

# **The Wealth of World Diversity**

## **Humanity, Nature and Sustainable Development**

### **Overview**

#### **Dimensions of Diversity**

**Demography and Human Diversity**

**Environment and Nature's Diversity**

**Diversity and Sustainable Development**

**Human Capital and University Diversity**

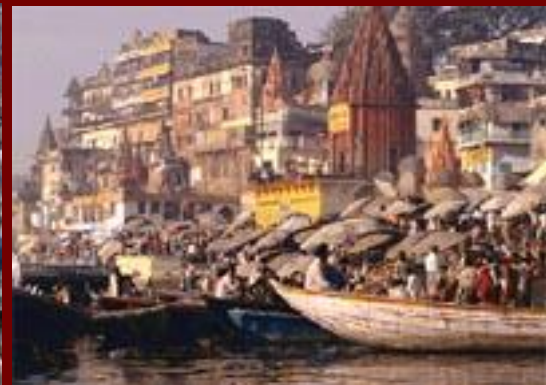
**Dr Mahendra Shah**

**First Open Science Conference**

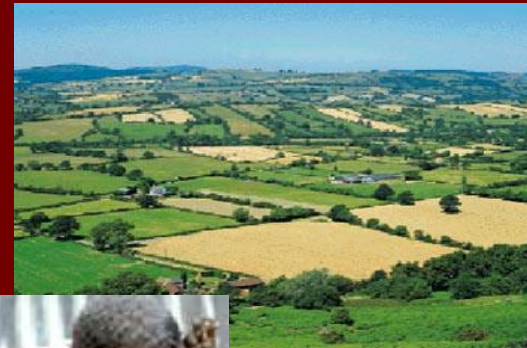
**Opening Plenary Presentation**

**Senior Scientist, IIASA**

**Amsterdam, 10<sup>th</sup> July 2001**



**World Population, July 2001  
6,194,528,577 +**



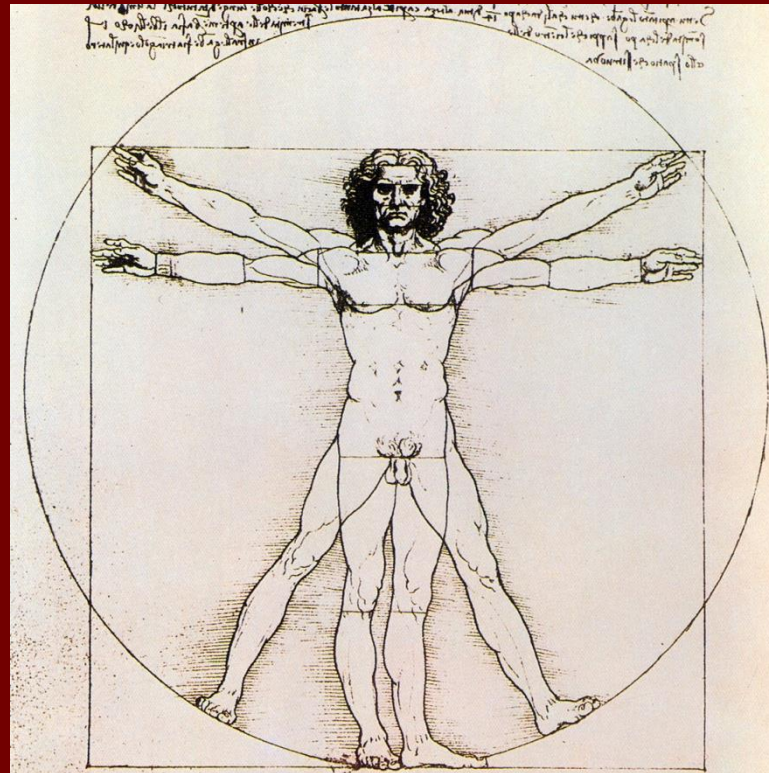
# **The Challenges of Sustainable Development**

# The Wealth of Diversity

*"Nature never breaks her own laws"*

*"The noblest pleasure is the joy of understanding"*

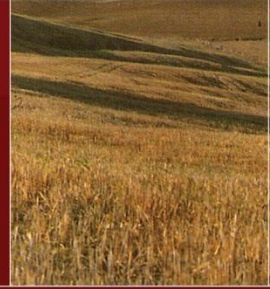
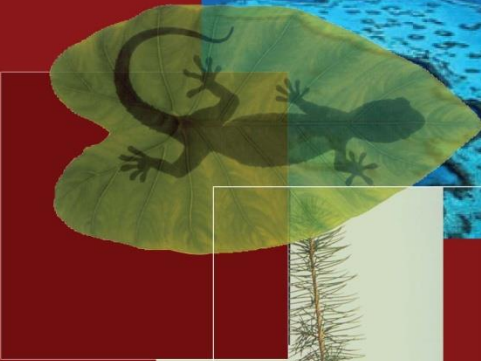
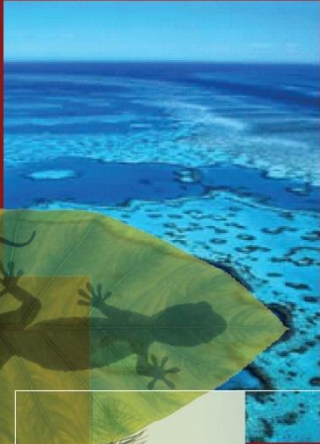
*Leonardo da Vinci, c 1496*



**Diversity** results from the capacity of systems to **respond, adapt, and evolve** through **self-organization** on the basis of differing time and space dependent environment, experience, symbiosis, relationships, and reciprocity. The **interconnectedness** and **interdependencies** in diversity creates the tensions and synergies that lead to **sustaining evolution and more robust outcomes.**

**The biological diversity** of nature lies in the **variety of life and its processes**...vast array of organisms, the genetic differences among them, the communities and ecosystems in which they occur, and the ecological and evolutionary processes that keep them functioning yet ever changing and adapting. Biodiversity is interconnected..different types of organisms live side by side in complex ecological networks of interdependency, each relying for nutrients and energy on those that share its **habitat.**

# Biodiversity



**The Web of Life**

# Human Diversity



**Endowing Humanity with Tremendous Potential**

**Human diversity** is the common heritage of humanity.....**uniqueness and plurality** of identities and individuality....source of harmonious relationships and the sharing of ideas and experiences enabling collective creativity and innovations..... **generation and accumulation of knowledge**.....important for human progress including, artistic and intellectual development, emotional stability and ethical behavior, material and spiritual well-being **living sustainably in and with nature.**

**Diversity** in a system is high if each component brings **uniqueness** to the system, be it different ideas and approaches, varying experiences and diverse information, and **inter-relationships**. In contrast diversity is low if the system components are **similar** and contribute the **same information.**

# Appreciating Diversity

Eyes open and focused

Ears sharp and tuned

Vocal clarity and reasoned





# Dimensions of Diversity

- How to recognize and understand diversity
  - How to value and respect diversity
    - What influences reduce diversity
- What comprises the right balance of diversity
  - Can there be too much diversity
    - Can diversity be irrelevant
  - How to make diversity more productive
- How to mobilize diversity to promote development

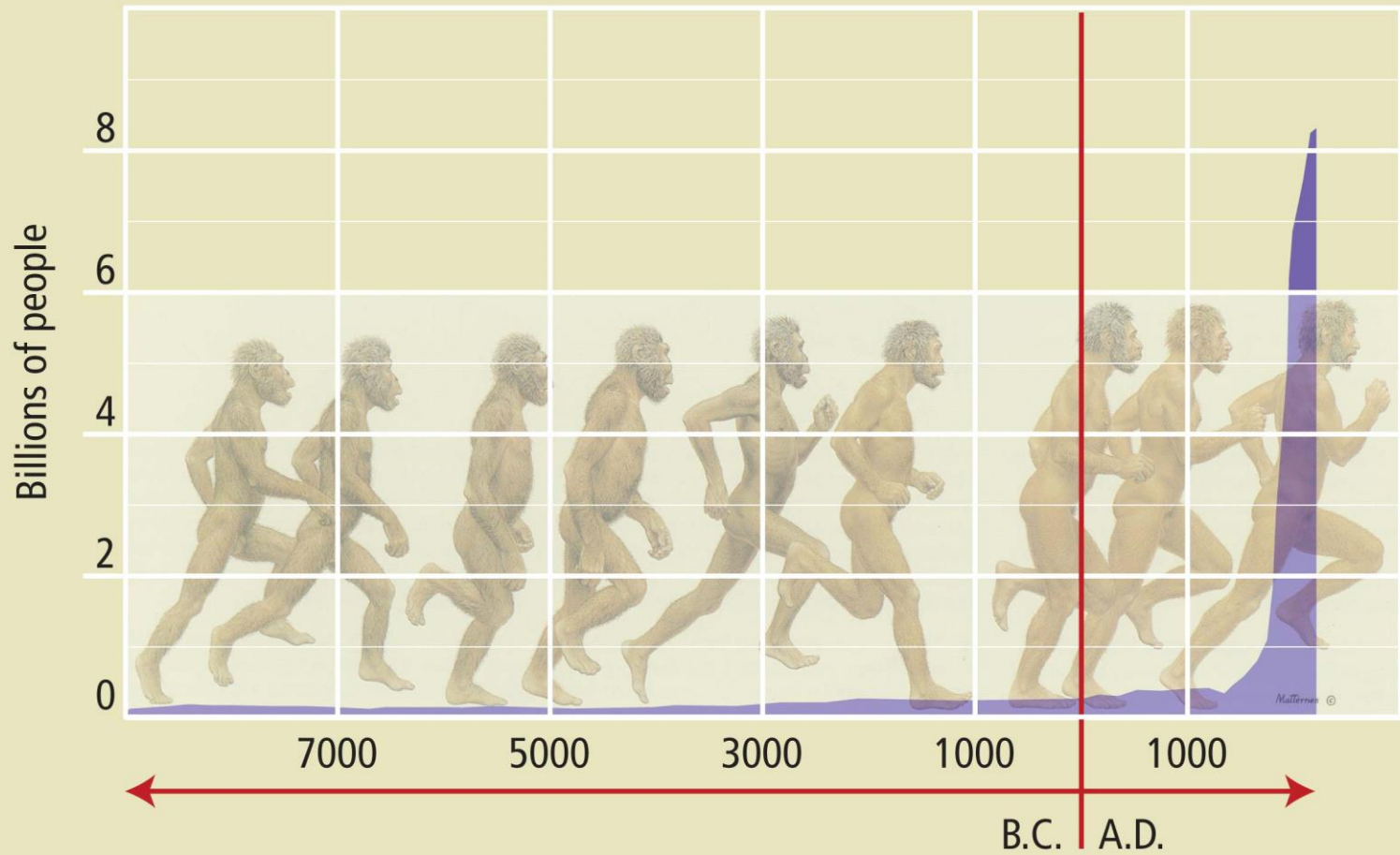
# Demography and Human Diversity

*"I want the cultures of all the lands  
to be blown about my house as freely as possible.  
But I refuse to be blown off my feet by any"*

*Mohandas Gandhi, c 1930*

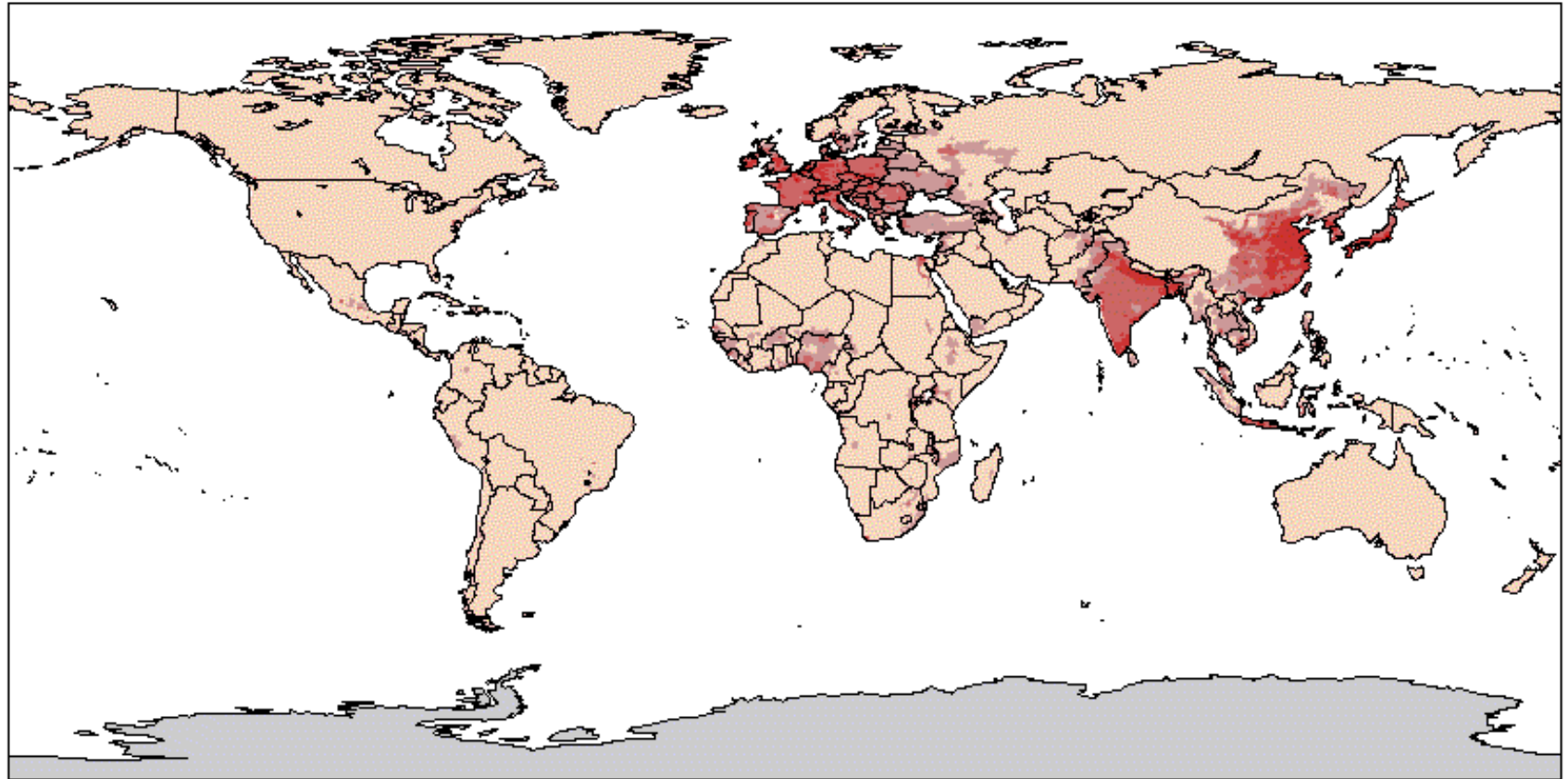


# Human Population

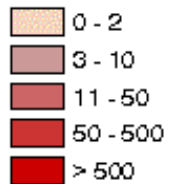


# Regional Diversity and Demography, 1700 – 1990

year 1700

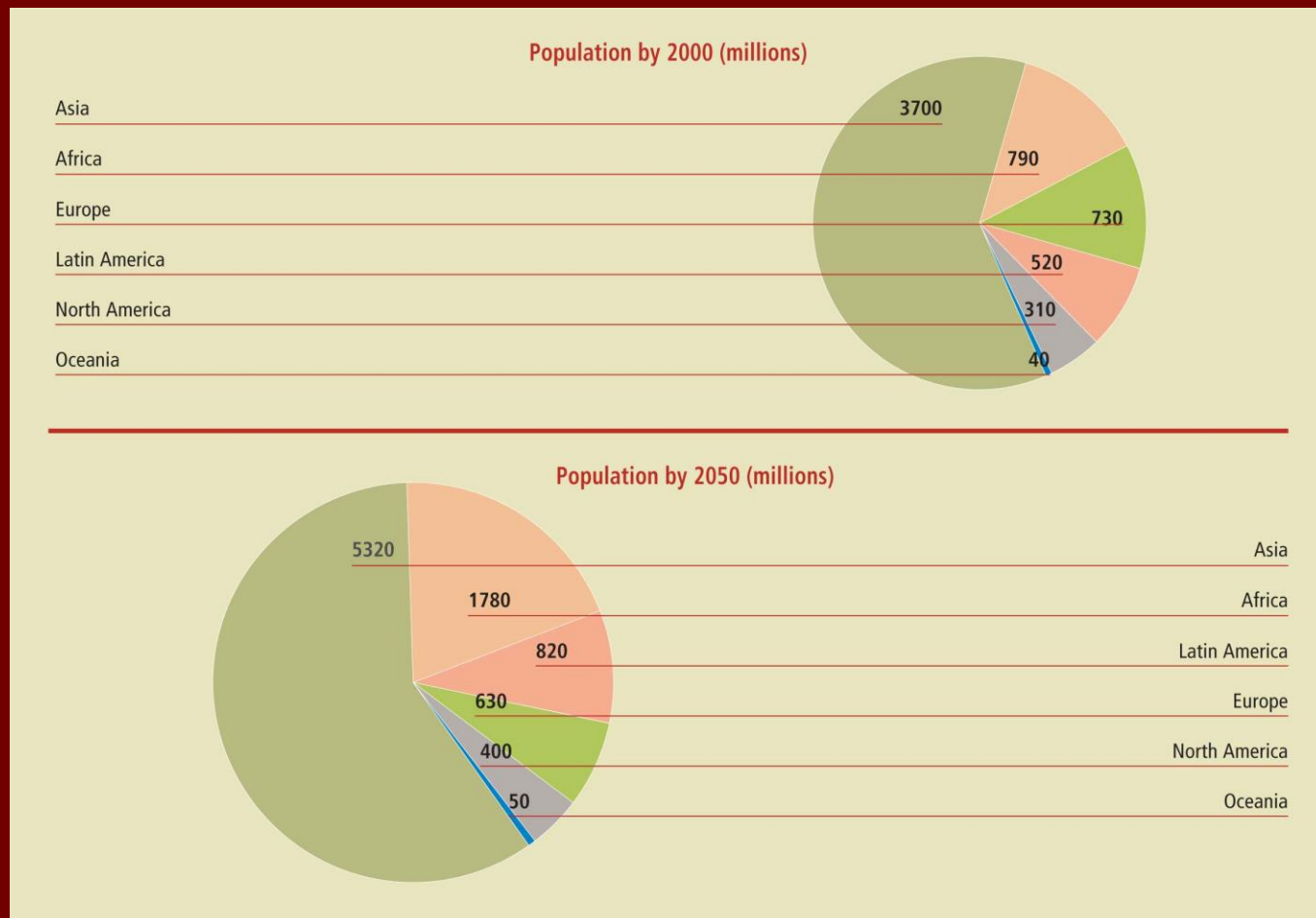


inh./km<sup>2</sup>



# Demographic Transition 2000-2050

## Population 2000, 2050 regional distribution



# **Entrepreneurs Mandate**

**Creating a Sustainable Humane World for All**

**Politics with Principles**

**Power with Humility**

**Pleasure with Conscience**

**Wealth with Work**

**Knowledge with Character**

**Business with Morality**

**Science with Humanity**

**Worship with Sacrifice**

Adapted ‘*Mahatma Gandhi Quote*‘

# 1900-2000

## A century of unprecedented changes in human diversity

- Social and Political
  - Wars and Tyrannies
- Human Rights and Entitlements
  - Religious Diversity
  - Language Diversity
  - Fashion Diversity
  - Food Diversity
  - Music Diversity
- Entertainment Diversity
- Transport and Habitation Diversity
- Science and Technology Diversity
  - Knowledge Diversity

**Dominating influence and power of a few over many**

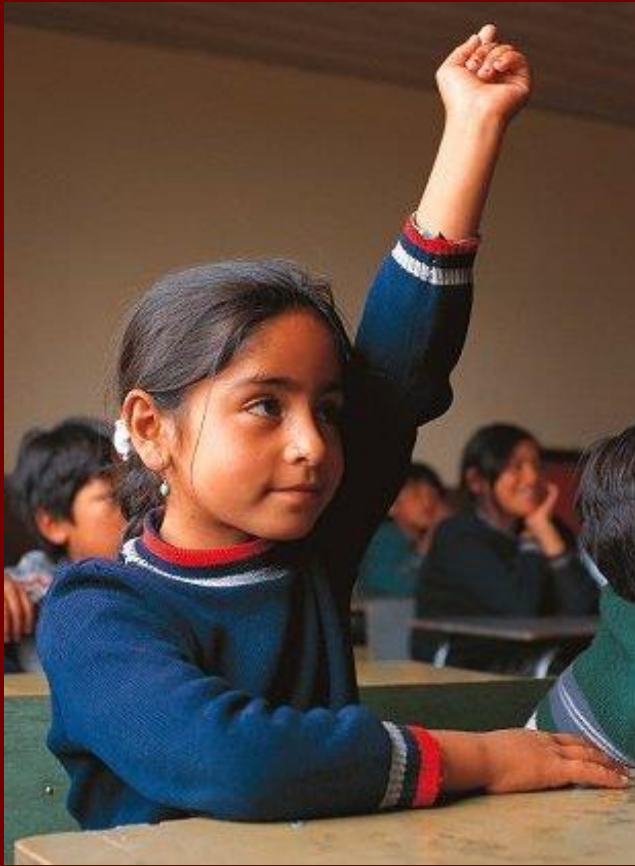
# Diversity of Weapons



**The 20<sup>th</sup> Century of War and Tyrannies**



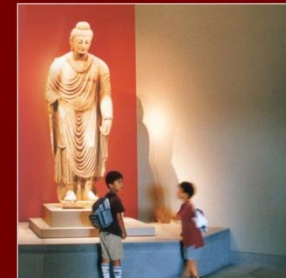
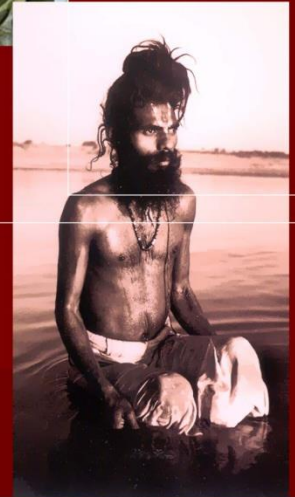
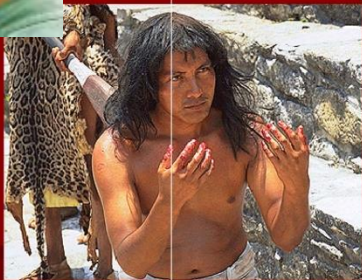
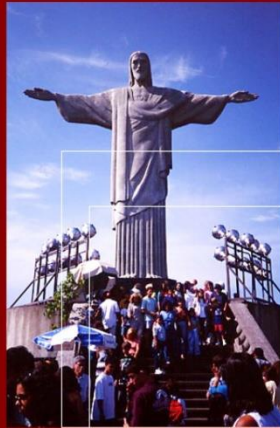
# Human Rights



**Food**  
**Water**  
**Education**  
**Health Care**  
**Social Security**  
**Clean/Safe Environment**  
**Freedom form Harassment**  
**Freedom from Discrimination**  
**Opportunities for Participation**

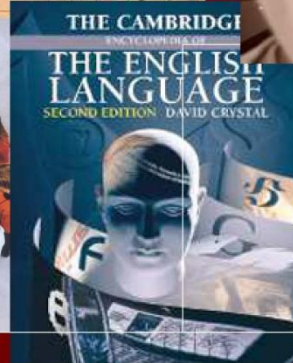
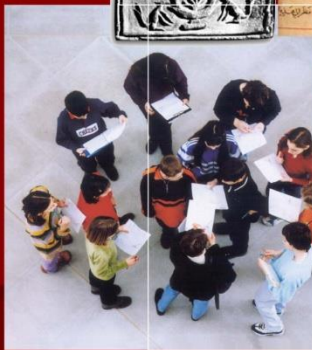
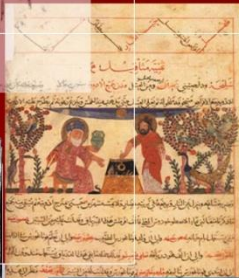
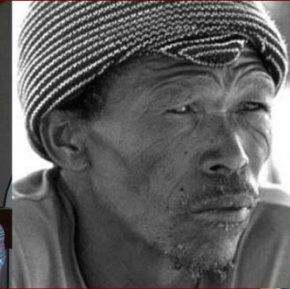
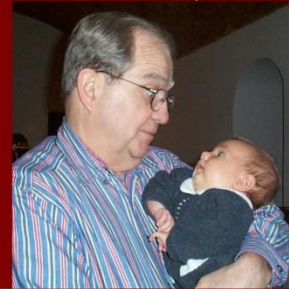
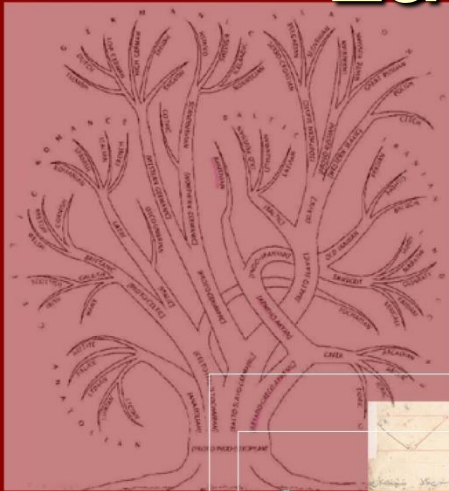
**International Commitments in a World of Disparities**

# Religious diversity



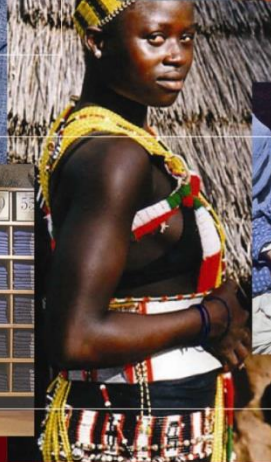
**All Religions : A foundation and source of values, morals, and norms**

# Language Diversity



**+ 6000 to go : The world losing 2 languages every month**

# Fashion Diversity



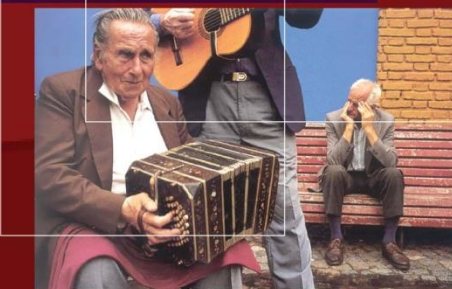
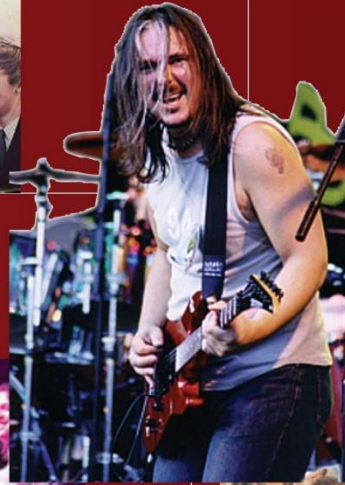
**The growing culture of jeans and tee shirts**

# Food Diversity



**Multi-national corporations driving the change in food consumption diets**

# Music Diversity



**The rise of “electronic pop” culture**

# Entertainment Diversity



**Global Media TV and Films**

**The rise of soap operas and violence in entertainment**

# Transport Diversity and Habitation Diversity



**The dominance of motor cars – Pollution for global warming**





# Knowledge Disparity

## *Information Revolution : A Digital Divide*

**Internet Access Costs (Monthly Income)**

**Bangladesh 200%    United States 1%**

**Internet users (% of population)**

**USA 50%, Europe 35%, Asia & Africa 0.4%**

## *Science and Technology : A Capacity Divide*

**Researchers per Million population**

**Japan ( 4000), USA(3000), Europe(2000), Latin America(550), Asia(250), Africa(70)**

**Ratio of per capita Investment in Science**

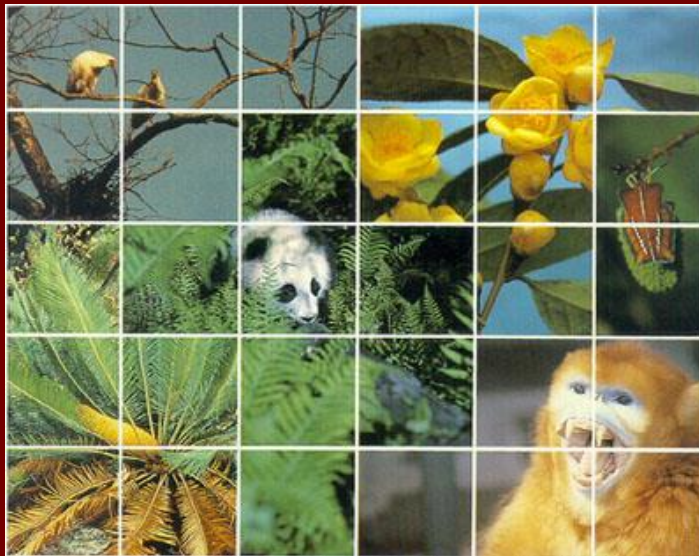
**Developed and Developing Countries 220 : 1**

**Patent Applications**

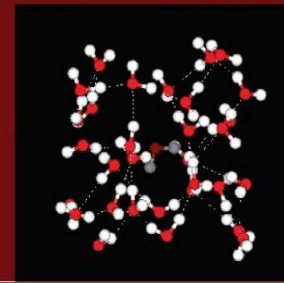
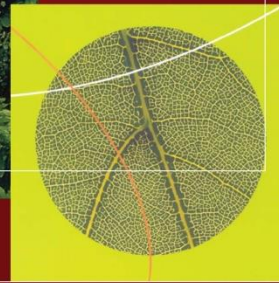
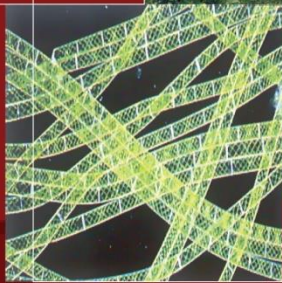
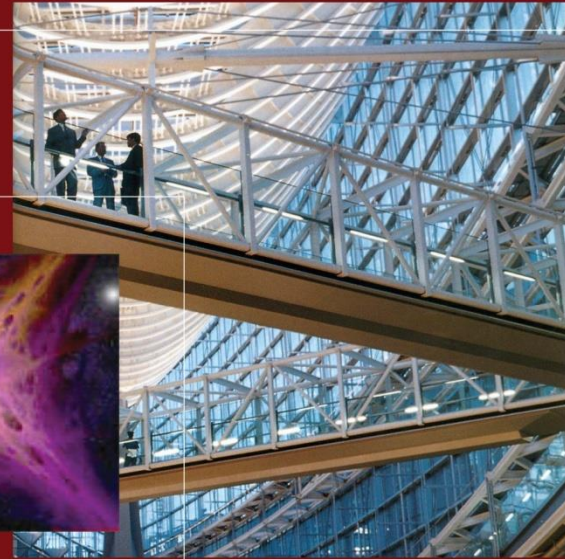
**1985 : 1 million    2000 : 7 Million**

# Environment and Nature's Diversity

**"It should not be believed that all beings exist for the sake of the existence of man. On the contrary, all the other beings too have been intended for their own sake"  
Moses Maimonides, c 1190**



# The web of life



# Threats to Nature's Biodiversity

## Air, Water and Land Pollution



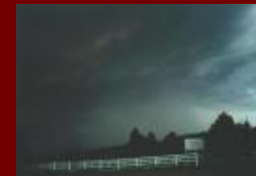
# Extinction of species



# Freshwater and Marine Ecosystems



# Climate Change



**A global & inter-generational threat weather catastrophes & change**



# Diversity and Sustainable Development

*"Our biggest challenge in this new century  
is to take an idea that sounds abstract  
– sustainable development –  
and turn it into reality for all the world's people"  
Kofi Annan, 2001*



# Sustainable Development

Stockholm 1972

*Preserving and Enhancing the Environment*

Earth Summit : Rio 1992

*Agenda 21 and Rio Declaration*

Johannesburg : August 2002

*Turning Agenda into Actions*

**“ Meeting the needs of the present without compromising the ability of future generations to meet their own needs”**

*Needs : Material, spirtitual, values, relationships, freedom to think, act, participate.*

# Human Capital and University Diversity

*"A university should be a place of light,  
of liberty, and of learning"*  
*Benjamin Disraeli, c 1873*



# Human Capital



**“to make our national human capital the envy of the world”**

# University Diversity



**Foundation for a human capital revolution**

# Enhancing the role, relevance, and effectiveness of universities

- Education Diversity - Right balance of science, technology and humanities
- Human Diversity - Right balance of the nations' human diversity among students and staff
- Nature's Diversity - Knowledge for local social, environmental and economic development priorities
- Sustainable Development - Curricula for course, mandatory for undergraduates and postgraduates
- Knowledge Revolution - Private-public investments in information and Communication Infrastructure
- Entrepreneurship - Center of advice to build indigenous science, technology, and business capacity

**Nam et ipsa scientia potestas est**

# Enhancing the role, relevance, and effectiveness of universities

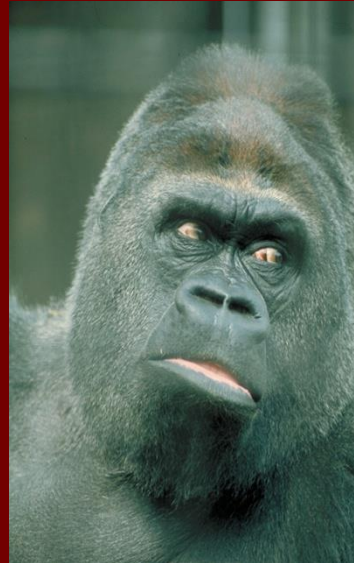
- **Civil Society** - Knowledge empowerment and enfranchisement to participate in national development and policy making
- **Government** - Knowledge empowerment for development and policy making and in international negotiations
- **Funding** - Long term public commitment; A Global Endowment Fund for Higher Education and Research
- **Governance** - Relevance, scope and timing of reforms in the context of national development
- **International** - Network of centers of excellence for education, research and staff and student exchange

**Nam et ipsa scientia potestas est**

*"Development is another name for  
peace"*  
*Julius Nyerere, c 1976*



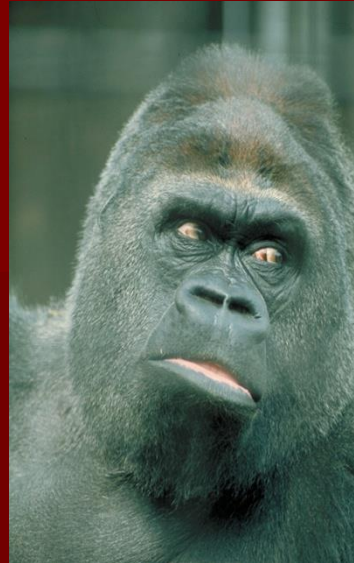




**All life is precious  
Humans may Rule the Earth  
But survival of all species' is interlinked**

**Destruction of the Earth's Environment and Ecosystems  
Will threaten the survival of many species**

**And the first to perish  
Will be the closest human relative  
and they have no voice in our World**



**All life is precious  
You Human may Rule the Earth  
But survival of all species' is interlinked**

**If you continue to destroy the environment  
We all are sure to perish**

**And the first to perish  
Will be your closest relative**

**THANK YOU**