



# Innovations in Technology and the Way Forward

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# Structure of the Presentation

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1. Quick overview of GEF's investment strategy in agriculture and natural resources management for:
  - a. Land Degradation
  - b. Biodiversity
2. GEF's investments in Protected Areas
3. Explore how we can make protected areas become engines for development in this new century of biology and biotechnology

# GEF4 Allocations (2006-2010)

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## GEF Focal Area Allocations (millions of USD equivalent)

|                               |                |     |
|-------------------------------|----------------|-----|
| Biological diversity          | \$1,000        | 32% |
| Climate change                | \$1,000        | 32% |
| International waters          | \$ 355         | 11% |
| Land degradation              | \$ 300         | 10% |
| Ozone layer depletion         | \$ 40          | 1%  |
| Persistent organic pollutants | \$ 300         | 10% |
| Others (corporate programs)   | \$ 135         | 4%  |
| <b>TOTAL</b>                  | <b>\$3,130</b> |     |

# GEF Strategy for the Land Degradation Focal Area 2006-2010

(GEF4)

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The objective of the GEF Focal Area in Land Degradation (Desertification and Deforestation) is to reduce and reverse current trends in land degradation through the operation of sustainable land management policies and practices that simultaneously generate global environmental benefits and support local and national development.

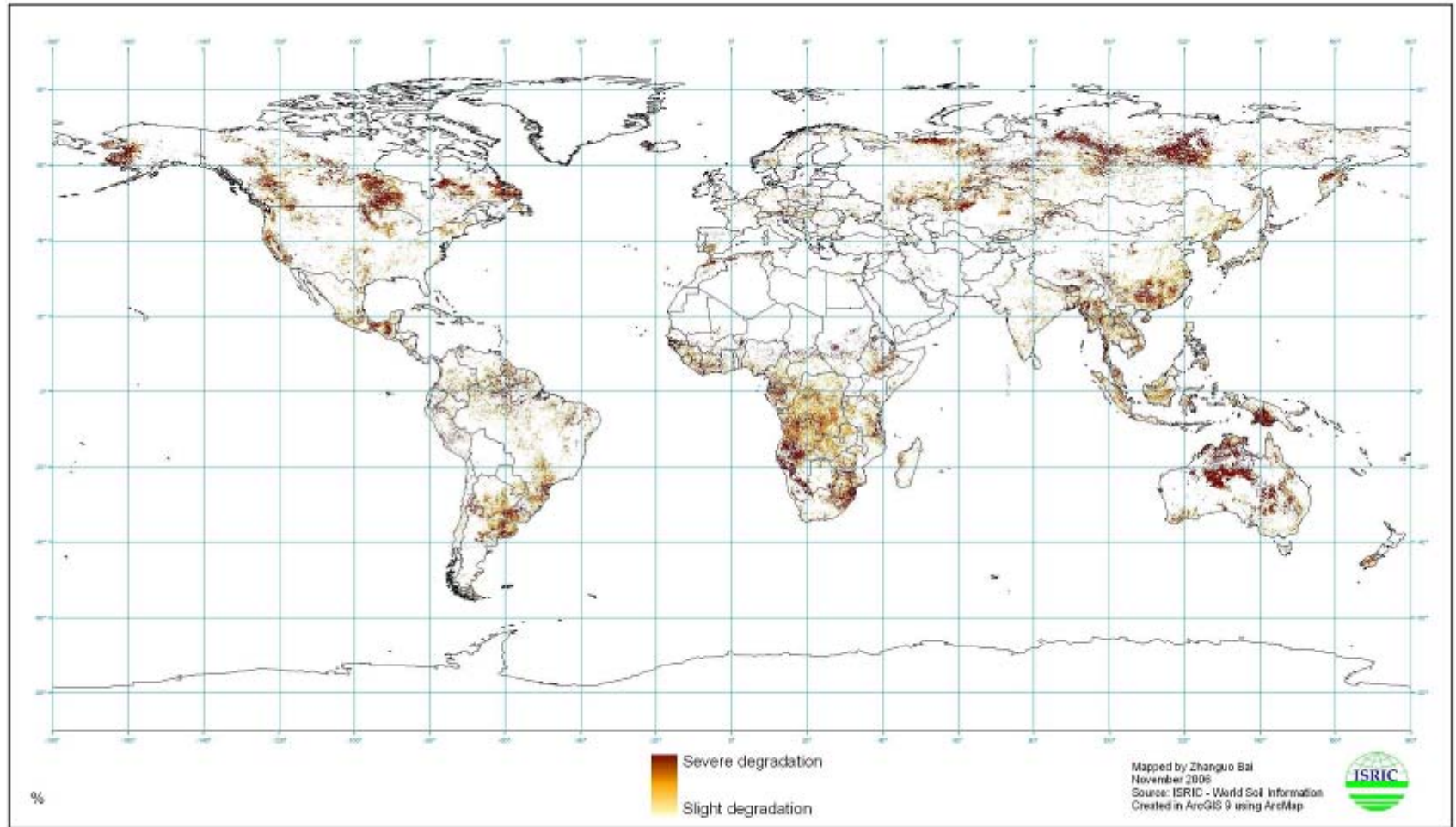


# Land Degradation Strategy

## *Summary of Strategic Programs for GEF-4*

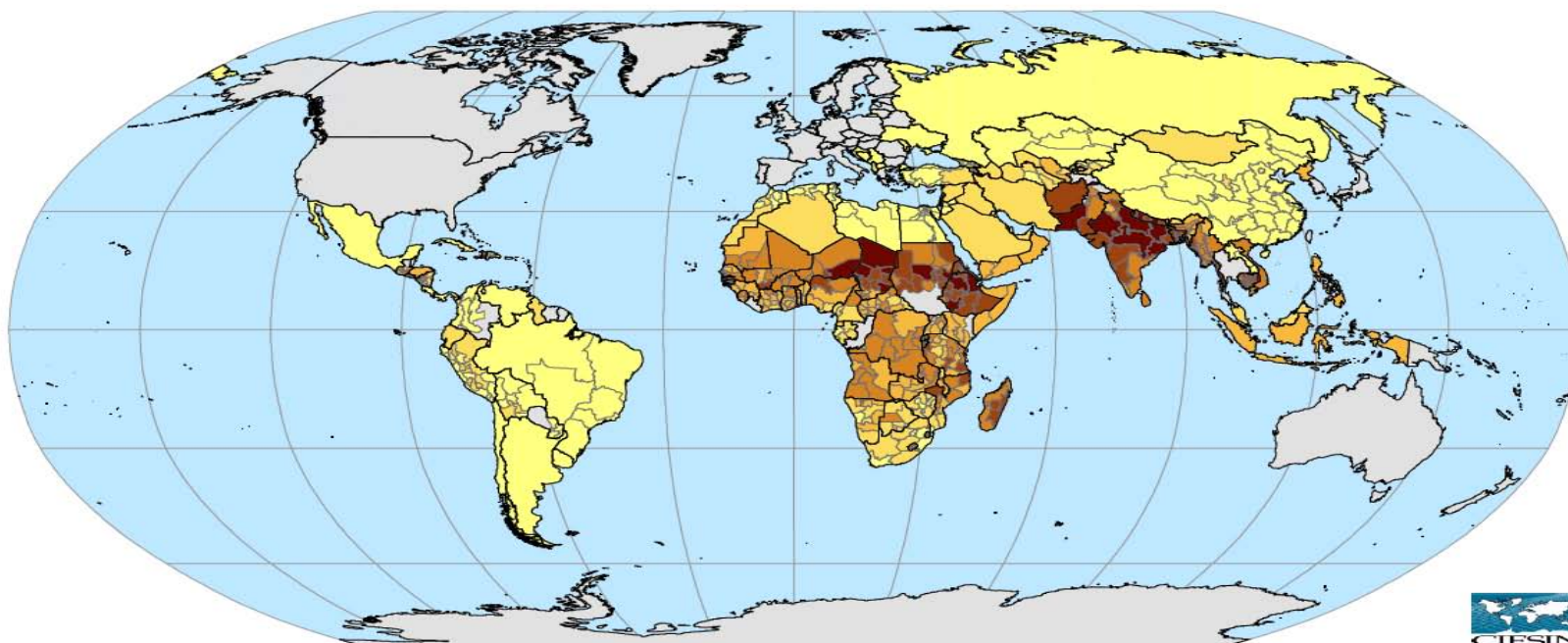
| <b>Strategic Program</b>   | <b>Expected Program Outcome</b>   |
|--|---|
| <p><b>1.</b> Supporting sustainable agriculture and rangeland management</p>               | <ul style="list-style-type: none"> <li>○ Create an enabling environment for sustainable, rain-fed crop production and integrated rangeland and natural resources management (e.g., dryland forests, water, and energy)</li> </ul>   |
| <p><b>2.</b> Supporting sustainable forest management in production landscapes</p>         | <ul style="list-style-type: none"> <li>○ Forest resources in humid forest margins, forest fragments, and woodland resources in semi-arid and sub-humid ecosystems are managed sustainably as part of the wider landscape</li> </ul> |
| <p><b>3.</b> Investing in new and innovative approaches in sustainable land management</p> | <ul style="list-style-type: none"> <li>○ Enhance scientific and technical knowledge of emerging issues, facilitating the strategy discussions for GEF-5 and enhancing GEF operations in this focal area</li> </ul>                  |

# Global Land Degradation 1981-2003 (ISRIC working document, February 2007)

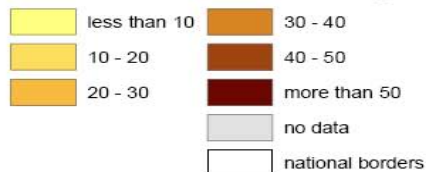


# Poverty: Prevalence of Child Malnutrition (Columbia University, 2003)

## Prevalence of Child Malnutrition



### Percent of children underweight



Children are defined as underweight if their weight-for-age z-scores are more than two standard deviations (2 SD) below the median of the NCHS/CDC/WHO International Reference Population.

Robinson Projection

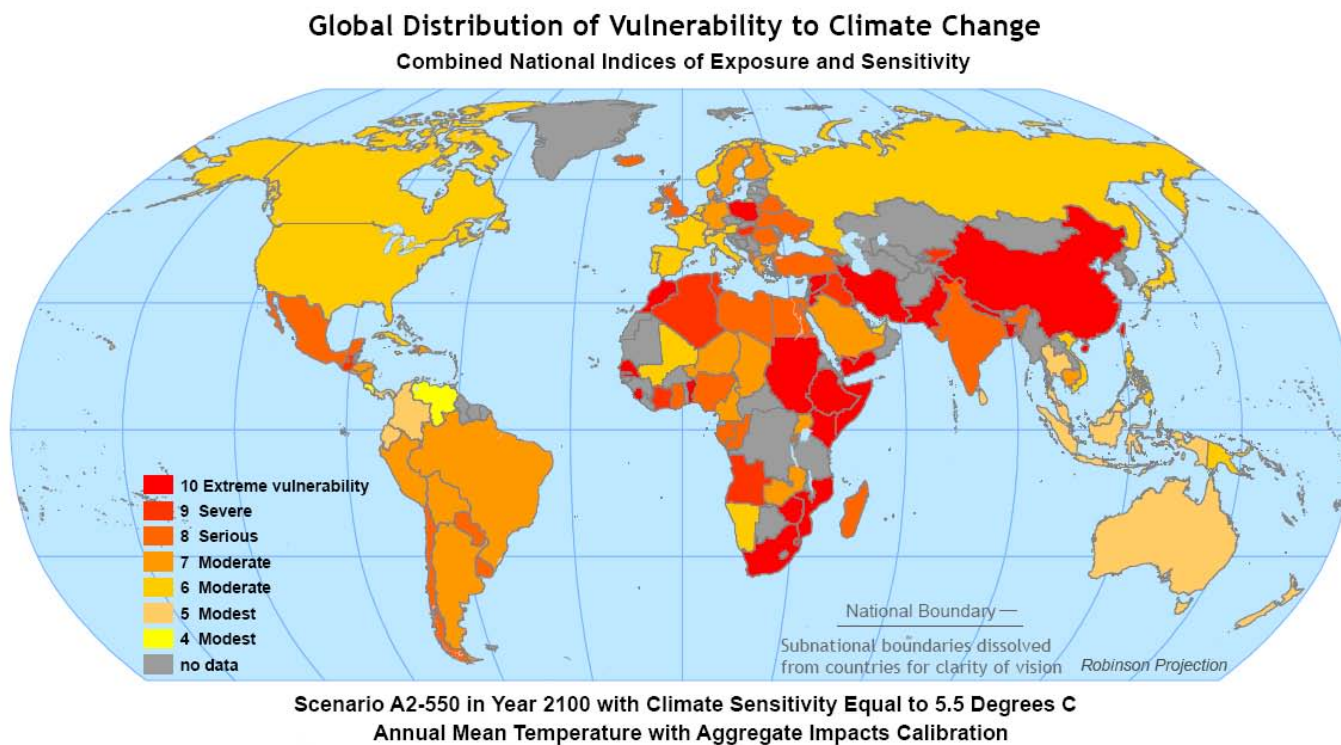


| Data Summary       | Countries | Data units | Avg. units/country | % of world Population | % of non-OECD Population |
|--------------------|-----------|------------|--------------------|-----------------------|--------------------------|
| National data only | 41        | 41         | 1.0                | 16                    | 18                       |
| Subnational data   | 74        | 640        | 8.6                | 65                    | 78                       |
| Total              | 115       | 681        | 5.9                | 81                    | 96                       |

Sources: UNICEF, Demographic and Health Surveys (DHS), National Human Development Reports (nHDR), African Nutrition Database Initiative (ANDI). Data for 96% of countries are from 1995 or later. All data are from 1990 or later.

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# Global Distribution of Vulnerability to Climate Change (Wesleyan/Columbia Uni., 2006)





## Biodiversity Strategy

| Long-term Objectives   | Strategic Programs for GEF-4  |
|--|---|
| <p><b>1:</b> To catalyze sustainability of protected area (PA) systems</p>                 | <p><b>1.</b> Sustainable financing of PA systems at the national level</p> <p><b>2.</b> Increasing representation of effectively managed marine PA areas in PA systems</p> <p><b>3.</b> Strengthening terrestrial PA networks</p> |
| <p><b>2:</b> To mainstream biodiversity in production landscapes/seascapes and sectors</p> | <p><b>4.</b> Strengthening the policy and regulatory framework for mainstreaming biodiversity</p> <p><b>5.</b> Fostering markets for biodiversity goods and services</p>  |
| <p><b>3:</b> To safeguard biodiversity</p>   | <p><b>6.</b> Building capacity for the implementation of the Cartagena Protocol on Biosafety</p> <p><b>7.</b> Prevention, control and management of invasive alien species</p>  |
| <p><b>4:</b> To build capacity on access and benefit sharing</p>                           | <p><b>8.</b> Building capacity on access and benefit sharing</p>  |

# Fostering Markets for Goods and Services

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## GEF supports:

- a) Improvement of existing forest certification standards and development of new standards to capture global environmental objectives.
- b) Increase in country capacity to scale up and to strengthen the sustainability of certification systems.
- c) Establishment of training systems for farmers and certifiers.
- d) Development of traceability systems and strengthening of supply chain management linking end products and services to their source.
- e) Strengthen market outreach to enhance private sector and consumer awareness of certified products and hence increase demand for higher environmental and social standards.
- f) Facilitate access to finance for producers, cooperatives and companies working either with or towards certified products and services.

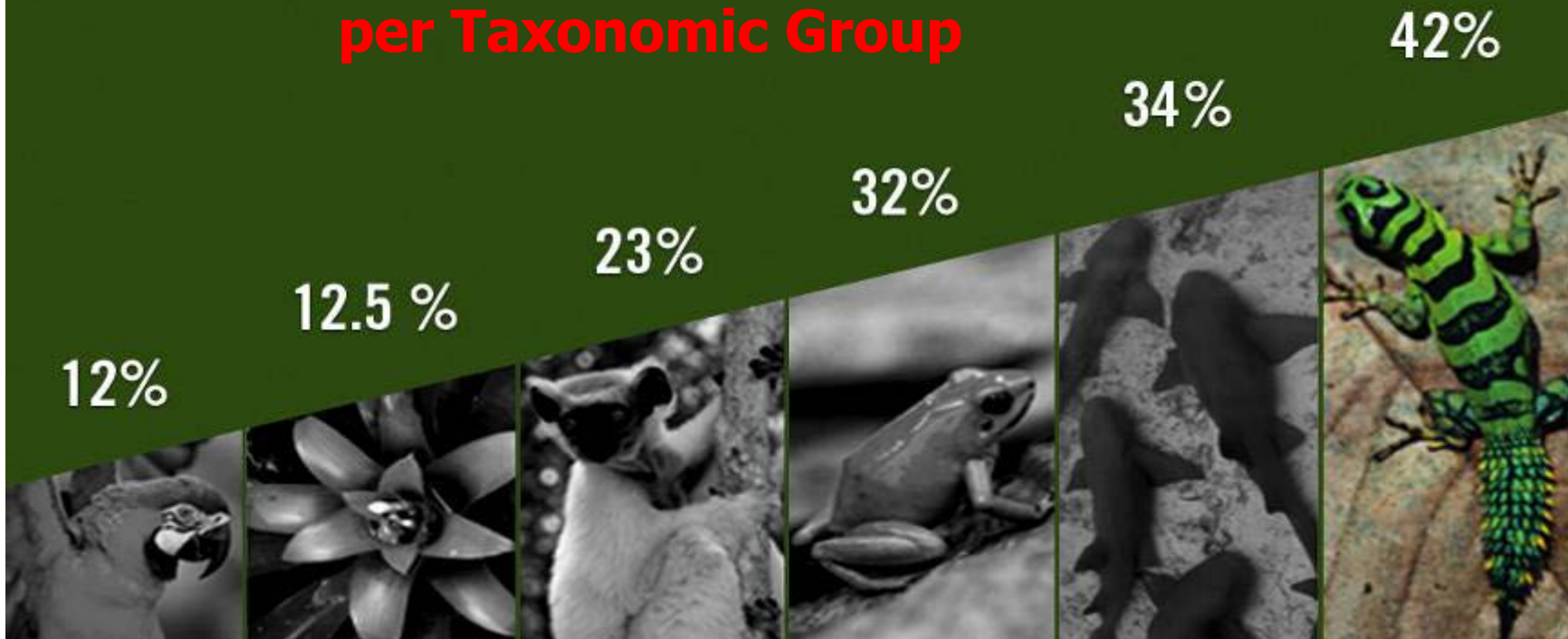


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# Extent of the Biodiversity Crisis

## Proportion of Threatened Species per Taxonomic Group







*"All I'm saying is now is the time to develop the technology to deflect an asteroid"*

# Protected Areas



# Extent and Impact of Protected Areas

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- **McDonald's:**

30,000 restaurants in 119 countries

Estimated Employees: 465,000

- **WalMart:**

4,300 stores in 11 countries

Estimated employees:  
1,800,000

- **Protected Areas:**

- > 100,000 in 188 countries

- > 18 million km<sup>2</sup>

- 11,5% of Earth's land surface

- Estimated direct jobs:  
1,025,000

An estimated 313 million people live within 10 km of a protected area





OR



## Limitations With the Existing Natural Resources Use Model

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- Dependency on low value added extraction of natural resources
- Links between income generation and biodiversity conservation may be tenuous
- Vulnerable to fluctuations in global commodity prices
- Niche markets with limited potential for scaling up
- Outside of the reach of the assistance of state and development agencies
- May not require high level of human capital – reinforce “poverty traps”



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# The Century of Biology and the Biotechnology Revolution



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# Genomics and Proteonomics

*A new set of incentives*

