worldwide[b]
Soviet Union	29.0%	5.8%	6
Canada	18.0	0.8	15
Brazil	12.0	0.3	25
Zaire	5.0	NA	NA
United States[c]	4.0	3.4	7
Indonesia	3.5	1.1	13
Peru	2.7	NA	NA
Venezuela	2.0	5.8	6
Colombia	1.2	NA	NA
Papua New Guinea	1.2	NA	NA
Australia	0.9	0.2	29
Cuba	0.4	2.4	10
Other	20.4	80.2	

Source: *BP Statistical Review of World Energy Yearbook*, British Petroleum plc, 1991; *State of the World 1991*, The Worldwatch Institute.

[a]Primary forests including rain forests, are those forest lands that have never been harvested or developed and therefore retain their original rich biodiversity.
[b]The Middle East accounts for countries with the five largest oil reserves.
[c]Mostly Alaska, where the United States' most significant new reserves are located.

The minerals mining industry is also coming under increasing environmental scrutiny

- Controversy surrounding new mine sites is rising
  - this controversy has even reached Africa, with intense opposition to RTZ's proposed mining operation on the St Lucia coastline in South Africa (see case attached below)
- Mining companies are finally paying more closer scrutiny to the environmental impacts of their operations--conducting impact assessments
  - including RTZ in Africa and Zimbabwe
- Opposition to force companies to compensate communities for their environmental impacts are even emerging
  - eg OK Tedi in Papua New Guinea
- Mines, such as the Bougainville copper mine in Papua New Guinea, have even been forced to close operations, following intense opposition from local communities
  - this opposition, which erupted into violence, close the mine in the late 1970's, when it accounted for almost 40% of PNG's GDP
  - it has never been reopened since

Companies in both these industries have long been criticized for their environmental impact

Oil:

- Deforestation
  - resulting primarily from the construction of access road providing agricultural expansion
- Biodiversity loss
  - - direct through forest destruction and indirect through pollution
- Cultural concerns
  - particularly with indigenous peoples
- Pollution/Contamination
  - particularly to local rivers and watersheds as well as coastal oil polllution (eg from tanker spills around the Southern African coast)

Mining:

- Water pollution
  - particularly the chemicals used to separate out the metals from the ore, which are just "flushed" directly into local rivers, polluting whole watersheds
- Water table restructuring
  - caused by the massive amounts of water used in the mining process
- Clean up/restoration
  - poor reputation and very patchy history within the industry--especially in LDC's

However, certain companies, like Chevron, have gained competitive advantage by "leading the change" in the oil industry towards more sustainable practices

- Chevron was the first multi-national oil company to discover oil in Papua New Guinea in the late 1980's
- They created an innovative process with local landowners to actively integrate them into shaping and helping to build their development initiative...
  - 75% employees were local Papua New Guineans
  - Strong investment in supporting locals create businesses to meet Chevron's service support needs
  - innovative discussions with local landowners resulting in Chevron's recommendation that an access road not be built to protect the area from incursions
- ...with a particularly strong focus on community relations
  - PNG has a strong tradition of local land tenure
  - Chevron worked intensively with communities to lay out elaborate geneology charts to help them establish clear land rights for rental and site damage compensation
- Chevron also agreed to work with the WWF to invest $4m to create a conservation project in the neighboring Kikori valley
  - Kikori remains one of virtually untouched valleys in the remote Western province
  - It is, however, coming under pressure from Malaysian timber companies
  - the Kikori Valley project represents the first time an oil company has "co-invested" in conservation education with a US environmental group
- This approach has been so successful that it has helped Chevron gain new exploration contracts in other parts of the world
  - during Chevron's bid for the enormous Tenghiz field in Khazakstan the government referenced Chevron's PNG experience and asked for similar investments to be made on their development

Conoco's attempts in Ecuador were similarly intentioned--but were poorly focussed and executed

- Conoco attempted to create a "leading edge" environmental management plan (EMP) for its oil development in Ecuador's Yasuni National Park
- Strategically, much was at stake
  - Conoco wanted to gain recognition as "the company of choice" for developments in such environmentally sensitive regions to build market leadership and share
  - the Block 16 development also represented a 6% expansion of world-wide reserves and a strategic beachhead for Conoco in South America
- However, the company's EMP focussed upon addressing "brown" pollution concerns, not stakeholder's principal "green" interests in defending the park
  - Yasuni was designated a UN bioshpere
- Little true stakeholder learning really took place...
  - Conoco was seen as attempting to persuade stakeholders to support their environmental management plan rather than creating a true "learning forum"
- ... and thus little business innovation or success
  - Conoco was finally forced to exit, leaving all this value on the table
- Conoco is however continuing to innovate in its stakeholder dialogues in other regions of the world -- still seeking to build its reputation as an environmental leader in the industry
  - Conoco used a far more integrated stakeholder approach to explore its new developments in Siberia in the early 1990's
  - it has also begun to forge less business-oriented relationship with stakeholders to support their environmental efforts. In Africa, for example, it has forged a relationship with Jane Goodall to support her wildlife work with chimpanzees

Penalties for not "leading the change" are rising dramatically in both these industries ... even in Africa

- Texaco faced $2bn court case Ecuador in 1993 mounted by local indigenous people seeking damages for oil contamination
  - local indigenous communities in the northern Oriente have filed a $2bn law suit against Texaco in compensation for damages incurred by the pollution resulting from their 20 year operations
- The OK Tedi copper mine in Papua New Guinea similarly faced a $4bn law suit from local communities in 1994
  - local communities around OK Tedi calculated the cost that would be required to restore the mine and its environmental impacts on closure and filed the suit to claim these monies before the company closes its operations
- Shell's operations in Nigeria are currently experiencing intense opposition from local indigenous and international environmental groups
  - the future of the development appears in some doubt
- RTZ was also forced to withdraw from its proposed mining development in South Africa, to have been situated in the midst of the fragile St Lucia coastline

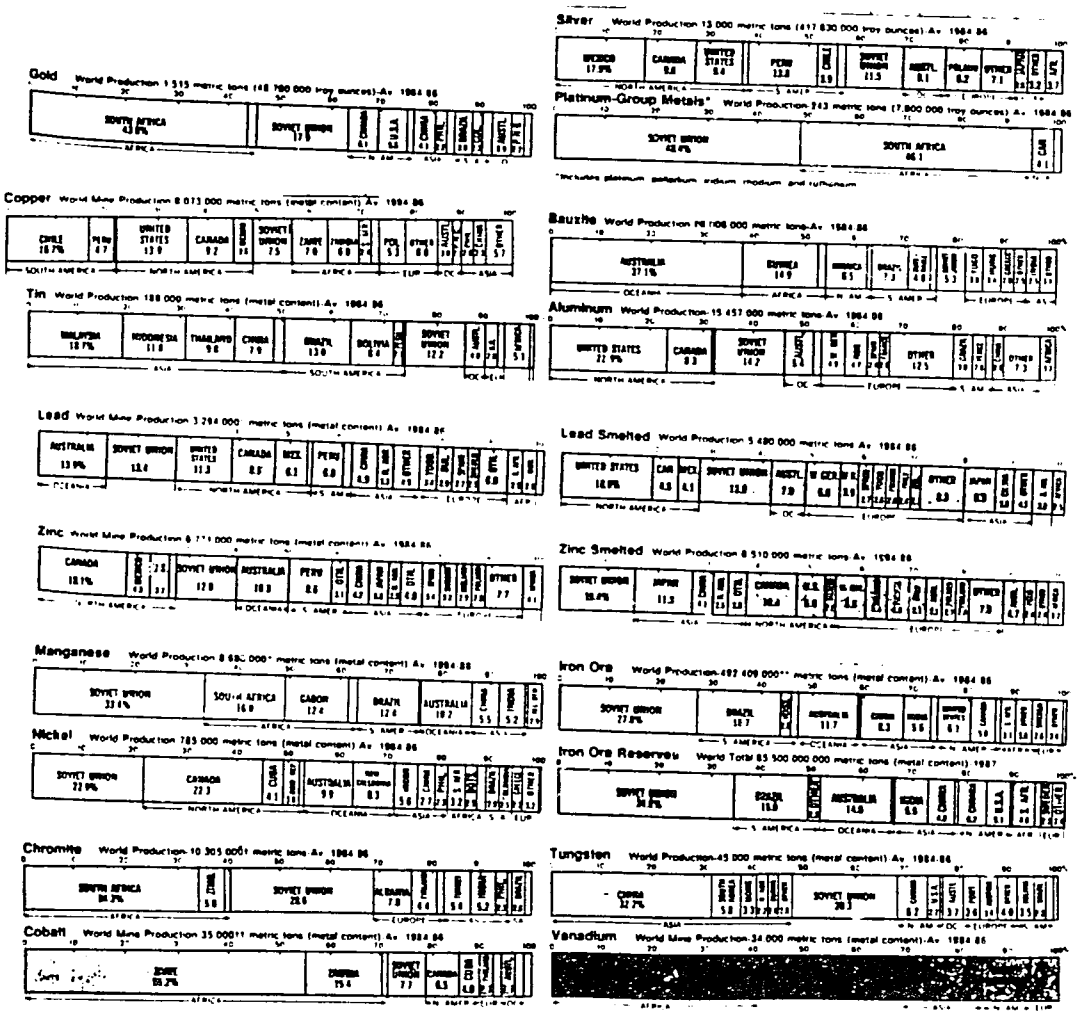
In Nigeria, Shell currently faces major political opposition from local indigenous and environmental groups

- The pollution and the lack of infrastructure and re-investment in the Kidere region has brought the Ogoni people to the point where they are actively sabotaging Shell installations
- Given the neglect shown by the Nigerian government and Shell's lack of investment in the region, they are turning on Shell in protest of their plight
- Pollution has affected crops, health and disease--without a penny of compensation
- In 1990, they presented an "Ogoni Bill of Rights" to the Nigerian government outlining their concerns -- and were ignored
- Greenpeace then brought their case to the UN Human Rights Commission
- The government has responded by sending in troops to defend Shell's facilities, accusing the Ogoni as "unpatriotic sessionists"
  - an attempt to punish "ideas that minimize the sovreignty of Nigeria" with the death penalty was suspended after international outcry
  - Africa Watch has been monitoring the situation claiming that at least 35 Ogoni were killed during a retaliatory raid
- The future of Shell's operations increasingly seem rather tenuous
  - increasing attention from European and US environmental groups--notably Earth Action--are creating similar pressures to those experienced by Conoco

RTZ was forced to actually withdraw from its proposed St Lucia development under similar environmental pressures

- In 1990, RTZ was proposed developing a new mine on an area overlapping the internationally reknowned St Lucia coastline
  - the mine was designed to avoid the central National Reserve but was located in the adjoining wetlands area, designated a protected area by the IUCN.
  - This area had been proposed as a 'Wetland Park" in the 1960's but had never taken place. However, South Africa had signed the IUCN agreement in 1971 designating the unique dune landscape as a globally important wetland
- R6bn--$2bn--in foreign exchange earnings were at stake for South Africa
  - most commentators assumed that RTZ would proceed with the deal, given the high stakes for the country
- However, environmental concerns were significant and strongly championed
  - although RTZ had restored a previous dune site relatively successfully in terms of its biodiversity, concerns over the impact on the water table and its effect on the fragile saline adjoining lake systems were particularly strong. These lakes sustain hippos and crocodiles--particularly in drought seasons
  - champions for the wetlands included Ian Player, who saved the white rhino from extinction, and the author, Laurens van der Post
  - 300,000 people signed petitions to oppose the development
- In the light of such opposition, RTZ recently took the unusual decision to withdraw its development plan
  - this may be the first time that a mining company has actually withdrawn from a proposed site due to environmental concerns
  - although the mining industry is not as environmentally conscious as the oil industry, this withdrawl suggests that mining companies would now find it easier to recognize the strategic significance that environmental concerns hold for their business development

Africa still dominates world minerals production



Africa's Total Share of World-wide Production

Gold	44%
Silver	4%
Platinum	46%
Copper	16%
Tin	5%
Bauxite	15%
Aluminium	3%
Lead	6%
Zinc	4%
Manganese	29%
Iron Ore	7%
Nickel	6%
Chromite	40%
Cobalt	71%
Vanadium	41%

Oil is also the dominant export for another half dozen African countries

Country	% exports accounted for by oil (if it is the primary commodity export product)
Angola	90.3%
Cameroon	35.2%
Congo	69.2%
Gabon	53.5%
Nigeria	90.3%

Companies operating in Africa have made some innovative contributions towards "leading the change" in both these industries

- Chevron in Nigeria has teamed up with the Global Environment Facility (GEF) to pioneer the gas recovery in the developing world
  - gas co-produced with oil is usually flared in developing countries due to the high cost of creating alternative uses
- Portland Cement in Kenya took quarry rehabilitation to new heights with a project designed to foster tourism, reforestation and organic farming as part of its restoration efforts
  - receiving one of the few UNEP Global 500 awards ever given to an industrial enterprise in recognition of its leadership
- Companies with proactive environmental initiatives have also been active in the region
  - Conoco was exploring for oil in Gabon
  - Shell previously enjoyed a reputation for leading edge strategic scenario planning for its business--explicitly incorporating environmental impacts and trends

Chevron's investment in gas recovery with the GEF is set to further enhance its position as one of the most environmentally proactive oil companies

- Gas, co-produced with oil, is usually flared in developing countries due to the high cost of creating alternative uses
  - Chevron reinjected the gas in its PNG project, however
- The project is designed to transfer the gas into a new infrastructure of pipelines, created in partnership with the Nigerian government and GEF funding, to use the natural gas for domestic energy needs
  - $25m in GEF funding
- The project will not only remove the "24 hour daylight zone" which bothers local communities but will clearly benefit the broader population
  - such benefits may prove important if concerns similar to the Ogoni's surface around Chevron's sites
- To date, no other oil company has attempted such an innovation in such a politically precarious oil producing nation. These efforts will strengthen Chevron's strong reputation as perhaps the leading oil company around environment

Portland Cement's restoration/tourism development project similarly leads the international mining industry

- Portland create the Baobab Farm, designed to be a self-sustaining business enterprise to provide ongoing development for the area when the mine closes, comprising:

1. Reafforestation
   - over 200 hectares
2. Extensive integrated aquaculture system
   - to provide R&D experience in a strong prospect for Kenya's future protein needs
3. Agricultural activities modelling appropriate technology
   - transferable to local farmers
4. Tourism attracting 90,000 visitors per annum
   - based on a nature trail

- Furthermore, the farm has been designed with both organic farming and industrial ecology principles in mind
  - no chemicals or fertilizers are used
  - all the activities area structured to receive inputs from each others activities, making it a "closed waste system" -- an approach widely applauded as exceptionally innovative and termed "industrial ecology"
- Given Chevron's experience, mining companies which explicitly designed their operations with such "sustainable solutions" as part of their development proposal would be likely to gain share of mineral development rights

However, these examples are isolated and not well publicized

- AID should explicitly help the "laggards" in the mining industry develop a deeper, integrated stakeholder approach

For Example:

RTZ:

- RTZ has already made indications elsewhere that it is prepared to adopt sounder environmental principles
  - in Zimbabwe, it has undertaken one of the country's first environmental impact assessments in order to develop a strategically important low-sulfur coal mine
- AID should encourage RTZ to review Portland Cement's restoration efforts in Kenya and Chevron's stakeholder learning approach in order to examine whether it could benefit from these approaches in both choosing and co-creating new developments
- What potential exists for RTZ to help "promote" South Africa's recent strategic emphasis on eco-tourism through creating a "tourist venue" at one of their restored sites? (See Eco-Tourism below)
  - comparable to Portland Cement's
- Since there is no mining company that is currently "leading the change", AID should examine this possibility with RTZ or other leading mining companies in South Africa which has given early indications of their willingness to change

AID should also explicitly help the "laggards" in the oil industry develop a deeper, integrated stakeholder approach

Mobil:

- Other oil companies, such as Mobil in Zimbabwe, have already undertaken a more stakeholder-oriented approach...
  - Mobil also undertook a detailed environmental impact assessment (EIA) for its development in the ecologically sensitive Zambezi Valley
  - Mobil gained feedback from many stakeholders as well as its EIA to create operations solutions tailor-made to the valley's requirements
  - Mobil claims that the development has received unprecedented support from environmentalists
- ... but could be encouraged to make even more innovative investments akin to those undertaken by Chevron

Shell:

- Shell could end up facing the kind of impasse experienced by Conoco in Ecuador
- Given its earlier leadership around environment, AID should review with them and the Nigerian government whether alternative forms of dispute resolution could be employed in the Ogoni lands to facilitate this conflict
- Shell, with AID's support, needs to find innovative ways to reinvest in the local communities and clean up its environmental impact
  - AID has been involved in many of the most innovative business/NGO/Government cases below (eg AES' offsets, Bristol Myers Squibb Suriname bio-prospecting etc)
  - the Nigerian Shell situation offers AID an opportunity to deploy these skills in much more conflicted arenas

AID should investigate how it could help the most innovative "leading edge" companies further extend their environmental innovations

- Could Chevron to employ a similar WWF conservation initiative in Nigeria? In an area adjoining a national park that needs buffering?
- Could Chevron examine other companies' leading edge investments in CO_2 offsets--through energy efficiency and reforestation schemes--with a view to reducing the company's global warming impacts?
  - See the "Conservation and Offsets" section below
- How could Portland Cement continue to lead innovation in the mining industry? In Africa?
- Would they be prepared to host a conference examining the potential synergy between the mining industry and countries' burgeoning tourism industries?
- Could this conference serve as a precursor to an active stakeholder learning forum in this arena to examine how old mining sites could be restored with a view to creating eco-tourism venues?

Eco-Tourism

The tourism market has similarly been restructuring towards more eco- and educational products

- The eco-tourism industry grossed profits of between $2-10m in 1992
- The US "guided nature tourism" market alone is growing five times faster than the overall travel market
- Eco-tourism has consistently been estimated to be the fastest growing segment of the tourism industry--growing annually at between 20-25% in recent years
- It is expected to grow a further 12-15% through the late 1990's
  - Hotel and Motel Management Sept 1993

Africa does not currently attract a particularly high percentage of the world tourism market

- Relatively speaking, Africa attracts more visitors from the US however than average

Number of Visitors:

To: From:	Americas	EAP	Africa	South Asia
USA	77.1%	13%	7%	8.5%
EAP	7.7%	67.5%	2.8%	12.5%
World			3.4%	

However, African tourism revenues are growing extremely rapidly

(1990)	S America	EAP	Carribean	SAR
Receipts ($m)	4,674	36,657	8,710	5,279
Change 89/90	11.6%	11%	8%	19%
% total merchandise exports	5.3%	16.9%	24.7%	3.1%

Tourism has become particularly important for east and southern African countries which together account for 71% of the total African tourism market

- 71% of visitors go to east and southern Africa
- 79% of US visitors also visit these regions

	France	Germany	UK	Italy	US	Total	Regional Shares
SAR	182424	255196	279424	110865	123991	951900	71%
Middle	25238	2238	2623	3711	4934	38744	3%
Western	253127	31793	24702	20117	27176	356915	26%
Total					156101	1347559	

Eco-tourism could offer Africa a powerful way to leverage and preserve its unique biological and wildlife inheritance

- Although concern is often expressed regarding the ecological impacts of eco/tourism, a recent report discovered that the threat that tourism poses is far less than other activities
  - the report was prepared by McKinsey for the Pew Foundation
  - activities such as agriculture were seen to be of far more concern
- 70% of visitors already come to South Africa for environmental reasons
  - Source: Satour
- The McKinsey survey also found that US tourists taking guided nature tours would be prepared to make conservation donations -- but only 37% had ever been asked to do so
- Donations from US visitors could raise $8-10m alone

% willing to make donation of:	
> $50	70%
> $200	40%

However, few tourism industry revenues are currently channelled into conservation

- "Of the $3000 that a US tourist usually spends on a guided tour , less than 1% is earmarked for conservation and less than 10% might ever reach people living in or near the parks."
  - Report by the Pew Foundation on the eco-tourism market: McKinsey analysis based on South America
- A small proportion of the tourism industry's revenues remain "in country"-- currently estimated to be less than 2%

Driving Forces

Low conservation site charges	Sites poorly developed and marketed
Chronic underfunding for national parks ($50,000 total country annual budget)	Few opportunities for tourist to spend near the sites
Ground operators lack training/ capital	Low rural participation in tourism-related businesses

South Africa has recently launched a new strategic initiative to attract eco-tourists as a major growth platform

- White paper produced by government in 1992 introducing new financial measures to support the industry
  - 2% hotel levy to support the industry's development
- Major eco-focus to leverage South Africa's diverse ecologies
  - 6% of the country is currently under protection -- set to rise to 10% (US/European norms) by the year 2000
  - ecologies span the Kalahari desert, the coastal parks and wetlands, like St Lucia, and the game and wildlife reserves
- Strong investment in enhancing the national park system
  - National Park system set to increase visitor lodging capacity to accomodate increases from overseas visitors, currently on ly 10% of their clientele ($100m investment required)
  - the National Park system is also buying up private land to increase and integrate its park zones
- Major marketing initiative underway
  - "We have a vision to make South Africa the number one eco-destination" (Director for Promotion at Satour)
  - $10m invested in international marketing in 1992 to be increased dramatically with the 2% hotel levy
  - South Africa Airlines has also secured more landing rights in the US and is encouraging a US airline to start flights to South Africa to increase competition
- Leveraging the "end of apartheid" to add cultural ethnic interests to the environmental platform to make it even more "politically correct" to now visit the country
  - exposing visitors to Africa's cultural heritage seems to be an emerging theme in panel discussions at the Africa Travel Association conferences

Several emerging regional eco-tourism networks could further leverage South Africa's efforts up and down the continent

- South Africa recently invited African nations to discuss establishing a regional tourism promotion entity.
  - the Executive Director of Satour invited leading tourism countries of whom 17 responded affirmatively, including Kenya and Zimbabwe
  - South Africa sees itself as providing "the gateway to to southern Africa"
- South Africa is already actively seeking partners to jointly market multi-country eco-tours
  - discussions are underway with Zimbabwe and Zambia
- South Africa's National Parks Board has even approached neighboring Mozambique and Swaziland with a proposal to create a first-of-its-kind *cross-border* national park
- Kenya is already successfully marketing joint tours with the Seychelles and Tanzania
- The private sector is explicitly expected to be the driving force behind these initiatives
  - although appropriate funding is also expected from the states themselves

Many companies operating in Africa now offer an "eco-option"

- Major hotel chains now operate eco-lodges in Africa in addition to their city hotels
  - eg Hilton's Safari Lodge, opened in Kenya in 1973, was followed by their Salt Lick Safari Lodge in the late 1980's and the Hilton Safari Tented Camp in 1992
- Some hotels have also mounted a "green" veneer, donating $1 per room per night to conservation initiatives
  - indicates willingness on the hotel industry's part to participate but no concerted effort to leverage or channel this opportunity effectively
- Myriads of small tour operators offer eco-packages

One of the world's leading eco-tourism projects is based in Zimbabwe -- Campfire

- Campfire is a community-based conservation initiative which was designed to enable local communities to benefit from sustainable uses of their "common lands"
- Benefits arise from local enterprises including safari hunting, tourism and sale of animal products
- Businesses are charged relatively high fees for the priviledge of access to the wildlife areas
  - a separate fund has been created by the local government administration to keep track of these monies
- Some of these funds are then returned to the community, offering them direct incentives to continue managing their resources sustainably
  - eg increasing incentives not to poach--which given that one animal can yield twice the annual average wage -- around $35--requires a powerful "reverse" system of incentives (Source: Hannah Riley, Kennedy School of Government, Masters Project)

Campfire overcame some of the challenges that eco-tourism had traditionally failed to address

- Low local participation and economic benefit/interest in tourism industry lead to intense rivalry and conflict with those seeking to use the land for other purposes
  - eg poaching, agriculture etc
- No longterm interest in preserving the biodiversity
- Safety concerns for tourists arising from local violent opposition
  - eg violent gangs, drugs reported in early 90's in Kenya

One company in South Africa is now demonstrating that private enterprise can also emulate this approach while building strong businesses-- the Conservation Corp

- Conservation Corp founded Phinda Resources Reserve in South Africa's Natal province
  - unlike Campfire, the land is privately owned by Conservation Corporation
- CC's Phinda Lodge provides the center for an extremely up-market eco-venue
- CC is setting out to demonstrate that "conservation can pay"
  - "-Its R83m equity funding (40% from foreign investors) are to be invested in Africa's undervalued wildlife assets which can be exploited to produce returns with are attractive and ethical." (Financial Times, April '93)
- Although privately owned, the Reserve is open for use by the local communities
  - "The old notion of a game reserve where you put up a fence and chuck the people out is flawed": Leo-Smith, Manager Phinda, Director Conservation Corporation
  - local people gather wood for cooking, grasses for thatching, palm sap for wine making and indigenous herbs for medicinal purposes
- By ensuring that the local communities benefit from Phinda, CC has "turned the poachers into game wardens"
  - "A 33 year old Zulu who was poaching game from Phinda no says his future depends on keeping the animals live because tourists attract cash to this forgotten corner of Zululand."
  - many benefits include the traditional investments in schools, health care and housing

Conservation Corp channels benefits back to the local community through "capitalism not charity"

- Conservation Corporation supports local entrepreneurs' enterprise development rather than allocating a percentage of its profits to local communities
- Local entrepreneurs--including ex-poachers--are now being sought out to create businesses to support Phinda
  - the same poacher turned gamekeeper now earns R1800 a month supplying bricks to the lodge -- far more than he could "bag" as a poacher
  - he promised to start a brick-making business after he was unable to pay the fine from a local tribal court when he was court poaching. He worked off his sentence by making bricks for the reserve. Phinda later set him up as an independent brickmaker
  - "Phinda seeks to catalyze entrepreneurial drive which comes from the community"
- Venture capital funds, cheap loans and business training are being provided to deepen the community's capacity to develop alongside Phinda
  - Phinda does not simply channel a percentage of profits back to the community
  - other business ventures they've helped to start include a "green" charcoal business that creates charcoal not from wood that was previously stolen from the reserve but from bush that is unwanted and needs to be cleared
  - Conservation Corporation invests little of its own money in these ventures but leverages development venture funding to further support these eco-entrepreneurs
- Phinda states that "charity is a poor substitute for sustainable development"

Conservation Corp's stakeholder-based approach seems to overcome many of the concerns that private sector tourism usually presents

- Returns are made to the local communities providing them incentives to use the land--with Phinda--sustainably
- CC's stakeholder approach enabled the company to discover win-win benefits for both their business and the local community
  - in sourcing the brick from the ex-game poacher, Phinda both purchased the bricks at a third of market price while providing the brickmaker with a 60% profit margin
- Framing its approach as integrated with both the local community and resources enabled Phinda to create a highly sustainable local "industrial ecosystem"
  - for example, the raw materials for the bricks were supplied by Phinda from the Reserve--avoiding transportation of high cost materials from out of state.

Furthermore, Conservation Corp can demonstrate that "conservation pays"

- CC is demonstrating that if sound business practices are employed, "it pays to conserve"--an important contribution when many stand-alone eco-lodges are often barely profitable
  - McKinsey's report to Pew suggested that many stand-alone eco-lodges are barely profitable--usually because they have not been designed with strong strategic or financial management in mind
- Furthermore, CC's private sector approach addresses one of the most pressing deficiencies in many public sector tourism initiatives: a lack of strong management skills
  - McKinsey identified this as the most important arena in which capacity needed to be built
  - CC's management skills were being explicitly transferred to local start-up businesses through supplier relationships and business training workshops
- The Pew Foundation has also decided to experiment with establishing a network of professionally run eco-lodges throughout the world to demonstrate that eco-tourism ventures can be run profitably
  - Pew has decided to use a common US/European-based marketing system to enable these lodges to share the extremely high costs of marketing themselves and thus hopes that they will be able to become financially viable
  - Pew is still in the investigative phase for this scheme, seeking matched funding etc, but seems keen to move ahead

Other private sector approaches towards tourism also seem to offer signs of success in Africa

- A similarly successful approach to private sector wildlife management can be found in Zimbabwe
- The Wildlife Producers' Association (WPA) was created to provide private landowners with the opportunity to generate business revenues from their wildlife for either tourism or hunting purposes
- The WPA has attempted to provide the same kind of production and marketing support for revenues generated from wildlife as have been given other successful agricultural commodities
- Indications suggest that WPA has significantly contributed towards creating a stronger tourism industry in Zimbabwe

AID should investigate whether this private sector approach could provide an engine to distribute such practices in other countries

- Does Conservation Corp have plans to expand in concert with South Africa's partnership policies?
- Are there other companies creating similar eco-ventures in other countries? Have they heard of Conservation Corp? Are they employing an integrated stakeholder-based approach?
- How could other private sector players be better leveraged? Eg the hotel chains? How could they better link up with other stakeholders, following CC's example, to design more integrated and profitable businesses?
- Would companies like Conservation Corp be interested in joining a leading mining company and other environmental stakeholders in creating a combined eco-tourism/mining clean-up scheme?
- How could the private sector support further South Africa's and other regional eco-tourism initiatives?

AID could also leverage Conservation Corp and other tourism companies' managerial expertise to improve the viability of the burgeoning state tourism industry

Some ideas:

- Encourage companies like Conservation Corp to locate close to a park to provide an upmarket "5 Star" venue and infuse managerial talent into both park state-run ventures and local communities
- Experiment with private lodges around communal lands using same entrepreneurial approach
- Investigate how tourism related businesses already operating in South Africa could "joint venture" with state or non-profit eco-tour operators to improve the level of managerial expertise
- Could AID help Pew locate their lodges in Africa and facilitate similar venture capital financing and management training to support local enterprises?
  - following the Phinda model

The pharmaceuticals industry also has a direct interest in preserving/leveraging biodiverse resources

- Over 35% of pharmaceutical drugs are derived from plant extracts
- Plant-based drug sales have been rising dramatically
  - from $4.5 bn in 1980 to $ 15.5 bn in 1990
- The richness of plant genetic materials also supports several other major industries
  - biotechnology applications span several other multi-billion $ industries
  - agricultural biotech sales are estimated to reach $10-100 bn by the year 2000
  - in just one year, US total biotech product sales rose dramatically by 38% to reach $4 bn by 1990 and are expected to reach $50m by the year 2000
- The vast majority of plant species--and thus genetic materials-- are located in tropical rainforests
- 25% of all plant species may be lost by the year 2050 -- unless incentives can be found to conserve them and the industry's foundations

New plant-based pharmaceuticals companies are emerging

- Although during the last few decades there had been an industry move away from direct plant sourcing, a new wave of interest in the early '90's has re-emerged
  - new companies spanning the US and Europe have been formed with an explicit plant-based approach -- the so-called "phytopharmceuticals" companies
  - several leading traditional pharma companies have also created new departments and joint ventures to experiment with this approach, including industry leaders Merck and Bristol Myers Squibb

Phytopharmaceuticals Start-ups		*Experimentation by traditional pharma companies*	
Shaman Pharmaceuticals	CA, USA	Merck	NJ, USA
Xenova	UK	Bristol Myers Squibb	USA
Phytopharmaceuticals	USA	Glaxo	UK
Hutton Molecular Development	UK	SmithKline Beecham	UK
Escagenetics	USA		
Inverni della Beffa	Italy		

These "phytopharmaceutical" companies explicitly design their businesses in collaboration with other stakeholders--increasingly from the developing world

- Merck and other large pharmaceuticals companies have relationships with western botanical research institutes, which also help them source materials from the developing world
- The newer specialist phytopharmaceuticals companies have developed relationship with more unusual institutions--usually from the developing world

Phytopharmaceuticals Start-ups		*Traditional pharma companies*	
Shaman Pharma	Indigenous healers	Merck	NY Botanical Gardens
Xenova	Inst. of Medicinal Plant Development, Beijing Inst. of Botany, Kunming	Glaxo	Royal Botanical Gardens Inst. of Medicinal Plant Development, Beijing
Hutton	Oxford University	Beecham	Royal Botanical Gardens
Phyto-pharmaceuticals	Research insts. in China Thailand, Brazil	Monsanto	Missouri Botanical Gardens
Inverni della Beffa	Althea Intl, India/Asia		

This rise in plant-based biotech and LDC sourcing has taken place amidst intense north-south controversy

- Controversy centers upon who gains access, ownership and control over the value that these resources can generate
  - are they global assets?
  - do they belong to host countries?
- Intellectual property rights have become the focus for disagreement
  - property rights determine who gains the rights to use, exploit and benefit from these resources
- LDC's fear that they will again find themselves subject to powerful "colonial" industries which will again strip their assets without appropriate compensation or participation in building indigenous local industries
  - this fear is particularly intense given the high technology barriers in developing local pharmaceuticals industries

Partly in response to this controversy, a wave of innovative partnership agreements between drug companies and LDC stakeholders has been sweeping the industry

- These agreements compensate LDC stakeholders directly for supplying and screening plant materials and often invest in building institutional capacity in country

Phytopharmaceuticals Start-ups		*Traditional pharma companies*	
Shaman Pharma	Healing Forest Conservancy	Merck	INBio, Costa Rica & Nature Conservancy, USA
Xenova	Inst. of Medicinal Plant Development, Beijing Inst. of Botany, Kunming	Glaxo	Center for Natural Products Research, Singapore
Hutton	Foundation for Ethnobiology	Bristol Myers	Research Institute, Suriname & Conservation International, USA
Phyto-pharmaceuticals	Looking to deepen relations with institutions in LDC's	Ciba-Geigy	Chinese Academy of Sciences

Shaman pharmaceuticals first pioneered the most innovative approach to stakeholder-based drug development

- Founded in 1989, Shaman was designed to leverage the knowledge that traditional healers from indigenous communities -- Shamans -- possess regarding medicinal plants
- Shaman employs teams of ethnobotanists to visit indigenous communities to source medicinal plants for use in its drug development process
  - Shaman only works with communities which have expressed interested in partnering with them, using ethnobotanists who have both biological and anthropological training
  - Traditional healers help Shaman's ethnobotonists source medicinal plants. If the same plant is used in three different communities for treating the same disease, it qualifies for Shaman's screening program
  - no other company has established such "learning relationships" with indigenous healers as to help build their business
- Shaman is the only company to work side-by-side in partnership with traditional healers in the forests to learn which plants are used to cure different ailments
  - other companies work through in-country organizations like INBio who simply collect samples requested by Merck
  - very few work at all, even indirectly, with indigenous communities
- Shaman reinvests in and actively supports indigenous traditional medicine both through its business and the Healing Conservancy Foundation it founded
  - Shaman seeks to understand what these communities need on an individual bases and has invested in providing schools and airstrips etc.
  - Shaman has also supported the training of younger apprentices to the traditional healers to help ensure that this knowledge continues to flourish
  - Shaman also has agreements in place to channel a % of all its profits into the Healing Conservancy Foundation. These funds are then channelled back into all the indigenous communities that have ever worked with Shaman -- a "non-competitive" arrangement that the indigenous peoples preferred

Shaman explicitly recognized the value that this "stakeholder learning" approach could offer

- During the last two decades, almost all drugs have been developed through massive random "screening" programs
  - these programs are designed to take vast quantities and varieties of plant materials and "screen" them for any potential "activity" that might suggest potential for drug applications
- Research conducted by Professor Farnsworth revealed a 75% correlation between the diseases that plant-based drugs were finally "discovered" to hold and the original "folk" uses of the plants
  - 25% of the active compounds extracted for drug applications were now being used for completely new applications
- Shaman is the only company that has been founded to explicitly learn "upfront" about the illnesses that plants are traditionally being used to treat -- and explicitly develop drugs aimed at these markets
- As a result of this approach, their success rate in finding "active" plant extracts has been phenominal
  - active extracts are those which promise high potential for concrete drug development unlike inactive plants which fail the "screening" tests
  - 50% of the Shaman plants screened have been found to be "active" -- compared to less than 1% on average for the industry
  - furthermore, their plant extracts have been found to be five times more promising than random screened plant extracts in potentially treating non-traditional diseases . The market potential for such a drug would clearly be astronomical

Shaman also developed a strong strategic focus to explicitly support this approach

- They have focussed only on sourcing and developing rainforest-based drugs--leaving the main manufacturing, marketing and other "downstream" activities to joint venture partners.
  - joint ventures with Inverni for manufacturing, Merck for screening for diabetes and analgesia and Eli Lilly for anti-fungal drug development and marketings
  - this strategic focus on drug "sourcing" is unique
- They deliberately constrained both the number of drugs they would develop and the markets they would target to focus development efforts and cut down on "time to market"

As a result, Shaman's success has been outstanding

- After only five years, Shaman already has two drugs in Phase II testing with market launches planned for 1997/8
  - Provir, a drug designed to treat respiritory problems in young children including influenza
  - Virend, a drug designed to treat herpes particularly suited to the HIV -infected community
- Both these drugs have major market potential
  - "breakthrough" drug sales can generate $1bn in annual revenues
  - market analysts estimate the market potential for Provir to be $1bn and $400--800m for Virend
- They currently have so many "active" compounds in their pipeline that they have been forced to enter several joint ventures to simply process the volume of potential new drug developments

The competitive implications of this "stakeholder learning" approach are profound

- Shaman has cut down its drug development time from the industry average of 10-12 years to less than 7-8 years
- This provides them with a major extension--of up to 100%-- to the protected "monopoly profits and revenues" guaranteed by the FDA
  - FDA grants "monopoly" profits for 17 years from the time when the plant is first discovered -- not when it is finally approved
  - this gives companies usually 5-7 years of protected profits. Shaman will get 9-10 years.
  - markets shares for typical drugs drop after this protection period from 100% to 25% within 4 years
- The volume of "active" compounds and drugs in development will reduce the price of drug development
  - companies usually screen one in 10,000 plants to develop a single drug. R&D is the single largest component of pharmceutical company budgets justifying product margins of 60-70%
  - Shaman has only screened 640 plants. It has two drugs in final testing and ten others in intensive development. A bank of 290 extracts still warrant further investigation
- Barriers to entry into Shaman's approach are extremely high
  - they have tied up almost all the leading ethnobotanists: "they work for us" (Lisa Conte, CEO)
  - cultural barriers for traditional pharmaceutical companies are exceptionally high. They rely on laboratory science not gum boots and rainforest expeditions in dug-out canoes
- As a result, Shaman has received consistent "buy" recommendation from the stockmarket

Competitively, they could redefine the "rules of the game" in the plant-based drug development industry

- Given the significance of the changes that Shaman is introducing, the pharmaceutials industry--or at least the plant-based sector- might be forced to adopt a similar approach to sourcing its plant materials
- This would profoundly restructure the phyto-pharmaceuticals industry around more stakeholder-based sustainable solutions

Cut drug development time in half

Increase protected revenue streams by up to 100%

Dramatically increase the effectiveness of the plant screening process to discover many more active extracts more rapidly

Dramatically increase the chances of discovering a breakthrough drug for "non-traditional" diseases

Merck also launched an innovative partnership with INBio to source, test and screen plant-based resources...

- The Merck-INBio agreement was the first conducted between multi-national pharmaceuticals company and in-country research laboratory--and was initiated at INBio's request
  - INBio had a mandate from the government to leverage Costa Rica's bio-resources in ways which promoted sustainable development. it was actively seeking ways to generate revenues from Costa Rica's protected areas, which comprise 27% of the country's land area
- Merck's investment in developing INBio's technological/professional expertise has helped build a nascent pharma industry in Costa Rica
  - Merck invested $1.1m dollars, $900,000 in equipping INBio training scientists to conduct screening tests, $100,000 in salaries for parataxonomists who conduct plant collection and $100,000 in conservation contribution to the Natural Resources Ministry
  - INBio contracts with 50 local parataxonomists to collect samples requested by Merck
  - typically, screening is not conducted in LDC's but plants are shipped to drug companies directly. This screening arrangement benefits both INBio--higher royalties are payable--and Merck--current in-house screening capacity is extremely tight
- INBio will be paid a royalty if any plant they supply leads to successful drug development
  - the exact royalty payment is kept secret but is believed to be around 5% of revenues
- INBio also retains the rights to "selling"/developing the plants materials collected to Merck to other companies once Merck has rejected them for their purposes
  - Merck is only interested in screening the plants for the kind of drugs they want to develop. These same plants could have many other applications, however
  - some protection of property rights have been secured by INBio

...although Merck claims the venture to be "competitively neutral"

- Merck views its relationship with INBio as comparable with its other sourcing relationships, such as with the New York Botanical Gardens
  - interview: Lynn Caporale, R&D Department, key architect of the scheme
- The screening tests it receives from INBio have not been found to be any more or less promising leads for drug development
- Merck is not looking to replicate its INBio venture although it is open to receiving samples--even on a large scale basis--from other parts of the world--including Africa

Competitors such as Bristol-Myers have nonetheless rapidly followed suit

- In February 1994, Bristol-Myers entered an agreement with Conservation International to create joint venture with CI, the government of Suriname, its National Institute of Health and forest peoples to source and test plant extracts from the rainforest in Suriname
- Bristol-Myers has made a similar up-front investment in building new screening capacity since few technological resources existed prior to the agreement
  - $1m invested in pharamaceuticals equipment and training etc; $50,000 donated to conservation
- These groups have established a trust fund--the Forest Peoples Trustfund--which will receive a 5% royalty payment on any drugs developed
- The indigenous communities still retain the intellectual property rights to the materials
- This approach combines Shaman's indigenous peoples' involvement and Merck's institutional pharmaceuticals capacity building -- a potentially powerful approach
- However, it is unclear, as yet, how closely Bristol Myers or the research institute will be working with the traditional healers -- the center of Shaman's approach

However, all of these new agreements still abide by current pharmaceutical industry standards for compensation to host communities ...

- If a drug is successfully developed, the company will pay up to a 5% royalty on drug revenues for up to 10 years
- This figure rises the more "value" is added by the host co-creator

Type of Service Provided:	% of Revenues Paid:
Identified product/efficacy	10-15%
Preclinical data	5-10%
Early research	1-6%

... which still leaves these bioresources vulnerable to other forms of economic development/destruction

- On an NPV basis, the returns available per hectare from drug development are currently far below those that can be achieved from more traditional agric-business

Activity:	NPV Generated Per Hectare:
Deforestation for timber and pulpwood	$3184
Cattle pastures	$2960
Fruit or latex harvesting	$6820
Merck/INBio: per drug discovered *	$15

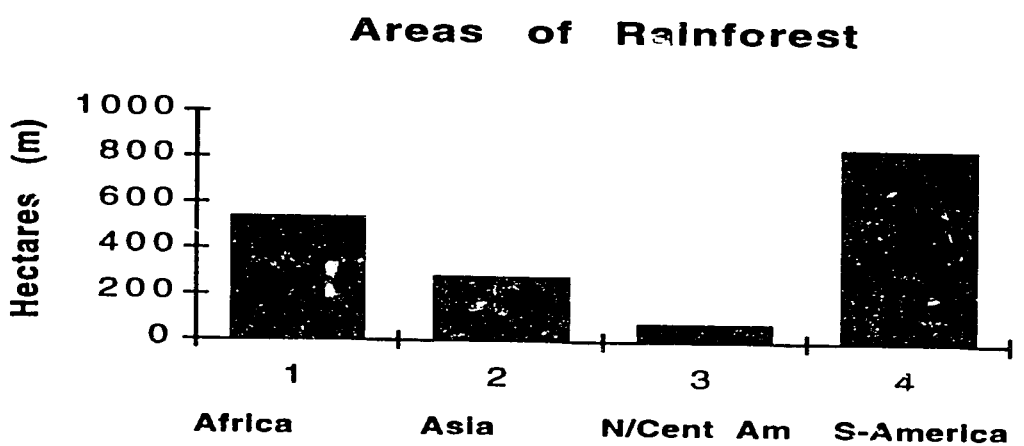
* Assumes all the 27% of Costa Rica's protected lands are in use by INBio (5.1m hectares). Based upon HBS case NPV calculation of the value of a breakthrough drug to INBio assuming 5% royalties of $200m

Shaman's approach offers the best potential to rethink these compensation schemes

- Its drug discovery program has been perhaps 100 times more successful
- Its reduction in time to market could double its protected time period for revenue generation
- This could raise the revenues per hectare into the $2000-3000 range -- comparable to the most ecologically destructive alternative forms of development
- Furthermore, certain forms of forestry cultivation could be compatible with this approach, eg harvesting for non-timber products, which could generate their own incremental revenues increasing the total yield per hectare even further
  - non-timber forest products--or bioproducts--are those which cannot be cultivated outside the forest itself-- for example, Brazil nuts

Africa is clearly powerfully situated to forge such pharmaceuticals partnerships ...

- The rainforested regions in Western Africa are the world's second largest
  - Central America's, by contrast, are the smallest
- Kenya has already begun to build screening capacity
  - they are reportedly collaborating with INBio to try to increase their own screening capabilities



... although only Shaman is currently actively partnering in the region

- Shaman has already conducted workshops with chemists in East and West Africa to teach them how to conduct bioassay tests of medical extracts
  - these workshops were arranged in conjunction with the International Organization for Chemical Sciences in Development -- a non-profit organization
- Resources for laboratory materials and scholarships for study have been provided to a Nigerian research lab that is working on plant treatments for malaria
- Shaman's most active indigenous relationships lie in South America but they are explicitly seeking to develop these opportunities in Africa as well as Asia
- Currently around 25-30% of plant samples have been sourced from Africa
- Shaman is actively sourcing from around a dozen countries
- Shaman's third drug in development--a treatment for thrush--was originally sourced from a plant from Africa
- Merck also indicated that they were open to receiving samples in an organized fashion--but not on the scale of the agreement they made in Costa Rica or, it seemed, with the same level of infrastructure training and investment

AID should create a stakeholder learning/innovation forum to investigate the challenges posed by the low returns currently available to LDC's from drug development

- A more indepth review of the conservation implications of the industry's current compensation system should be developed to determine how royalty payments would need to be set to ensure the longterm safety of both these bioresources--and the plant-based pharmaceuticals industry
- AID should convene a stakeholder learning forum around this issues to explore how the revenue streams for successful drug development can be better leveraged to promote more sustainable uses of Africa's bioresources
  - This forum should examine the strategic implications of the current compensation scheme for both the pharmaceuticals industry--in terms of the security of its supply of bioresources--and for the local communities and the ecosystem
- The forum should also examine ways in which the pharmaceuticals industry could "link up" with other enterprises (eg eco-tourism or sustainable forestry) to create additional layers of cashflow from similarly sustainable enterprises to increase the $ returns per hectare
  - examine whether a "wedding cake" of tiered enterprises could be created, rather like those "layered up" in buffer zones currently, to increase the total returns available
- The forum should also examine whether matched funding can be secured from other sources to increase the returns available -- eg from carbon dioxide offsets or even "biodiversity offsets"
  - see the last section of this report, particularly AES' CO2 offset investments
  - biodiversity offsets are currently only being discussed, but could be designed to leverage the emergence of the CO2 offset investments -- particularly given the Rio treaty agreements on biodiversity

AID should also seek to leverage the existing alliances between drug companies and LDC's in the African region--with a view to also increasing the returns available

- AID should investigate the possibilities of co-investing with companies like Merck and Bristol-Myers to establish similar screening initiatives in Africa
- AID should approach companies that have not yet created their own "Merck-INBio" agreement to extend both the number and terms/conditions upon which these agreements are made
  - Ciba-Geigy--longtime active in Africa already as a agribusiness concern -- only has a link with the Chinese Academy of Sciences. It is one of the few companies not to have made a new LDC link in recent years
  - Eli Lilly only has a link with Shaman and the National Cancer Institute
  - Monsanto and SmithKline Beecham have no LDC links
- AID should review with Shaman how its approach to conservation investment could better be leveraged and how its initial explorations in Africa could be enhanced
  - review opportunities to link up governments in "joint" royalty agreements in return for agreements to establish indigenous reserves with protection status comparable to national parks
  - review the potential to leverage AES's offset examples in this context
- AID should explore whether companies like Shaman and the multi-nationals could contribute towards explicitly co-creating more conservation areas in partnership with local stakeholders
  - again, investigate the industry "joint venture" possibilities to maximize the ecological gains available. Help pharmaceuticals companies leverage their activities to create more protected areas would both enhance the security of their supply and leverage their investment to increase local conservation/tourism efforts

Forestry

Profound environmental pressures are currently restructuring the timber industry

Increase value added production

- Pressure on primary forest decreasing acreage available
- Shift to higher value end-use products for hardwood and especially primary timbers

Substitution Pressures

- Industry innovation towards "engineered woods" to substitute for hardwood traditional applications
  - uses high value woods in much more efficient ways
  - Continued innovation towards veneer applications

New Standards Setting

- New standards setting across US and European markets
  - FSC, WWF UK
- BCSD forums to review new standards implications
- ITTO Year 2000 target for the industry to become "sustainable"

Increase in "green" purchasing upstream

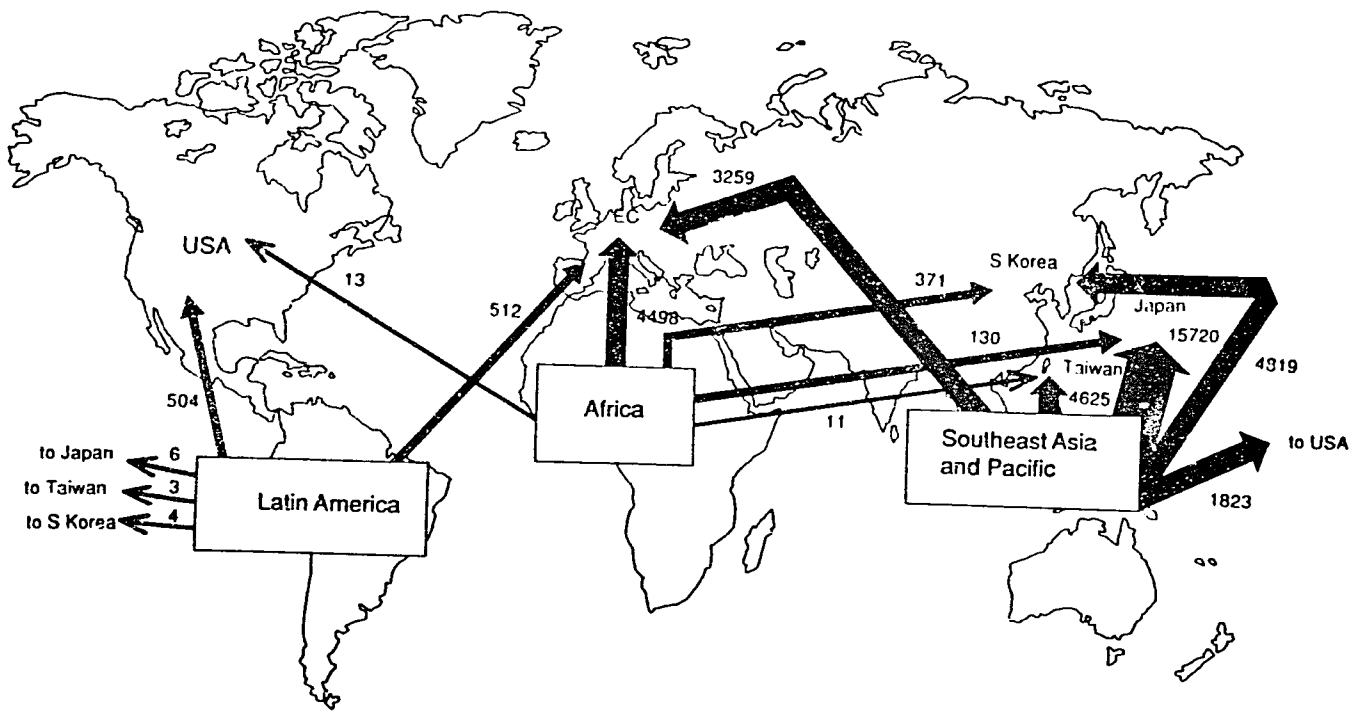
- Herman Miller and Knoll in US furniture
- B&Q and Scott in UK DIY and paper products respectively
- Home Depot in US DIY

West African countries are particularly dependent on the forestry industry

Country:	*% commodities production from timber*	*Rank*	*% production from # 1 commodity*
Cameroon	15.4%	2	16.2%
CAR	25.4%	3	31%
Congo	90%	1	9.2%
Cote d'Ivoire	10.6%	3	42.4$
Gabon	90%	1	1%
Ghana	20.2%	2	65.3%
Guinea Bissau	8.7%	2	78.5%
Swaziland	4.1%	3	59%
Zaire	23.4%	2	53.6%

African wood flows primarily to Europe

Figure 6. Total tropical timber trade flows to main importing regions of the world in 1990 (includes logs, sawn timber, plywood, veneers, boards and higher value-added products in '000s cubic metres).



Sources: Eurostat, 1991a; ITTO, 1991a; ITTO, 1992a; ITTO, 1992b; JATAN, 1991; JATAN, 1992; RAN, 1992; Republic of Taiwan, 1991; Republic of Korea, 1991; USA, 1991; Japan, 1991, Plowden, 1992.

African exports comprise almost exclusively unsawn logs and some veneers

Volume Flows from Africa to:
(000 cubic metres)

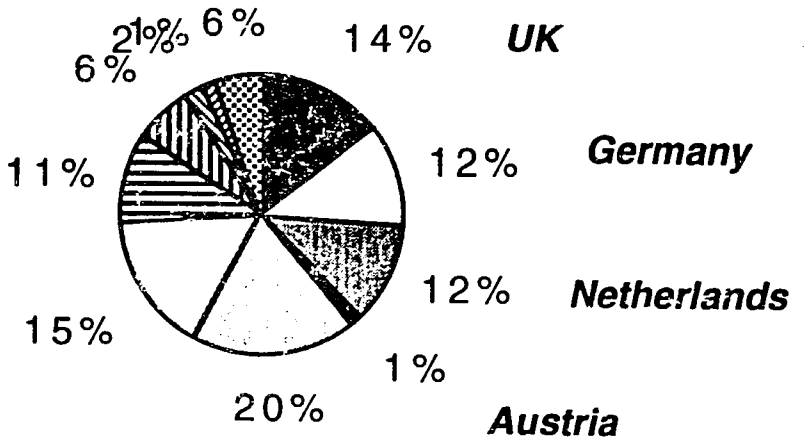
Timber:	EC	US	Asia
Logs	3322	5	503
Sawn timber	888	7	6
Tropical Plywood	50	--	--
Tropical veneers	203	--	1
High value timber products	34	1	1

The European timber end-use markets are restructuring particularly rapidly around environment

- The Netherlands already has legislation in place to "grade" products sourced from timber throughout the world according to its sustainability
  - this includes products from paper through to building materials
  - it forms part of a comprehensive "green" product labelling scheme that they are introducing that extends beyond the timber industry
  - it has attracted a great deal of attention from LDC timber companies, particularly Arracruz in Brazil. Although this company produces paper pulp that is chlorine-free, its grade is low because it uses plantation pines. Arracruz has galvanized the BCSD to form a working group to review the paper and recycling questions in order to avoid finding itself unfairly penalized by countries' new "green" product standards
- Austria has also introduced legislation stating that no timber will be imported that is not sustainably harvested
- Several UK companies--organized by the WWF UK into the 1995 Club--have also commited to sourcing 100% sustainably harvested timber by the year 1995
- Germany and the Denmark are also moving just as rapidly in the same directions
  - Project Tropenwald is a voluntary initiative in Germany, for example certifying tropical timbers
- Several of these initiatives are raising controversy under the GATT as promoting trade protection for European countries
  - recycled paper products, for example, score higher than Arracruz's chlorine free paper and would favor locally based recycling plants--not Arracruz's plantations

The most rapidly restructuring EC countries alone comprise 39% of the European timber products market

Timber EC Imports by Country



In the UK, these changes have been lead by environmental groups which have partnered with companies spanning several industries

- The World Wildlife Fund created the 1995 Club -- a group of companies prepared to make the commitment to source timbers sustainably for all their businesses by the year 1995
  - they have attracted some of the most significant UK companies from a timber flows perspective, since the 3 largest DIY chains have signed up along with some of their key supplies, like Richard Bainbridge

Members of the 1995 Club

B&Q	Chindwell Co	Hawk Developments	Premium Timber Products
Boots the Chemist	David Craig	Hunter Douglas	Shaw Spenser Intl
PJ Bridgeman	Do It All DIY	FW Mason & Sons	FR Shadbolt
British rail	Ecological Trading Co	MFI	Spur Shelving
Richard Burbridge	Richard Graefe	M&N Norman	Texas Homecare

Two companies--B&Q and Scott Paper--recognize the competitive benefits that they can derive from this commitment

- B&Q is a DIY store--like Home Depot in the US--while Scott paper markets the UK's leading paper products
  - including Andrex Toilet Tissue and Scotties tissues
- Both companies have put in place a rigorous supplier screening program, designed to evaluate suppliers of all products according to how sustainable their businesses are
- Both companies have dropped suppliers that have not met their qualifications
  - B&Q will drop the first 10% of non-qualifying suppliers by summer 1994
  - Scott has already dropped MacMillan Bloedel
- B&Q seeks to discover "win-win" benefits throughout the value chain as a result of a profound examination of companies sustainability challenges
- Scott could defend and potentially market itself as the most rigorously sustainably source paper company in the UK

B&Q's supplier screening program explicitly seeks to create "win-win" benefits by collaborating with suppliers to both improve their environmental performance and build their businesses

- Its environmental strategy is now designed to discover environmental improvements that will benefit both B&Q and its suppliers' business
  - this approach extends across all products
  - it extends to all LDC sourcing as well
- One of early examples of this approach with companies in LDC's was a brass knob factory in India
  - health and safety conditions for the workers were appalling
  - following a visit by B&Q's environmental coordinator, B&Q helped relocate the company and upgrade its production processes to be safer--benefitting both the workers, the environment and, unexpectedly, the companies' business
  - this "upgrading" resulted in a far higher quality standard for the plant. Since its reject rate with B&Q fell dramatically, it was able to increase its selling prices while B&Q still benefitted from few er rejects
- B&Q program is thus designed to gain competitive advantage-- for *all* stakeholders throughout the value chain--a powerfully new and innovative approach

To spearhead its program, it has found a source of sustainably harvested timber from PNG--the Bainings Project

- B&Q discovered one of the world's few community-based sustainable timber harvesting programs in Papua New Guinea which had been piloting the sustainable harvesting of rainforest timbers through the Pacific Heritage Foundation since 1990
- The Bainings people had come to the foundation because they were under pressure to sell their land to logging companies which largely clear-cut whole tracts of forest
- The foundation was pioneering the use of walk-about sawmills to help communities log their own trees in a sustainable fashion
  - providing an alternative to selling their land to large scale timber companies
- Working with one of its three wood products suppliers--Richard Bainbridge--B&Q worked with the foundation and the Baining People to source sustainably harvested timbers
  - it asked the IIED to survey the area to determine whether it was suitable to sustainable forestry
  - it then sent in a forest expert to help train the communities in sustainable forestry
  - it also appointed an independent forestry consultant to inspect the area and approve the management plan from both an environmental and social perspective
- Working closely with Bainbridge, B&Q channelled this timber into high value product applications--like stairwells and timber fittings to maximize the value its could channel back to the community

The story--alongside B&Q's rigorous supplier screening program--was greeted very favorably by UK NGO's, usually highly critical of business

- Friends of the Earth stated that "B&Q leads its rivals in the implementation of environmental changes"
  - a particularly unusual statement from FoE which is usually extremely critical of companies' practices
- B&Q is no positioned as the "greenest" DIY store in the UK
  - UK press coverage has been extensive
- It is about to undertake a project to measure the business and competitive implications of these programs
  - it's expectation is that it will find ways to be able to measure its own share of the "win-win" solutions it has been creating
- B&Q also prides itself on its high quality sales service in the stores and hopes that its intelligent system to source products sustainably will further enhance its sales assistants' abilities to meet customer enquiries
  - To date, the response from individual store managers and assistants to the scheme has been very enthusiastic

Clear competitive penalties have begun to accrue to other wood products companies practicing unsustainably

- MacMillan Bloedel has been under intense pressure in Canada to withdraw from its logging of primary old growth forests
  - major controversy has drawn the attention of international environmental groups, including NRDC and RAN
  - they face a challenge similar to Conoco in Ecuador
- Its conventional wood products businesses are already under intense financial pressures
  - its paper and pulp business is already haemorraging with revenues falling--by 34% in its newsprint market--and losses of over $8m
  - this reflects the traditional composition of its business in paper production--rather than recycling or alternative fibre/wood engineering business lines
- When the British Colombia government decided to reduce old growth harvesting in one region, MacMillan lost 5% of its lumber capacity overnight--increasing its financial difficulties still further
  - This loss alone represented 3% of its annual harvest in BC and 4% of its printing paper capacity
- Then, following intense criticism from Greenpeace, MacMillan also lost two major contracts with UK paper companies which are now refusing to source paper pulp from their mills
  - Scott Paper terminated a contract for $5m; Kimberly Clark for $2, following pressures on MB in the UK from Greenpeace
  - Greenpeace stated that MB's old growth timbers were being used to make paper pulp that was being used to make toilet tissue in the UK
- Greenpeace UK similarly punished an Indonesian timber processing company when it approached the London financial markets for new financing
  - Greenpeace lobbied market makers directly by mail outlining the environmental risks associated with investing in such a venture
  - the lead underwriters, Salomon Brothers, pulled out of the deal
  - many investment houses stated that they were not going to subscribe to the offering as a result--increasing the cost of the company's financing

Partly in response to these developments, countries have begun to "tout" their environmental integrities--to maintain or gain market share

- Canada has been making extensive PR statements concerning the sustainability of its forest management practices
- Canada also intends to certify all its harvests as sustainable by June 1995
  - they are seeking to find an independent organization to undertake a 2 phase certification process that could be integrated into the International Standards Organization program (ISO)
  - ISO has established similar operating principles (not certification) for the international chemicals industry
  - The British Columbia government has pledged to increase the area set aside for parks from 6% to 12%
- Indonesia has also started to market its image as a sustainable source of timber--despite highly questionable practices
- Indonesia does however host one or two examples of more innovative timbering schemes
  - one large Indonesian timber company, that harvests hundreds of thousands of hectares, has create two small areas as conservation zones, 30,000 hectares and 40,000 hectares respectively
  - Indonesia is also host to one of the most progressive and experimental Finnish companies, Enso-Gutzeit, which is seeking to innovate large scale industry forestry practices in tropical rainforests to be sustainable

US companies have also begun to some more sustainable experiments--in very modest ways

- Weyerhauser has begun to introduce chlorine free paper products and other product innovations
  - it also operates a recycling plant
  - it is experimenting with introducing alternative fibres eg straw into its paper production processes
  - it is also experimenting with a fast growing Yew tree to try to harvest Taxol, the cancer-treating extract discovered by Bristol Myers currently only founding old growth Yew trees
- International Paper is looking at technology innovations to improve recycled paper production
- Georgia Pacific is talking it up but not doing much
- MacMillan Bloedel is investigating engineered woods in a joint venture "Trus Joist"

US retailers are, however, beginning to embrace similar eco-agendas a bit more seriously

Example: Home Depot

- Home Depot has launched several schemes to improve its sustainability
  - ranging from product sourcing, new product introductions through creating how new business joint ventures
- It has begun to source "greener" products including sustainably harvested lumber from Collins Pine, one of the few certified US suppliers of "green" timber
  - Collins' SCS certification scores are to be blazoned on their timbers shrinkwrap and pallets
  - Home Depot has also begun to sell DIY energy saving and water quality testing equipment
- It has entered into a joint venture with Mindis Recycling to establish Recycling Depots to buy-back waste building materials to reduce landfill pressures
  - they are buying aluminium, copper, other metals as well as other building construction waste materials. They have also started to hold monthly "paint-take-back" collections to reduce dangerous disposals of toxic waste materials
  - Home Depot hopes that these recycling depots will increase sales and help upgrade their image from "the mega-depot that puts local hardware stores out of business"
- Although it does not yet operate a B&Q style supplier screening program, it is clearly moving in this direction
  - "Home stores are fundamentally tied to the earth by virtue of their products. We sell products that can reduce energy, save water etc. Our goal is to marry the environment to our stores as much as possible" Mark Eisen, Environmental Director

To date, the US and European timber market restructuring has been facilitated by small specialist sustainable timber companies--many based in LDC's

- **EcoTimber International**
  - based in San Francisco, sourcing from communities who harvest sustainably in PNG, and South America
  - SCS certified
  - just beginning to make first sales, eg to the Gap for store fitments
- **Royal Mahogany**
- **Collins Pine**
  - based in the US, sourcing from South America
  - first wood product company to receive SCS certification
  - selling shelving and other finished wood products at lower prices than competitors
- **Portico**
  - based in Costa Rica, a company harvesting only Mahogany on a sustainable basis from otherwise untouched rainforested areas
  - 1990 sales totalled $7m, up from $3.4 m in 1987
  - explicit mission to preserve the forest from other economic exploitation by creating an economic alternative use
  - mahogany made into doors for sale in Home Depot and other US specialist stores (95% of its market)
- **Pacific Heritage Foundation**
  - based in Papua New Guinea, one of the first community-based sustainable forestry initiatives
  - a substantial area of forest is now under community/PHF management
  - now selling to B&Q in the UK
- **Smart Wood/Rainforest Alliance**
  - one of the first certification schemes targetted at timber launched by the US environmental group Rainforest Alliance

These small eco-forestry start-ups are succeeding by restructuring the traditional value chain

- Both EcoTimber and Collins Pine have cut down the number of intermediaries in their value chain
  - they source and supply more directly connecting communities harvesting the timbers sustainably to end use retailers using far few "intermediary" steps
- This takes value out of middlemens' pockets to channel benefits back to the forest, in higher stump prices, and consumers, in lower prices

Larger scale experimentation towards more sustainable practices and technologies seems to be emerging outside the US, however

- An Indonesian experiment is currently being hailed by a German forestry consultant as an example of large scale sustainable tropical forestry
- A Finish timber company, Enso-Gutzeit, has insisted that all wood supplies for a new pulp mill it is building in East Kalimantan must come from plantations and not rainforests
  - Enso also plans to reforest vast tracts of grassland as its contribution to more sustainable practices
- Dirigibles, after a decade of research into their use for aerial logging, may now have come of age in time to be used in tropical forests to reduce deforestation
  - despite set backs during the 1980's massive R&D development programs in the US, Canada and the Soviet Union, the Canadian Cyclo-Crane was launched in 1989
  - first commercial use will be for transporting timber from remote locations
  - dirigibles have better range, lower operating costs than helicopters, which have also been suggested, and piloted, for use in tropical forests but found to be too expensive for most applications
  - Dirigibles should be further investigated for their potential application in tropical rainforests to extract trees highly selectively without building the roads that encourage further deforestation
- Two US discussion forums have also begun to examine sustainable forestry alternatives
  - the US NorthWestern forestry roundtable under President Clinton
  - the Keystone institute's roundtable, recently being explored

US timber companies have also begun very limited experimentation--but not yet fully embraced the on-the-ground forestry issues

- Scott Paper has been leading the way with its efforts in Malaysia to work with stakeholders to define how its operations could manage the forests sustainably
- This became a highly controversial project, rather like Conoco's
  - intense opposition again from Rainforest Action Network
- Scott Paper in the end withdrew from their operations
- The Nature Conservancy, with its relatively strong links to the US forestry industry, is interested in experimenting with more sustainable forestry practices with a leading edge company
  - it is currently trying to identify a potential candidate
- Simpsons attempted a sustainable forestry initiative in Honduras but finally withdrew without taking up its option to develop the area

Companies operating in Africa have come under intense criticism for their unsustainable forestry practices

- World-wide FoE report stating that "no companies practices were sustainable" in Africa
- Companies operating in Africa mainly comprise European subsidiaries
- There appear to be no--or very few--community based sustainable forestry projects
- No African nation has yet made any mention of its commitment to sustainable forestry practices
- The only possible exceptions include certain companies which may have more enlightened social programs...
  - including HL&L and Hunyani Pulp and Paper, as outlined in BCSD's case studies
- ... and Panamerican Paper Mills' efforts in Kenya to research plantation-based forestry management approaches
  - Panafrican Paper Mills, although it logs Kenyan forestlands, has established its own nurseries and research aimed at planting two trees for every one felled
- However, these companies "on-the-ground" activities need to be investigated further on-site in order to evaluate whether they have either the commitment of technology/innovation to lead such a change in the African region

This leaves Africa particularly vulnerable to the timber end-use market restructuring

- Other countries will gain share in this restructuring Euro-market--as they have in most of Africa's other main commodity export markets--unless Africa can also begin to produce some sustainably harvested timber to retain/gain share
- African countries are still at a relatively low value added stage in the value chain -- exporting whole logs and a little veneer, not plywoods and other higher value products
  - they are already at a competitive disadvantage
- The African Timber Organization, representing African producers, plans to start a labelling scheme to certify the origins of its products but it is unclear whether this will meet the demands for sustainable forestry management that end-users and other schemes require

AID could therefore make a major contribution to developing more sustainable forestry practices by creating a stakeholder learning forum to encourage profound innovation to redesign large scale forestry practices

- Currently there has been little to no successful large scale sustainable timber operations in any part of the world
- There is therefore no company or established forestry practices to which countries can turn to emulate sustainable forestry practices
- AID should therefore create a stakeholder learning forum in Africa with companies interested in "leading the change" to co-create large scale sustainable forestry practice
  - WRI and other environmental groups already expressed strong interest in participation
  - the GEF has stated that it would invest in such an experimental venture
  - an outline for such a project is included in the Appendix
- This forum would be designed to both identify the companies and countries most interested in experimenting to create more sustainable approaches and provide an innovation forum in which initial experiments could be reviewed, discussed and extended even further
- AID could also review the potential for US NGO's to create a comparable US "1995 Club" to encourage the US wood products market to also more towards more sustainable practices to "draw" the sustainable timber industry into existance more strongly here in the US
  - review whether the FSC, WRI, NGO's and certification agencies like SCS could joint venture to produce and certify companies that commit to sustainable sourcing as part of this new initiative

AID could also assist the more innovative companies that are emerging to conduct their operations in African countries that wish to commit strategically to this approach

- Investigate the transfer of community-based forestry project and sustainable timber start-up companies to Africa
  - eg Eco-Timber, Pacific Heritage Foundation etc
- Partner with sustainable vendors--eg B&Q's suppliers--to identify the kind of sustainably sourced woods they require and establish projects to deliver these--potentially in partnership with these small start-up eco-companies
- AID should also investigate whether it could persuade Home Depot to do an "African Bainings project" to help extend the commitment of the US DIY/ retailing chains to more sustainable practices
  - this could form the beachhead from which Home Depot could extend all of its purchasing towards more sustainable practices, like B&Q
- Since it is currently unclear whether companies or countries will emerge as "definers"/"guardians" of sustainable harvested timbers, AID should also identify which African countries could most credibly shift towards more sustainable forestry management practices and evaluate its potential to rival Indonesia and Costa Rica as the "country of choice"
- AID should also challenge the timber industry's more innovative companies (eg Arracruz, see below) to investigate whether they would be prepared to "lead the change" towards more sustainable forestry practices--on the ground in Africa, with a government strategically committed to gaining advantage through more sustainable practices
  - For example, help Arracruz to repeat its success with chlorine free paper with redesigned forestry practices for sustainably harvested log exports

Alternative Fibres

Similar environmental restructuring is also taking place across the low end wood application and paper markets

Lower Value Product Substitution

- There are three main substitution trends in the paper and lower value timber products market:

  1. Gains in European market shares towards paper with higher recycled content

  2. Shift in paper and pulp industry towards cleaner processes--and new low impact paper products
     - eg chlorine free and chlorine reduced papers etc

  3. Substitution pressures from non-timber fibres, eg Kenaf, across many traditional timber markets ranging from construction materials to paper
     - Kenaf and Bagasse for paper, newsprint
     - Bagasse for particleboard

- Recycled papers will tend to localize the "manufacture" of paper markets
  - shifting "production" to European recycling plants
- Low impact papers have provided opportunities for LDC companies to gain competitively
  - eg Arracruz in Brazil
- Non-timber fibres substitution is the most recent trend that could amplify further the potential for LDC opportunities
  - Kenaf and Bagasse have traditionally been grown throughout the developing world

The paper and pulp industry in the US and Europe has been undergoing significant change

Example: Europe

- Recycled paper accounts for an increasing percentage of the European paper market
- As recycled paper has gained share, paper "production" has shifted to "recycling mills" closer to the consumer markets in Europe--away from Scandanavian and Canadian forests
  - major restructuring of the industry is underway as a result
- Traditional Scandanavian and Canadian timber companies have therefore been losing share to German and Danish recycling companies
- European demand for chlorine free paper was estimated to be 3.15m tonnes in 1996--considerably in excess of current European production capacity of 2.25m tonnes
- Companies, such as Arracruz, which made an early commitment to support this trend have also gained share as a result.
- Such rapid market restructuring has prompted several industry forums to examine the strategic implications for the companies involved
  - for example, the BCSD has set up a working group specifically charged with investigating the business and sustainability implications of the paper recycling changes

This market restructuring has been supported--and lead--by companies such as Scott UK

- Scott's program, like B&Q's, is designed to exclude non-sustainable sources of paper pulp
  - Scott uses this pulp to produce the UK's leading tissue products
- It has created a similarly innovative supplier screening process--targetted at paper and pulp suppliers worldwide
- Scott's supplier screening program has been designed and executed in close collaboration with leading UK stakeholders
  - the definition of "sustainable" in the paper and pulp business is again open to debate
  - Scott is working with leading NGO's, including WWF, to help design screening criteria and a process to create an industry leadership screening program
- Scott's definition of sustainable includes ecological, social and economic criteria
  - it is thus more comprehensive than almost any others I've seen
- Scott has already dropped key accounts that "failed" its sustainability screen
  - Scott has already refused to renew MacMillan Bloedel's $5m contact as a result of intense controversy surrounding its Canadian primary forest developments

Companies such as Arracruz have both recognized these changes and gained competitively by "leading the change" towards more sustainable solutions

- Arracruz made a decision in late 1980's to develop a chlorine-free and chlorine-reduced paper pulp for the European market
  - Arracruz had noted the environmental restructuring that was beginning to shift the European paper industry towards more sustainable product sourcing
- Within 2 years of launching its chlorine-reduced/free papers, Arracruz had almost doubled its sales
- By the end of this period, worldwide market shares for Arracruz in this eco-segment has risen dramatically
- Arracruz therefore dramatically increased both sales and market share by both recognizing early that the European markets were going to restructure around environment and by creating a new "solution-product"
- Their convening of the BCSD roundtable on "Paper and Recycling in Europe" could furnish similar opportunities
  - this roundtable may be able to address the sustainability of plantation-grown products, which are currently viewed as comparable if not often worse than primary tropical sources--a view that Arracruz intends to reverse
  - the roundtable explicitly seeks the input of leading environmental stakeholders in inform its analysis
  - the forum could provide the impetus for them to review the sustainability of Arracruz's production and harvesting techniques, which it has not to date directly addressed

In the most recent trends, alternative fibres are also emerging as competitors to timber for the paper and low end fibreboard markets

- Alternative fibres already comprise 7% of the total world paper and paperboard production market
- Since 1978, production of hemp in the developed world has increased 130% (7.9% per annum) reflecting its increasing usage in new product applications
  - ranging from paper to fibreboards
- Two products particularly emerge as high growth alternative fibres-- hemp and bagasse

Kenaf has been recently emerging as a timber substitute across many markets worldwide

- Kenaf is a plant--a low grade marijuana fibre--that has held many traditional applications in some LDC's as paper and rope
  - NOTE: varieties of hemp can be grown which contain extremely low quantities of intoxicants and thus do not warrant concerns over drug trafficking etc
- Worldwide product innovation using hemp has recently sky-rocketed:

Some Examples:

- The Kenaf company, US, has pioneered the use of hemp across a dozen end-use markets
  - Hemp grown initially in Texas for markets ranging from timber substitutes to plastics
  - piloting a US-based Kenaf mill to manufacture paper
- Market in high-strength specialty panels in US is growing
  - C&S Specialty Building Supply, Oregon states that these panels are up to 2-3 times as strong as wooden panels
- New hemp eco-paper launched in US
  - "Tree Free Eco-Paper" being examined by Bank of America and Kinko's as more sustainable alternative to recycled paper
- New legislation in Canada will allow farmer to grow hemp for applications in rope, textiles and biomass fuel
  - as of March 1994
- UK farmers have banded together to sell hemp to UK paper and pulp mills
  - for use in teabags, cigarette papers and high quality writing paper
- Australian Newsprint Mills (ANM) testing hemp for suitability for paper making
- Non-profit "Hemp for Paper Consortium" pushing new applications
  - supplied hemp to ANM
  - grows hemp under special license in Tasmania

Bagasse also shows promise

- Bagasse is the waste husk from sugar cane for which several new market applications have recently begun to emerge
  - including newpaper, fibreboard and energy production
- For almost 100 years, experimentation has been underway to develop newsprint from Bagasse
- Four experiments have recently been hailed as successful
  - Tamil Nadu mill in India
  - Letjets mill in Indonesia
  - Mexpaper mill in Mexico
  - Hawaiian Crown Zellerbach initiatives
- Cuba sold its bagasse paper making technology to Pakistan and India in the late 1980's
- Other applications for Bagasse include energy production--which is in an even more advanced stage of evolution
  - several companies in Africa and Asia already investing in this technology
  - certain countries, eg Hawaii, rely on Bagasse for up to 50% of their energy needs

Ecologically speaking, fibres such as Kenaf offer considerable advantage over traditional timber sources

Advantages:

- Faster growing
- Low input production
  - low pesticide/fertilizer requirements
- More recyclable and recycle-tolerant
  - extending product lifetime over more recycling "journeys"
- Kenaf paper whitens over time
  - avoids to "yellowing" tendency of conventional newspaper
- Stronger
  - Four times as much fibre content increasingly strength/durability
- Less toxic paper production process
  - lower lignin content reduces chlorine consumption in the paper production process
  - chlorine is primarily used with wood fibres to remove lignin, which reduces paper's final quality

Possible Concerns:

- Relatively high water consumption

These fibres are already being grown in the developing world--including Africa--with companies just emerging that could channel them into these new eco-markets

- In fact, Kenaf, Bagasse and Jute have sometimes been used for these applications in the developing world for many years--even though these uses are only just beginning to emerge in the US and Europe
- Almost 50% of pulp production in developing countries has been based upon non-wood materials--primarily hemp and bagasse
  - as of 1989
- Karimjee Agriculture company in Tazmania is a leading agricultural company which already has five sisal hemp plantations
  - coving area of 25 hectares
  -

Production by Region:

(10MT)	Africa	N/Central	South Am	Asia
Sugar	146828	774368	200704	291791

AID should examine the potential that these fibres might offer to increase private sector participation in Africa with companies seeking to leverage the emergence of these new eco-markets

- AID has the resources and expertise to investigate whether Kenaf can be suitably grown in Africa
  - explore potential African production agreements
- AID should investigate possible opportunities for African sourcing for companies such as Kenaf and EcoPaper
- AID could build upon the now quite substantial experimentation with Bagasse for energy production (now undertaken in 4-6 African countries) to investigate the possibilities of supporting other new local industries--this time in paper substitutes for these emerging export markets

Organic Cotton

Both the US and European markets for cotton fibres have also been restructuring towards more sustainable practices

- Demand for organic cotton was estimated to running at 5 times the supply volume availably in 1992.
- Organic cotton was fetching 100% premium over traditional cotton. ($130/lb vs $.65/lb)
- The acreage set-aside for organic cotton was growing by a factor of 10 each year.
- Organic cotton now estimated to represent 1% of US cotton market
- A US organic cotton industry association has been formed.
- The number of organic colors have been increasing every year.

In the US, this restructuring was lead by small eco-entrepreneurs--particularly Sally Fox

- In 1982, Sally Fox, conducting integrated pest management research, discovered cotton seeds in her professor's worldwide seed collection that yield colored organic cotton.
- Fox broke with cotton industry norms:
  - No synthetic fertilizers
  - No man-made pesticides
  - No chemicals used in processing
  - Much less water
  - More jobs
- By 1988, Fox had developed a line of weavable, naturally colored organic cottons
  - After three years of breeding for longer fibers, in 1989, Fox is able to weave her cotton on experimental Czech mills at Texas University.
    - » In the same year she founds Natural Cotton Colors Inc., Wasco, CA
    - » Her cotton is softer than conventional cotton
    - » The colors actually intensify in the wash over time instead of fading
- Following her success, a second organic cotton startup pilots a line of green clothing, Green Cotton Environment
  - In 1989, George Vickers, a merchandizer for non-profit groups, founds Green Cotton Environment, Los Angeles
    - » Green Cotton develops more acres of organic cotton
    - » Grows knowledge of vegetable dyes and other non-toxic dyes for cotton

Several leading apparel manufacturers took up her lead creating new eco-lines

Esprit

- In 1990, Lynda Groce of Esprit lead the way, creating a research and development team to investigate the use of organic cotton for a new apparel collection
  - World environmental experts are brought in to help develop clear vision on the right questions and a possible set of solutions.
  - The next year is spent wiring commitment inside and outside the firm.
- The Ecollection line was launched March, 1992.
  - Price is 10% greater than for regular Espirit lines.

Levi's

- In 1991, Levi's, the largest apparel company in the world with sales greater than $9 billion,purchased experimental batches of Fox's cotton.
- Levi's quietly introduced a Naturals line of brown organic cotton jeans for men in April 1992.
  - Line does better than anticipated, and is immediately extended to women's jeans.
- In late 1992, Levi's took an equity stake in Sally Fox, and arranged pre-purchase for five years of production.

VF Corp

- In January of 1992, $2.6 Billion, VF Corp. purchased Green Cotton Environment Inc. founded by Akers in 1989.
- New organic line, "O Wear" was launched September 1992
  - marketing budget $5m, versus $1m for Ecollection
  - priced at 20% premium over comparable clothes

These businesses have grown significantly

- O Wear sales in its first year were $10 million in 1992-- far greater than expected
- They were anticipated to quadruple in 1993.
- Although initial US sales for Ecollection were disappointing, prospects now look very strong with particularly strong growth in Europe
  - Although ecollection is only about 1% of Esprit's US sales in first year, startup in Asia, Northern Europe, and surprisingly Paris, have been very brisk.
  - US limited initial sales predominantly due to poor distribution.
  - Sales were expected to triple in 1993.
- Ecollection's US sales are expected expand significantly in 1994 when Esprit introduces Ecollection into mainstream retailers--beyond their small experimental retail locations
  - Ecollection was originally "piloted" in Esprit's own stores
  - mainstream retailers, such as Macy's etc, are now keen to take up the collection, significantly expanding sales

Esprit was the first to "lead the change" establishing profoundly innovative partnerships with its organic stakeholders and suppliers

- Esprit has worked closely with both organic cotton growers--including Sally Fox--to find new sources of supply and with its traditional fibre mill to create the organic fabrics
  - these new arrangements have brought Esprit into much closer contact with these stakeholders -- bypassing traditional broker relations
  - production has been based in the US to date to keep experimentation more focussed
- Such direct relations with producers has enabled Esprit to create incremental value. helping to keep the price of organic cottons as price competitive as possible
  - they have begun to restructure the traditional cotton value chain, to some degree, and actively seek to create "win-win" benefits with suppliers directly
- Non-profit groups, such as the California Institute for Rural Studies, were extremely influential in bringing about these changes with Esprit...
  - Will Evans has been recognized as both an authority on the emerging organic cotton market as well as a key influencer in lobbying the mainstream apparel industry to experiment with this crop
- ... while the development of this new industry included contributions from a broad array of stakeholders
  - industry conferences would typically include chemical salesreps, specialists in integrated pest management, clothing manufacturers, mill owners, knitters and dyers as well as Greenpeace and other US environmental groups

Esprit was the first to "lead the change" establishing profoundly innovative partnerships with its organic stakeholders and suppliers (cont'd)

- Esprit has established remarkably innovative agreements with its organic suppliers and stakeholders--similar to those practiced by Fair Trade companies (See Section below)
  - Esprit guarantees both a price and a quantity for any supplier which it will meet, regardless of fluctuations in world price, provided that quality standards are met
  - such agreements are almost unheard of in the cotton/apparel industries, which relies heavily on the commodities market for price setting procedures

Patagonia has recently emerged as another leading edge competitor seeking to redefine the rules of the apparel industry game

- Patagonia, a $115m outdoor clothing company, had held a longstanding commitment to more sustainable business practices
  - for example, two years ago it decided to cut down on the number of clothing ranges and colors it would stock to simplify its designs and encourage consumers to wear fewer clothes for longer periods of time
  - Patagonia claims that business has increased as a result of this exceptionally unusual policy--a surprise to many stock analysis
- Patagonia introduced an organic cotton line in 1993 and is now set to source up to 50% of its main cotton lines to organic sources over the next 2 years
- Patagonia has already achieved a similar "conversion" for its fleece jackets
  - these can now be made from recycled PET bottles
- Patagonia will buy "transitional" cotton--helping to accomodate an industry that needs time to convert out of traditional cotton production before organic certification can be achieved
  - several years are needed before the land can be certified as organic, even if no pesticides are used during that period. Time is needed to essentially "detox" the soil
- Patagonia is also evaluating other potential fibres, including linen and hemp
- Patagonia also works closely with new suppliers to develop new materials--although it recognizes that many players in the existing value chains do offer important services
  - they are therefore treading a middle-way between entirely restructuring the value chain and buy organic cotton only through existing sources
  - this more moderate policy, however, does not dampen its enthusiasm for LDC sourcing--but provides strong intermediaries to also help new suppliers come up the required learning curves

However, although markets are clearly emerging rapidly, certain challenges remain

- Demand still exceeds supply for organic cotton
  - as it has done since the beginning of the market
  - time-lags for conversion of land to certified organic cultivation makes this almost inevitable--at least in the pesticide dependent US
- The price for organic cotton is still twice that for conventional cotton
- These concerns will rise as the markets for organic apparel expand in both the US and Europe
  - companies like Esprit are about to take their ECollection to mainstream retailers--significantly expanding volume
- The European market is particularly rapidly gearing up for change
  - Esprit's sales in Europe already exceed those in the US
  - Netherlands are particularly strong -- over 10% sales
  - several major conferences planned this year by retailers to highlight organic cotton as a new desirable material

As a result, these companies are now actively looking to source organic cotton overseas--particularly from LDC's

- Esprit is actively looking for LDC sources of organic cotton
- So is Patagonia
  - its production of cotton garments takes place world wide and it wants to source organic cottons near to its manufacturing locations
- Esprit has already pioneered the development of cooperatives in LDC's to supply buttons and handknit sweaters, building them up from scratch
  - although Esprit is currently taking a negative mark-up on these items, they have a commitment to help these businesses become economically sustainable
- Esprit already sources buttons for some of their garments from Ghana under such a scheme
- Esprit would look to replicate their particularly close relationships with US organic producers in order to help LDC producers meet their needs
- Certification for LDC sourced organic cotton would be a major concern for Esprit--particularly if it looked to Africa to source its European cotton needs
  - Africa seems a natural choice for their European production
  - European production is currently being sourced and manufactured in the US--a situation likely to change as the European market takes off
  - Patagonia is more open to cotton sources that are in transition towards less pesticide intensive crops--placing less demands on certification

Over half a dozen African countries rely on cotton as their principal export crop

- Another half dozen are relatively large scale producers
  - even though cotton does not form their number one export crop

Country	% exports accounted for by oil (if it is the primary commodity export product)	# bales cotton produced per year (1993)
Benin	13.4%	
Burkina Faso	32.1%	
Chad	29.8%	
Mali	27.7%	
Sudan	21.7%	235,000
Ethiopia		45,000
Kenya		20,000
Tanzania		230,000
Zimbabwe		399,000

The generally low pesticide inputs used in Africa could give it a natural competitive advantage in producing organic produce--particularly cotton

- The FAO is targeting cotton as the crop through which it wants to experiment with the transfer of IPM (integrated pest management) from Asia to Africa
  - the FAO experimented successfully with IPM in rice production in recent years
- However, questions still remain to be answered: eg:
  - what kind of pests attack cotton in Africa
  - how susceptible pt IPM would they be?
  - how could certification best be created and implemented?
- Nonetheless, it is possible that cotton is already being produced relatively organically such that companies like Patagonia could already look to African sources and conversion for Esprit could be more straightforward

The companies that source organic cotton also employ far more responsible trade practices--increasingly their attractiveness from a development perspective

These companies generally offer:

- Guaranteed prices
  - regardless of fluctuations in world prices
  - provides stability for producers to whom they are purchasing far more directly
  - offsets the "power imbalance" that could otherwise emerge
- Guaranteed volume that will be purchase
  - farmers and mill owners know that, provided the quality of the product is satisfactory, they will be able to sell all of the crop they produce up to the specified volume
  - enables longer term planning and commitment to more sustainable management
- Up front cash payment when order is placed
  - farmers do not find themselves strapped for cash, facilitating more responsible practices
- Close co-development of new organic crops with farmers and mills owners
  - relationships are strongly learning oriented. Both the farmers, mills and apparel manufacturers know that the success of their new organic lines will depend upon the degree to which they can all innovate together
  - far more collaborative and quality improvement oriented relationships throughout the value chain are being developed here
- These practices are very similar to those explicitly practiced by "Fair Trade" producers and companies

AID should investigate whether organic cotton production could be viable in Africa by creating a stakeholder learning forum

- There is clearly a great deal of interest in sourcing organic cotton from LDC's--particularly Africa
  - Africa is particularly well positioned to service the European market
- The US organic apparel and cotton markets emerged as a result of deep stakeholder-based innovation
- AID should leverage this already strong stakeholder involvement to create a learning forum to investigate whether organic cotton supplies could be produced in Africa
- This forum should include the following kinds of stakeholders:
  - leading apparel companies, such as Esprit and Patagonia
  - leading experimental growers, eg Sally Fox
  - leading research institutes, eg Will Allen at the California Institute
  - mill/textile production stakeholders
  - Pesticide Action Network and other NGO's with expertise and knowledge of LDC pesticide issues
  - the organic agriculture research institutes, eg Winroc etc
  - pioneers of organic agriculture in LDC's , eg Craig Leon in Ecuador
  - European organic certification agencies
- The forum should seek to discover:
  - whether organic cotton production is viable, technically speaking, in Africa
  - how experimental supplies could best be developed, leveraging both the US experience and LDC organic agriculture expertise

Fair Traded Products and Commodities

There is a broader trend, just emerging in Europe, towards creating "fair traded" products which are founded upon much more sustainable practices

- Fair traded products are sourced directly from small, local suppliers, generally circumventing the traditional value chains, to be processed and marketed under a "Fair Trade Foundation" labelling scheme
  - the Fair Trade Foundation is a certification agency established recently in the UK which has certified most of the fair traded products marketed to date
- Fair traded products have, to date, focussed on food products which are usually commodity traded--especially coffee and cocoa
- Companies--often founded by non-business stakeholders--have lead this change
  - companies include CafeDirect in the UK for coffee Green and Black in the UK for chocolate
  - CafeDirect was founded as a not-for-profit business by four UK environmental/ development organizations
  - in Europe, the Max Havellar Foundation has pioneered fair traded products with great success from its non-profit base
- Many of these fair trade products are also grown organically
  - eg "Green and Black"'s chocolate

There is a broader trend, just emerging in Europe, towards creating "fair traded" products which are founded upon much more sustainable practices (cont'd)

- Producers are encouraged to not become dependent on these fair trade companies
  - sourcing is diversified for growers. CafeDirect, for example, requires that growers supply no more than 30% of their crops to Cafe direct, leaving them able to sell the rest of their crop to other fair trade organizations or companies
  - CafeDirect explicitly wants its relationships with its suppliers to increase their experience to enable them to enter more powerfully into supply relations with more traditional companies, even
- Adoption of these products has been very strong across many European markets--with interest just beginning to emerge even in the US
  - major market share penetrations by Max Havellar in Switzerland and CafeDirect in the UK
  - Equal Exchange in the US suppliers Fair Trade coffee but only through specialist coffee outlets

Fair Trade products create far more direct relationships with suppliers, restructuring the conventional commodities value chains to become economically sustainable

- Fair traded products create a new value chain structure, cutting out many middlemen to increase the value that can be provided to farmers
- As a result, they usually pay producers between two and four times the world commodities price for their produce
- They guarantee these prices, insulating farmers from price fluctuations
- They also commit to purchasing a guaranteed volume
  - again, provided quality standards are met
- They explicitly seek to develop strong learning relationships with their producers
  - they know that the quality of their products is directly dependent upon the quality that their producers supply--they are not diversified to any serious degree
  - this has led to major investments of managerial and technical training and support for growers
- Cooperatives usually serve as local coordinators to both coordinate supplies and quality improvement programs and distribute the monies paid by fair trade companies
- Learning oriented partnerships with stakeholders throughout the value chain therefore lie at center of the fair trade concept

This approach has promoted more sustainable agriculture

- CafeDirect and Green and Black send trained agronomists to work the the the producing communities
- The financial stability also enables communities to plan their agriculture for the longer term, making it worthwhile to invest in nurturing their trees and bushes to full maturity
  - "Coffee bushes take 5 years to come to fruit and 20-30 years to mature fully. This requires a longterm investment and much care over a sustained period of time. Our prices enable our growers to invest in their crops for the long term." (CafeDirect)
- Fair Trade companies hope that this will reduce the likelihood that the communities will need to "move on" to clear new agricultural lands
  - either because they need to switch crop due to low world commodity prices or because the soils have become degraded and can no longer support high yields

Fair trade companies also leverage stakeholders involvement in their end-use markets to market these products incredibly cost effectively

- CafeDirect and Green and Black in the UK have strong links with aid organizations such as Christian Aid and Oxfam. These groups have explicitly been promoting and selling their products
  - they have featured them in their product catalogues
  - Christian Aid members have even visited their local supermarket managers lobbying them to stock these products
- These companies products have also been widely celebrated in the UK press
- A Fair Trade labelling system has also been established in UK to help educate and create trust with UK consumers
- As a result, these companies have hardly needed to spend a cent on advertising--dramatically reducing the costs of launching such a profoundly new product concept

Companies championing new fair trade products--such as Cafe Direct--have gained unexpected competitive advantage

- CafeDirect was founded in 1990 by four aid/environmental organizations to combine their efforts in fair traded coffee to create one strongly recognized brand--"CafeDirect"
  - Equal Exchange, Oxfam Trading, Traidcraft and Twin Trading had all been selling fair traded coffee under their own name in fair trade outlets for many years
- CafeDirect was designed to create an upmarket, highly visible fair traded coffee brand that could more significantly penetrate the UK coffee market through the large US supermarkets
  - CafeDirect began targetting UK food retailers to stock their coffee--the first time a fair traded product had ever been suggested to the large retail chains
- In only 18 months, CafeDirect claimed a 4-5% share of the UK coffee market--with plans to expand into the even large instant coffee segment shortly--despite a 10% price premium
  - CafeDirect prices at around 10% higher than similar quality brands
  - supermarkets nonetheless welcomed the products as an opportunity to diversify their sources of supply in a coffee industry which, by the year 2000, is estimated to ship 80% of its volume through only 6 suppliers
  - since ground coffee represents only 10% of UK coffee consumption, CafeDirect plans to launch a fair trade instant coffee shortly
- This success has prompted US food retailers, such as the Coop, to investigate creating their own full line of fairly traded products
  - The Coop is considering including coffee, cocoa, sugar, tea and other commodities products in a new fair trade line
  - large commodities product companies are also rumored to be talking about possible fair trade lines--but CafeDirect suspects that they do not have the stakeholder contacts in place to make them such a success as yet

CafeDirect's success--from the growers' perspective--is founded upon innovative stakeholder relations that have restructured the value chain

- It sources coffee from growers directly via three cooperatives in Central America ...
  - Twin Trading is responsible for supporting the farmers' efforts and has several training and technical assistance schemes in place to support the quality of the product they supply
- ... directly ships its coffee for processing in the UK ...
  - cutting out 2-3 intermediaries en route
- ... markets its products via stakeholders in the UK ...
  - Christian Aid and other stakeholders in the UK strongly support CafeDirect's marketing efforts
  - CafeDirect engages in hardly any advertising -- all marketing its stakeholder-based or is derived from press coverage
- ... which has dramatically restructured their value chain to provide a much large proportion--over 25% vs 7%--of the value in the chain to the original growers
  - of the 1.55 UK pounds charged for each pound of coffee, 43 p is channelled back to the growers--compare to industry averages of 10p

"Green and Black" has begun to enjoy similar success around fair traded organic chocolate in the UK

- "Green and Black" have introduced three fair traded products into the UK chocolate market 18 months ago
  - a dark chocolate, a milk and a chocolate sourced from the Mayan Indians in Belize, "Maya" chocolate
- Two brands are certified as organically sourced and "Maya" already as the "Fair Trademark" certification
  - certification in Togo is provided by Eco-Cert, the German organic certification agency
- Green and Black sources from both Africa and Central America
  - Dark nd milk chocolates come from Togo; "Maya" from Belize
- They provide similar guarantees to growers as CafeDirect
  - premium paid above market with minimum floor price
  - guarantees to buy whatever producers can grow
  - training (from agronomist) and infrastructure (especially on sorting the beans) to improve the quality of their beans
- Sales have been extremely brisk with "retailers almost biting the chocolate out of our hands" (Simon Wright, G&B)
  - sales have risen by almost 400% in only three years
- Green and Black are now considering line extensions and expressed interest in exploring the US market
  - line extensions include cakes, icecream and biscuits

UK supermarkets have adopted these products vigorously--some are even designing their own fair trade lines

- All of the mainline UK supermarkets now stock CafeDirect and Green and Black
- The Coop is considering creating its own line of private labelled fair trade products
- The UK supermarket industry provided extraordinary leadership when, in the late 1980's, they introduced a series of "green" products
  - they provided the labelling schemes to support new green product definitions
- Green products supported retailers' profit margins
  - supermarkets created another niche market, following their success in health products, from which they were able to earn higher margins and increase private label sales
- They were so successful that North American supermarkets copied their success
  - Loblaws, in Canada, introduced similar "GREEN" lines in 1990, with similar results

As a result of such innovations, fair traded products have begun to "take off" in Europe--restructuring traditional commodities product markets

Organization	*Product*	*Country*	*Market Share (if available)*
Max Havellar	Coffee	Switzerland	50%
		Netherlands	8%
		Belgium	
	Cocoa	Netherlands	
		Germany	
Oxfam	Chocolate	Belgium	
CafeDirect	Coffee	UK	4-5%
Gold & Black	Chocolate	UK	A few % points

Preliminary interviews in the US indicate some receptiveness towards the development of such a fair traded products market

- Starbucks already sells a line of coffee, co-marketed with CARE, from which 10% of revenues go to CARE's development projects in those countries
  - this coffee is not yet "fairly traded" but provides an innovative basis from which to build such as scheme
- Loblaw, which lead the previous GREEN wave in both Canada and the US, were open to discussing the possibility of exploring fair traded products
  - this was particularly significant given their lead in creating and exporting to 12 supermarket chains in the US their pioneering GREEN product line.
- One of their executives felt that, for such products to be a success in North America, a standards labelling organization comparable to the Fair Trade Foundation would need to be established
- Environmental groups, such as Rainforest Alliance, have also been pioneers in launching labels for environmentally sustainable products in the US under "Eco-OK"
  - their schemes, initially labelled "Smart Wood" and "Smart Banana" now cover the single label, Eco-OK, which can certify bananas, wood and other cash crops
- Conservation International (CI) also founded a group to experiment with biodiversity products here in the US
  - eg Tagua nuts for buttons in the apparel industry.
- While both Eco-OK and CI's products are not labelled or explicitly marketed as fair traded products, they follow a similar approach providing a potential foundation from which fair traded products could be further developed

Africa's dependence on--and dominance of--selected commodity crop exports positions it well to leverage these changes

Coffee:		*Cocoa:*	
Country	% commodity exports:	Country	% commodity exports:
Burundi	61.2%	Cote d'Ivoire	12.9%
Ethiopia	44.7%	Ghana	61.3%
Kenya	14.7%		
Madagascar	35.3%		
Rwanda	55.5%		
Tanzania	25.5%		
Uganda	96.8%		

Note: Nigeria and Cameroon are also ranked among the world's top 6 cocoa producers alongside Ivory Coast and Ghana

Africa's trade flows are strongly focussed on the European and US markets

Destination of Cocoa Beans
(tonnes)

Country		Ivory Coast	Ghana
Europe			
	UK	17,829	67,020
	W Germany	111,707	15,580
	Netherlands	258,150	
	France	24,829	
USA		95,146	24,850
USSR		55,971	32,800
Japan			33,200

Several of the UK fair traded products are already being sourced from Africa, although challenges are arising in sourcing procedures

- "Green and "Black" already sources its organic cocoa from Togo
- However, it cannot currently receive a Fair Trademark certification for this cocoa because the Togo government requires the company to buy its cocoa through its marketing board
  - this indirect purchasing value chain means that the fair trade certification cannot be awarded even though G&B's practices are otherwise entirely fairly traded
- "Green and Black" are nonetheless considering sourcing more fair traded organic cocoa from neighboring Ghana
  - the Danish agronomist who first approached them to create this chocolate is interested in expanding across the border to the other side of the mountains where the Togo cocoa is currently being grown
- CafeDirect is examining the possibilities of sourcing coffee from Africa--particularly Tanzania
  - they are also reviewing possibilities with tea, but recognize that tea poses different challenges since it is usually grown on much larger plantations which often adopt questionable social practices which might risk contaminating the brand
- They are concerned, however, about whether they can find organizations comparable to their South American cooperatives to link up with there
  - cooperative unions are one possibility but corruption and political concerns have arisen in the past
- Neither groups seems to have the political relations in place to help navigate the policy issues at the government level--although agencies such AID could clearly play an important role here

AID should consider a variety measures to support the private sector's efforts in developing more sustainably sourced, fair traded commodity products from Africa

- AID should investigate whether these and other commodity products can be grown more sustainably--ecologically and economically--in Africa in partnership with fair trade companies
  - this is particularly important given the extent to which Africa's land degradation arises from unsustainable agricultural practices
- AID should review how it could support and expand UK companies' fair trade efforts to source from Africa
  - particularly in tackling the barriers to certification that the marketing boards currently seem to present
- AID should explore the possibility of "upgrading" Starbuck's program to a Fair Trade program, with a view to helping to "pump-prime" the US fair trade market
- Since retailers such as Loblaw would welcome a North American-based Fair Trade mark, could AID help catalyze a coalition of NGO's and government agencies to create comparable standards to the UK's Fair Trade Foundation?
  - established by AID in concert with its traditional environmental group partners (WWF, WRI and Nature Conservancy) and indigenous groups??

A stakeholder learning forum could be a strong way to help "jump start" a fairly traded products market in the US

- AID should actively convene a stakeholder learning forum in the US with Euro participants to serve as an innovation team to evaluate the potential for creating a Fairly Traded Products market here in the US
  - investigate whether they the UK products can be sold/promoted in the US
  - evaluate whether current eco-products could qualify as Fair Traded
  - investigate the potential adoption of Fair Traded lines by the US supermarket chains, especially leading "green" innovators such as Loblaws etc
- This forum could address several key issues:
  - certification
  - adoption by leading retailers
  - consumer education
  - export of current European fair trade products to the US to help "prime" the market
  - "conversion" of existing eco-brand labelling to include a fair trade component to deepen further the sustainability of the products sourced

Other Conservation/Offset Opportunities

Companies have also begun to make innovative contributions towards conservation in a few other fields

Reforestation and carbon sequestration

- Companies--particularly US utilities--have also helped tackle both global warming and deforestation threats by investing in carbon offsets
  - carbon offsets are project which usually involve either planting trees which absorb CO_2 or investing in energy efficiency projects, which decrease the amount of CO_2 produced
- US utilities have primarily made commitments to plant and harvest acres of plantations in the developing world as one of the cheapest ways to reabsorb the CO_2 produced by their electricity production
  - utilities include AES, NEES and PG&E
- These schemes can be used to support buffer zone management to protect particularly diverse of vulnerable conservation areas

Rainforest Preservation and Conservation Projects

- Companies like MacDonald's have also made direct investments in protecting biodiverse areas
- In Costa Rica, they established a project with Conservation International to support communities in more sustainable agricultural practices in a buffer zone surrounding one of the country's leading national parks

- Both these types of schemes can be used to harness the private sector to support conservation efforts

AES, the US utility, has now invested in at least three innovative carbon offset deals

- The first, in 1988, pioneered the offset concept in "corporate" America to "neutralize" the emissions from its newly planned Thames plant
  - AES agreed to plant more than 52 million trees in 385 square miles in Guatamala to offset the 19 million tons of carbon that AES expected to produce from its newly planned Thames plant
- AES's whole approach to defining and implementing this deal was fundamentally stakeholder-based
  - WRI advised them on how many trees would need to be planted and how the reforestation program could best be implemented, by convening a panel of foresters and development experts
  - AES partnered with CARE to help 40,000 smallholder farmers in Guatamala undertake the tree planting
- AES also leveraged the $2m investment it was prepared to make into a $14.5m reforestation project by gaining matching funds from a diverse array of other stakeholders, including AID
  - US Peace Corps, ($7.5m), US AID (food, $1.8m), Guatamalan government ($1.2m), CARE ($2.0m) and AES($2.0m)
- AES's second deal offset its Hawaii plants emission by placing into protection an area of tropical forest in Paraguay that was in imminent danger of commercial logging, in partnership with the Nature Conservancy
  - 143,000 acres of rainforest have been preserved in Paraguay's Mbaracayu forest that will offset CO_2 emissions for more than the lifetime of AES's Barber plant
  - the management of the land will be the responsibility of the Moise Bertoni Foundation, supervised by a council that includes the Ache Indians, the national government, the United Nations and the Nature Conservancy

AES's third offset deal was particularly daring

- AES agreed to preserve rainforested areas by protecting and upholding indigenous peoples' rights to defend their Amazonian lands from destruction from outside forces
- The deal was particularly ambitious because of the highly politically controversial nature of relationship between indigenous peoples in the Amazon and their governments
  - most government policies support colonization of the forest for national security reasons--which places them in direct conflict with indigenous groups who wish to claim title to their lands
- AES will create these CO2 offsets by helping indigenous people establish title to their territorial homelands, demarkate their boundaries, enforce claims against destructive intruders and develop sustainable land management plans
- The scheme was again conceived in collaboration with leading stakeholders--with Oxfam America and COICA (the Coordinating Body of Indigenous Peoples in the Amazon Basin)
- The scheme covers a stunning 3.7 million acres of forest in three countries -- Bolivia, Peru and Ecuador
- AES's investment of $3m will be supported by $400,000 from Oxfam

The CO_2 offsets potentially offer AES a longterm competitive advantage

- The US has already established markets in SO_2 offsets, currently trading at between $250-400 per ton, which explicitly impose an incentive/penalty for utilities to reduce their SO_2 emissions
  - the tradeable permits markets was developed as part of the 1990 Clean Air Act
- Following the Rio Global Warming Treaty discussions have been underway to evaluate how countries could best reduce CO_2 emissions
- These discussions have explored the possibility of also establishing a CO_2 tradeable permits market
- Past experience shows that the first movers to invest in offset and energy efficiency deals found the best bargains
  - they purchased the "lowest hanging fruit" gaining offsets far more cheaply than those who followed later
- The establishment of any carbon tax or CO_2 tradeable permit market would therefore almost certainly place AES at a financial advantage.

Several other organzations have also followed suit, helping to build the groundswell to encourage these deals

- NEES and PG&E have similar offset deals
- HydroQuebec is also rumored to be exploring a deal in Costa Rica
- Companies, like Global Warming Alternatives, have been trying to commercialize CO2 offsets for the US corporate market
  - their scheme was explicitly designed with leading US stakeholders to help define, certify and monitor CO2 offsets
  - they were planning on building a fund to which companies could subscribe
  - the current status of this fund seems uncertain
- The Global Environment Facility is also currently considering creating a business, designed explicitly to "pump-prime" this market and serve as a clearing house for potential deals

CO2 offset investments could offer AID interesting opportunities in Africa

- Despite its apparent suitability for offset investments, no deals have yet taken place in Africa
  - Africa's abundant forestlands, its needs to shift to plantation-based forestry and desires, at least in Southern Africa, to increase the area of its protected lands seem to make it a natural for CO2 investment
- Political concerns may have limited offset investments to date
  - one of the factors strongly influencing an offset investor's decision regarding where to locate is the political stability of the country--and thus the likelihood that the offset--ie the forestlands or plantations--will still be standing in 40 years' time
- However, AID may be able to "buy down" some of these risks by co-investing--and thus creating a higher risk offset instrument
  - this is the strategy that the GEF is considering, using OPIC funds
  - this was the approach used by AES in its first offset deal in South/Central America, which included AID funding
- AID could explicitly approach companies whose businesses are also energy intensive--eg oil and gas--to make "offsetting" CO2 investments in reforestation projects in the locales where they are operating
  - eg Chevron
- These could be tied into buffer zone management projects that AID already has underway
  - eg in Ghana
- This approach might be particularly suited to companies that have "lead the change" with innovative projects in other countries, such as Chevron in PNG and Nigeria
  - such investments might help reinforce Chevron's ability to gain competitively since no oil company to date has invested in CO2 offsets

MacDonalds has also made some proactive investments in biodiversity conservation

- In conjuction with Conservation International, MacDonalds has invested $4m in creating a series of projects with CI in a buffer zone surrounding a leading national park
- The project supports reforestation and sustainable agriculture in several ways

1. A seed nursery has been started by local youth which are used by local farmers for forest regeneration
   - In suitable areas
2. A new investment in the development of fruit trees to be grown by local women, forming a local cooperative
3. Investment in local infrastructure to provide longterm training for sustainable agricultural practices
   - including a government training component, school investments and road repairs

- The project also experiments with ways to help small-holder herdsman move towards more intensive cattle pasturing through the use of high yielding grasses and credit programs
  - reducing the likelihood of incursions into protected areas
- MacDonalds is also investing in developing ways to prevent soil degradation with potato growers in Panama
  - they are experimenting with terraces since fertilizers and soils are rapidly being washed away
- These projects are underway in both Costa Rica and Panama

Although not designed with competitive benefits in mind, MacDonalds has still found ways for its business to benefit from these investments

- The potato project, particularly, has directly benefitted MacDonald's Panamanian business.
- MacDonalds sources all of its food from local sources--throughout the world
- The soil degradation in this one region in Panama where they can grow high quality potatoes threatened their security of supply
- The project therefore reduced the risks that MacDonalds would have to import its potatoes at a later date--providing both economic and environmental benefits for all concerned
- MacDonalds has also learned, from its closer relationships with CI and local growers, that a local fruit, Naranhilla, could be used to create a new fruit drink which Coca Cola is interested in developing
  - Naranhilla drink is already sold locally in Pizza Hut in Panama
  - MacDonalds could distribute the drink potentially in its US stores
- If CI helps develops a Naranhilla drink with MacDonalds or Coca Cola, it could again promote more sustainable development practices
  - Naranhilla can be grown organically--it grows like a weed
  - It can be grown in areas where buffer zoning is needed
  - unlike the usual supplier agreements with MacDonalds which rely on 2-3 major suppliers, a project developed with CI could benefit many more diverse smallholder growers

AID should investigate ways in which it could catalyze similar conservation and offset initiatives in Africa

- AID should approach utilities, such as AES, to understand why CO2 offset investments have not yet taken place in Africa
- AID should review whether a CO2 offset fund or matched funding to create a risk-adjusted investment vehicle could decrease any "barriers to entry" for these companies
- It should particularly investigate whether a case could be made to encourage some of Africa's current leading companies--eg Chevron--to make similar investments
- It should investigate the possibilities of linking CO2 or biodiversity offsets to the pharmaceuticals industries nascent initiatives in Africa to increase the value of the ecological and economic returns available
- AID should also look to companies like MacDonalds currently operating particularly in Southern Africa to determine whether they could provide similar leadership towards conservation and more sustainable agricultural practices
- AID should review whether companies reconsidering investment in South Africa could be "recruited" for such initiatives
  - South Africa is expected to become the "beachhead" for renewed corporate investment in Africa
  - such schemes, with these companies, would therefore be likely to be broadly disseminated within the region as these companies' activities expand
- The current climate, poised around cultural and social issues, provides appropriate soil in which to cultivate such innovative practices
  - both from companies already based in South Africa and those reconsidering entering the country

IV Overall Implications for AID:

1. Creating New Stakeholder Learning Forums
2. Leveraging Proactive Companies' Commitments

We have therefore reviewed the ways in which companies have been able to gain advantage by creating business-based solutions to tackle environmental issues in the developing world

Case Examples We Will Review of Business' Contribution to Sustainable Leadership

Oil/Mining
- Chevron, PNG
- MinAmerica, Panama

Eco-tourism
- Pew Foundation chain of eco-lodges

Pharmaceuticals
- Shaman Pharmaceuticals, South America
- Merck/INBio, Costa Rica
- Bristol Myers Squibb, Suriname

Forestry
- Small sustainable forestry companies in US
  - –EcoTimber, Collins Pine, Seven Islands,
- Portico, Costa Rica
- Scott Paper, Malaysia
- Arracruz, Brazil

Alternative fibres
- Kenaf, USA
- EcoPaper, USA

Organic Cotton
- Sally Fox, USA
- Esprit, USA & Europe
- Levi's
- VF Corp
- Patagonia

Fair Traded Products
- "Green and Black", Togo
- CafeDirect, UK
- Max Havellar Foundation, Europe

Conservation/offset investments
- AES, NEES etc, USA
- MacDonalds, Costa Rica

These companies have been responding to profound market restructuring around environmental concerns in both the US and Europe

- Markets are restructuring around environmental issues throughout the US and Europe -- particularly around "global" issues
  - eg particularly biodiversity, deforestation as well as pesticide use and fair trade practices
- These companies have helped "lead this change" toward more sustainable solutions, gaining competitively
  - certainly in US and European but increasingly from LDC markets
- These companies' initiatives have usually focussed on tackling "green" and "global" issues
  - eg Chevron's conservation project in PNG; Shaman Pharmaceutical's investments indigenous medicinal knowledge to encourage economical alternatives for rainforests
- Countries are increasingly wondering whether similar advantage can be gained for nations which commit more strongly to sustainable development
  - notably Canada, Costa Rica, Indonesia
- The companies--and countries--which have been most successful in pursing this approach have used an integrated stakeholder approach
  - new sustainable solutions have been created through learning partnerships between companies, governments, local communities and environmental groups

Relatively speaking, Africa has not yet developed as many business-based initiatives to provide sustainable leadership in most industries

- To date, most of these initiatives have taken place outside of Africa
  - although a few companies have provided leadership in Africa, notably Chevron in Nigeria, Portland Cement in Kenya and Conservation Corp in South Africa
- However, the vulnerability of Africa's natural resources to environmental degradation--to "green" issues--positions it well to increase its participation in these business-based sustainable initiatives--with AID's support

Oil/Mining
- Chevron, PNG
- MinAmerica, Panama

Eco-tourism
- Pew Foundation chain of eco-lodges

Pharmaceuticals
- Shaman Pharmaceuticals, South America
- Merck/INBio, Costa Rica
- Bristol Myers Squibb, Suriname

Forestry
- Small sustainable forestry companies in US
  - EcoTimber, Collins Pine, Seven Islands,
- Portico, Costa Rica
- Scott Paper, Malaysia
- Arracruz, Brazil

Alternative fibres
- Kenaf, USA
- EcoPaper, USA

Organic Cotton
- Sally Fox, USA
- Esprit, USA & Europe
- Levi's
- VF Corp
- Patagonia

Fair Traded Products
- "Green and Black", Togo
- CafeDirect, UK
- Max Havellar Foundation, Europe

Conservation/offset investments
- AES, NEES etc, USA
- MacDonalds, Costa Rica

Two principle recommendations therefore fall out of this report:

1. AID should consider convening stakeholder learning forums to stimulate business-based solutions to tackle these "green" environmental challenges in African countries

1.	Oil and Mining	5.	Alternative Fibres
2.	EcoTourism	6.	Organic Cotton
3.	Pharmaceuticals	7.	Fair Trade Products
4.	Forestry	8.	Carbon/biodiv offsets

- Forums would be particularly effective in the forestry, organic cotton, fair trade, and possibly eco-tourism and pharmaceuticals market sectors

2. AID should leverage current "leading edge" companies' initiatives to bring more sustainable companies to Africa and to disseminate their innovations among their industry colleagues

- This "company-by-company" approach is particularly well suited to oil and mining, carbon offsets and pharmaceuticals markets

We will now therefore briefly recap these recommendations

AID should investigate stakeholder learning possibilities in the oil and mining industries

- Could Chevron to employ a similar WWF conservation initiative in Nigeria? In an area adjoining a national park that needs buffering?
- Could Chevron examine other companies' leading edge investments in CO_2 offsets--through energy efficiency and reforestation schemes--with a view to reducing the company's global warming impacts?
- How could Portland Cement continue to lead innovation in the mining industry? In Africa?
- Would they be prepared to host a conference examining the potential synergy between the mining industry and countries' burgeoning tourism industries?
- Could this conference serve as a precursor to an active stakeholder learning forum in this arena to examine how old mining sites could be restored with a view to creating eco-tourism venues?

AID should explicitly help the "laggards" in the mining industry develop a deeper, integrated stakeholder approach

For Example:

RTZ:

- RTZ has already made indications elsewhere that it is prepared to adopt sounder environmental principles
  - in Zimbabwe, it has undertaken one of the country's first environmental impact assessments in order to develop a strategically important low-sulfur coal mine
- AID should encourage RTZ to review Portland Cement's restoration efforts in Kenya and Chevron's stakeholder learning approach in order to examine whether it could benefit from these approaches in both choosing and co-creating new developments
- What potential exists for RTZ to help "promote" South Africa's recent strategic emphasis on eco-tourism through creating a "tourist venue" at one of their restored sites?
  - comparable to Portland Cement's
- Since there is no mining company that is currently "leading the change", AID should examine this possibility with RTZ or other leading mining companies in South Africa which has given early indications of their willingness to change

AID should also explicitly help the "laggards" in the oil industry develop a deeper, integrated stakeholder approach

Mobil:

- Other oil companies, such as Mobil in Zimbabwe, have already undertaken a more stakeholder-oriented approach...
  - Mobil also undertook a detailed environmental impact assessment (EIA) for its development in the ecologically sensitive Zambezi Valley
  - Mobil gained feedback from many stakeholders as well as its EIA to create operations solutions tailor-made to the valley's requirements
  - Mobil claims that the development has received unprecedented support from environmentalists
- ... but could be encouraged to make even more innovative investments akin to those undertaken by Chevron

Shell:

- Shell could end up facing the kind of impasse experienced by Conoco in Ecuador
- Given its earlier leadership around environment, AID should review with them and the Nigerian government whether alternative forms of dispute resolution could be employed in the Ogoni lands to facilitate this conflict
- Shell, with AID's support, needs to find innovative ways to reinvest in the local communities and clean up its environmental impact
  - AID has been involved in many of the most i innovative business/NGO/Government cases below (eg AES' offsets, Bristol Myers Squibb Suriname bio-prospecting etc)
  - the Nigerian Shell situation offers AID an opportunity to deploy these skills in much more conflicted arenas

AID should investigate whether similar options in the tourism industry

- AID should investigate whether currently successful private sector approaches, such as Conservation Corp's, could serve as an engine to distribute such practices in other African countries
- Does Conservation Corp have plans to expand in concert with South Africa's partnership policies?
- Are there other companies creating similar eco-ventures in other countries? Have they heard of Conservation Corp? Are they employing an integrated stakeholder-based approach?
- How could other private sector players be better leveraged? Eg the hotel chains? How could they better link up with other stakeholders, following CC's example, to design more integrated and profitable businesses?
- Would companies like Conservation Corp be interested in joining a leading mining company and other environmental stakeholders in creating a combined eco-tourism/mining clean-up scheme?
- How could the private sector support further South Africa's and other regional eco-tourism initiatives?

AID should create a stakeholder learning/innovation forum to investigate the challenges posed by the low returns currently available to LDC's from drug development

- A more indepth review of the conservation implications of the industry's current compensation system should be developed to determine how royalty payments would need to be set to ensure the longterm safety of both these bioresources--and the plant-based pharmaceuticals industry
- AID should convene a stakeholder learning forum around this issues to explore how the revenue streams for successful drug development can be better leveraged to promote more sustainable uses of Africa's bioresources
  - This forum should examine the strategic implications of the current compensation scheme for both the pharmaceuticals industry--in terms of the security of its supply of bioresources--and for the local communities and the ecosystem
- The forum should also examine ways in which the pharmaceuticals industry could "link up" with other enterprises (eg eco-tourism or sustainable forestry) to create additional layers of cashflow from similarly sustainable enterprises to increase the $ returns per hectare
  - examine whether a "wedding cake" of tiered enterprises could be created, rather like those "layered up" in buffer zones currently, to increase the total returns available
- The forum should also examine whether matched funding can be secured from other sources to increase the returns available -- eg from carbon dioxide offsets or even "biodiversity offsets"
  - see the last section of this report, particularly AES' CO2 offset investments
  - biodiversity offsets are currently only being discussed, but could be designed to leverage the emergence of the CO2 offset investments -- particularly given the Rio treaty agreements on biodiversity

AID should also seek to attract more innovative alliances between drug companies and LDC's to the African region--with a view to also increasing the returns available

- AID should investigate the possibilities of co-investing with companies like Merck and Bristol-Myers to establish similar screening initiatives in Africa
- AID should approach companies that have not yet created their own "Merck-INBio" agreement to extend both the number and terms/conditions upon which these agreements are made
  - Ciba-Geigy--longtime active in Africa already as a agribusiness concern -- only has a link with the Chinese Academy of Sciences. It is one of the few companies not to have made a new LDC link in recent years
  - Eli Lilly only has a link with Shaman and the National Cancer Institute
  - Monsanto and SmithKline Beecham have no LDC links
- AID should review with Shaman how its approach to conservation investment could better be leveraged and how its initial explorations in Africa could be enhanced
  - review opportunities to link up governments in "joint" royalty agreements in return for agreements to establish indigenous reserves with protection status comparable to national parks
  - review which countries in Africa Shaman could both begin sourcing with indigenous healers at the same time as Shaman/AID invested in creating local screening capacity
- AID should explore whether companies like Shaman and the multi-nationals could contribute towards explicitly co-creating more conservation areas in partnership with local stakeholders
  - again, investigate the industry "joint venture" possibilities to maximize the ecological gains available. Help pharmaceuticals companies leverage their activities to create more protected areas would both enhance the security of their supply and leverage their investment to increase local conservation/tourism efforts

AID could make a major contribution to developing more sustainable forestry practices by creating a stakeholder learning forum to encourage profound innovation to redesign large scale forestry practices

- Currently there has been little to no successful large scale sustainable timber operations in any part of the world
- There is therefore no company or established forestry practices to which countries can turn to emulate sustainable forestry practices
- AID should therefore create a stakeholder learning forum in Africa with companies interested in "leading the change" to co-create large scale sustainable forestry practice
  - WRI and other environmental groups already expressed strong interest in participation
  - the GEF has stated that it would invest in such an experimental venture
  - an outline for such a project is included in the Appendix
- This forum would be designed to both identify the companies and countries most interested in experimenting to create more sustainable approaches and provide an innovation forum in which initial experiments could be reviewed, discussed and extended even further
- AID could also review the potential for US NGO's to create a comparable US "1995 Club" to encourage the US wood products market to also more towards more sustainable practices to "draw" the sustainable timber industry into existance more strongly here in the US
  - review whether the FSC, WRI, NGO's and certification agencies like SCS could joint venture to produce and certify companies that commit to sustainable sourcing as part of this new initiative

AID could also assist the more innovative timber companies to start up operations in African countries that wish to commit strategically to this approach

- Investigate the transfer of community-based forestry project and sustainable timber start-up companies to Africa
  - eg Eco-Timber, Pacific Heritage Foundation etc
- Partner with sustainable vendors--eg B&Q's suppliers--to identify the kind of sustainably sourced woods they require and establish projects to deliver these--potentially in partnership with these small start-up eco-companies
- AID should also investigate whether it could persuade Home Depot to do an "African Bainings project" to help extend the commitment of the US DIY/ retailing chains to more sustainable practices
  - this could form the beachhead from which Home Depot could extend all of its purchasing towards more sustainable practices, like B&Q
- Since it is currently unclear whether companies or countries will emerge as "definers"/"guardians" of sustainable harvested timbers, AID should also identify which African countries could most credibly shift towards more sustainable forestry management practices and evaluate its potential to rival Indonesia and Costa Rica as the "country of choice"
- AID should also challenge the timber industry's more innovative companies (eg Arracruz, see below) to investigate whether they would be prepared to "lead the change" towards more sustainable forestry practices--on the ground in Africa, with a government strategically committed to gaining advantage through more sustainable practices
  - For example, help Arracruz to repeat its success with chlorine free paper with redesigned forestry practices for sustainably harvested log exports

AID should convene a stakeholder learning forum around alternative fibres to examine the potential that they hold

- AID has the resources and expertise to investigate whether Kenaf can be suitably grown in Africa
  - explore potential African production agreements
- AID should investigate possible opportunities for African sourcing for companies such as Kenaf and EcoPaper
- AID could build upon the now quite substantial experimentation with Bagasse for energy production (now undertaken in 4-6 African countries) to investigate the possibilities of supporting other new local industries--this time in paper substitutes for these emerging export markets

AID should should establish a stakeholder learning forum to investigate whether it could catalyze similar conservation and offset initiatives in Africa--particularly in conjunction with other industry initiatives

- AID should approach utilities, such as AES, to understand why CO2 offset investments have not yet taken place in Africa
- AID should review whether a CO2 offset fund or matched funding to create a risk-adjusted investment vehicle could decrease any "barriers to entry" for these companies
- It should investigate whether a case could be made to encourage some of Africa's current leading companies--eg Chevron--to make similar investments
- It should investigate the possibilities of linking CO2 or biodiversity offsets to the pharmaceuticals industries nascent initiatives in Africa to increase the value of the ecological and economic returns available
- AID should also look to companies like MacDonalds currently operating particularly in Southern Africa to determine whether they could provide similar leadership towards conservation and more sustainable agricultural practices
- AID should review whether companies reconsidering investment in South Africa could be "recruited" for such initiatives
  - South Africa is expected to become the "beachhead" for renewed corporate investment in Africa
  - such schemes, with these companies, would therefore be likely to be broadly disseminated within the region as these companies' activities expand
- The current climate, poised around cultural and social issues, provides appropriate soil in which to cultivate such innovative practices
  - both from companies already based in South Africa and those reconsidering entering the country

V Appendices:

1. Additional Africa Case Outlines

- alternative energy
- waste management
- financial services

2. Bibliography

Alternative Energy Cases

Triangle Limited

Triangle Ltd. manages Zimbabwe's ethanol from sugarcane project. This project and the sugar estate that supports it, has evolved into an integrated agricultural and industrial complex, providing employment and social services for a growing community; increased investment and manufacturing opportunities for the region; and food, fuel and fibre for the country. It has developed vitally needed technical skills and expertise for local nationals and facilitated foreign exchange savings on gasoline and potash imports. The use of stillage from the ethanol plant has helped the sugar estate cut down its fertilizer costs and increase cane yields and quality, without causing permenant damage to the soils.

Environmentally, the project has provided a renewable, clean and locally sourced energy supply and maximised the efficiency of resources and minimised waste (molasses and bagasse by-products from the sugarmill are

Alternative Energy Cases

Mumias Sugar Company Limited (MSC)

The Mumias Sugar project in Kenya is widely acknowledged as one of the most successful development projects in Africa. The project was designed and is managed by, Booker Tate in partnership with the Kenyan government, the Commonwealth Development Corporation and local financial institutions. Its activities include agricultural production, agroprocessing and extension services and are carried out through; an outgrowers scheme, based on 33400 independent small-scale growers operating under contract with MSC; a large-scale, mechanised nucleus estate and a sugar processing factory capable of producing 210000 tonnes of sugar (with plans to establish an ethanol plant). These activities have made a major economic, social and environmental contribution, to both the community and country in which MSC is located. Economically, it produces over half of Kenya's sugar, has been the country's only sugar producer to consistently make a profit, the government's second major source of revenue (after the Central Bank) and saved the country millions of dollars in reduced sugar imports. There are over 250000 people directly dependent on the project, including 5000 permenant employees, 9200 temporary workers and the small-scale farmers. Booker Tate has a strong policy of developing local managers and as a result of their training, there is currently only one fulltime expatriate out of the above employees. The project has also provided opportunties for numerous other entrepreneurial activities in the previously underdeveloped Mumias district and socially it has provided better education, health, housing and recreational facilities for thousands of

families. It has attempted to avoid Africa's ubiquitous problem of decreasing food production and malnutrition in the face of increased cash crop production, by requiring all outgrowers to keep 50% of their land available for the former, encouraging intercropping with sugarcane and providing extension services to support food crops as well as cane. Environmentally, it emphasises sustainable husbandry, only selecting farmers whose land is suitable for cane production. In its factory operations it aims to maximise the efficiency resource efficiency; and minimise water pollution by using an effluent treatment plant and air pollution by burning bagasse, instead of imported oil.

The Mumias project provides an excellent example of mutually beneficial partnerships between foreign and local entities, the public and private sector and large-scale and small-scale enterprise. It illustrates the importance of a management policy based on productive efficiency and the empowerment of people, which have led to the commitment and trust that Booker Tate believes are key to MSC's success. Their own role also emphasises the importance of leadership and technology co-operation in promoting sustainable development. The project's success is impeded to a certain extent by government ownership and controls on input and output prices, but it is envisaged that these obstacles will be gradually removed during Kenya's programme of structural adjustment. In short, the case highlights many of the requirements for increased agricultural productivity and environmental protection, namely; increased investment in rural infrastructure, technologies and farming practices; capacity building and empowerment of rural communities and greater co-operation between sectors and the need for an appropriate policy environment.

Waste Management Cases

Nampak

Recycling is already an industry in itself in South Africa, employing over 11000 people, using nearly 200 specialised recycling plants and recycling nearly 26% of the total tonnage produced by the packaging industry. Nampak is the largest and most diversified packaging company in the country and has been at the forefront of technical innovations and recycling for many years. It currently has recycling plants for paper, glass, tinplate and polywood (which recycles plastic into a durable "wood replacement"). However in recent years it has realised the need for a more comprehensive approach to environmental management, which goes beyond running recycling businesses, to fully integrating environmental issues into company policy and management systems. The case study reviews the actions that Nampak has taken to meet this need.

Ecobott

Ecobott is an bottle recycling company, established less than five years ago by two young entrepreneurs. Today it is the third largest supplier of glass packaging in South Africa, processing about 1.2 million used bottles and saving the environment hundreds of tons of broken glass, every month. It has created over 100 direct jobs and provided business opportunities collecting used bottles, for a number of informal sector entrepreneurs and hawkers. About 30% of Ecobott's total collections come from this sector and a substantial proportion of the R2 million that it pays annually for empty bottles, reaches the less privileged sector of society. Environmentally, apart from substantially reducing the amount of glass going into landfills, the company is also running extensive collection and education campaigns in 150 schools. The case provides an excellent example of growing business opportunities in waste management and the importance of individual entrepreneurship and leadership.

Financial Sector Cases

Nedbank

In February 1991, Nedbank launched an innovative retail marketing initiative which has increased its market share and at the same time guaranteed a minimum of R5 million to The Southern African Nature Foundation, over the next 5 years. The initiative revolves around an independently managed "Green Trust" funded by a series of "green" banking products. It is an excellent example of marketing ingenuity and mutually beneficial partnership, which has linked Nedbank's financial and marketing expertise, with SANF's environmental project expertise.

International Capital Markets Group

ICMG is a wholly Nigerian owned, specialist investment and advisory services company. It is managed by a group of young professionals, most of whom have gained their experience with international companies. A supportive government policy framework has enabled ICMG to develop business in a number of new areas, including debt conversion. It has proactively used its expertise in this field, to advise the Nigerian Conservation Foundation on establishing a US$24 million debt-for-nature programme and advises other NGO's on debt-for-health and housing swaps.

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