

**THE UNITED NATIONS COMMISSION ON SCIENCE AND TECHNOLOGY
FOR DEVELOPMENT**

15TH SESSION

**21–25 May 2012
Geneva**

Contribution by

ETH Zurich

Science and Technology for Development

**Mr. Richard Robert Ernst
Nobel Laureate**

The views presented here are the contributor's and do not necessarily reflect the views and the position of the United Nations or the United Nations Conference on Trade and Development

Science and Technology for Development

A satellite view of the Earth, showing the Americas and surrounding oceans. The image is centered on the Earth, with the Americas visible in the upper half and the surrounding oceans in the lower half. The text is overlaid on this image.

The importance of
Science and Technology for Development
is undisputed, both for developing and for
developed nations.



Without Science and technology, we can not solve the present and future global problems.

However, even top science and top technology are not useful unless society is ready to thoughtfully apply their results.

The societal preconditions that I have in mind are summarized by **four imperatives**:

Imperative 1: “Global Sustainability”

We have to recognize and respect the limits, imposed by dwindling natural resources, that need to be preserved for the benefit of future generations.

Sustainability has to find its reflections in **national and international laws**, as well as in **basic educational efforts** towards a **considerate usage of global resources.**



*We are the Caretakers
of future living Grounds !*

Imperative 2: “Global Fairness”, “Fair-Share”



We need a framework of international regulations that *ensures fair access or fair-share of the unfairly distributed natural resources*. “Nature” has very unevenly allocated resources to individual countries.

This Imperative requests a powerful *global resource management authority*.

Mineral Map of THE WORLD



**An International Agency for
Global Resource Management
is urgently needed !**

LEGEND	
⚡	Uranium
●	Silver
☐	Oil
⚙	Lead & Zinc
○	Iron
◆	Diamond
✱	Bauxite
⊙	Coal
↔	Copper
⚡	Gold

0 1800km

Stages of “Global Fairness”

- Equal access to natural resources for all Nations
- Equal access to natural resources for all Citizens
 - Equal access to food
 - Equal access to water
 - Equal access to mineral deposits
 - Equal access to energy resources
 - Equal access to living space
 - Equal access to job opportunities
 - Equal access to „prosperity“



Imperative 3: “Global Governance”

Global fairness demands some form of
“global governance”.

Global governance can not be implemented at once to its full extent, but requires a step-wise and well-conceived approach for those aspects for which it is indispensable.

VÖLKERBUND
INTERNATIONALES INSTITUT FÜR HERSTIGE ZUSAMMENARBEIT
2, rue de Mistriville, — Bruxelles — Page 1^{re}

Why

War ?

ALBERT EINSTEIN - SIGMUND FREUD

WARUM KRIEG ?

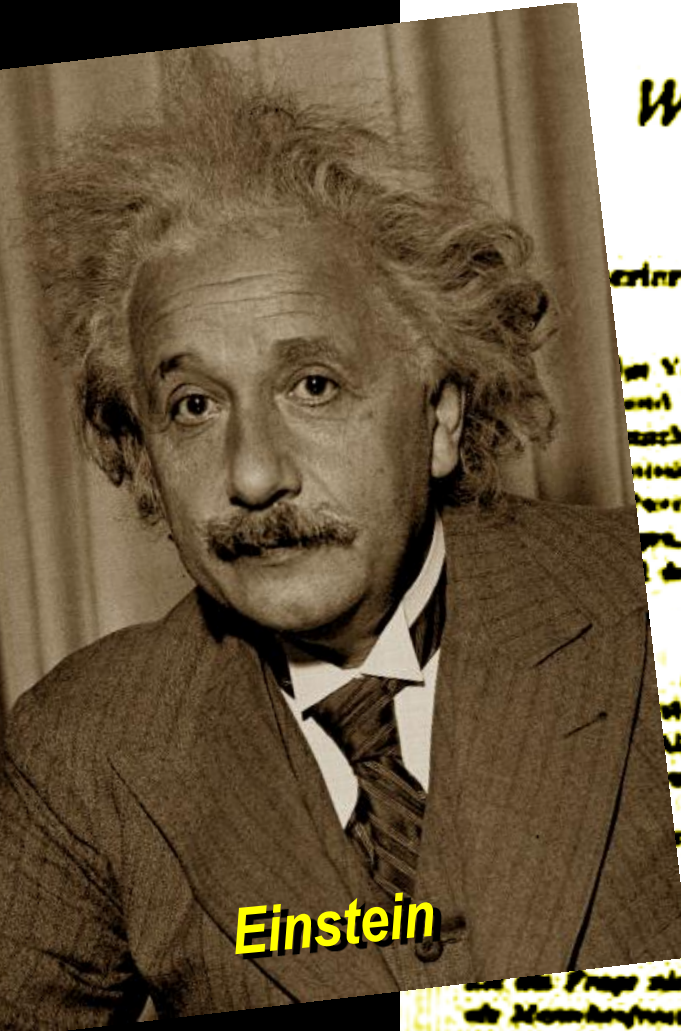
Ein Briefwechsel

erste Auflage (1 bis 2.000). 64 S. RM

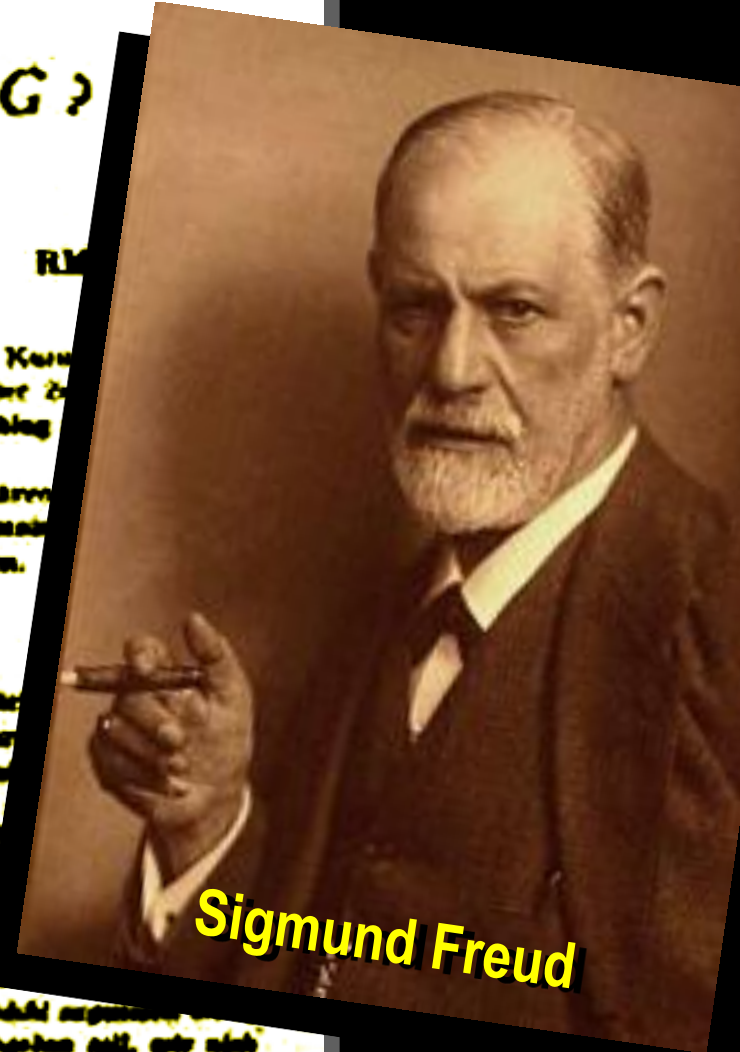
Das Völkerbündnisvertrauen für Literatur und Kunst
und Fortschritt mit dem Werk intellektueller Zu-
sammenarbeit, wollte sich mit irgendeinem Vorschlag
zur Lösung für geistige Zusammenarbeit :
Vertrauen zwischen auf geistigem Gebiet über-
wunden, damit Fragen, die in hohem Maße grund-
legend sind, durch Völkerbund daran, erfüllt würden.



Die Hände schütteln einen unverfälschten
Albert Einstein und Prof. Sigmund Freud
wichtige Frage, die Prof. Einstein folgend
zu sein, als Maximalen von zwei Vö-
Kommen zu erwarten ?



Einstein



Sigmund Freud

... so schreibt Prof. Freud in ei-
ne die Frage nicht als Naturforscher und Negativer
als Menschheitsfrage. ... Ich kann mich nicht, dass mir nicht irgendein
problematische Vorschläge zu machen, sondern dass ich nur angeben soll, wie sich
das Problem der Kriegswirkung einer psychologischen Betrachtung darstellt.

Ein Buch von dieser Bedeutung für Gegenwart und Zukunft.

ALBERT EINSTEIN · SIGMUND FREUD

WARUM KRIEG?

Ein Briefwechsel

Nummerierte Auflage (1 bis 2.000). 64 S. RM. 2.50

Das ständige Völkerbündnisvertrauen für Literatur und Kunst, das besteht ist, Ueber und Naturist mit dem Werk intellektueller Zusammenarbeit verflocht zu machen, wessle sich mit integriertem Verschieb an die internationalen Kommissionen für geistige Zusammenarbeit:

Einen Briefwechsel zwischen auf geistigen Gebiet überredeten Persönlichkeiten anzugehen, damit Fragen, die in beiden Mense gemeinsamen geistigen Interessen und dem Völkerverband stehen, erörtert werden.

★

Einer der ersten Blätter enthält einen unverfälschten Briefwechsel zwischen Prof. Albert Einstein und Prof. Sigmund Freud, eine Aussprache über die internationalen Fragen, die Prof. Einstein folgendermaßen stellt:

Gibt es einen Fall, wo Menschen von einer Völkerbündnis aus
Kommen zu können?

Ich antworte dem — so schreibt Prof. Freud in seiner Antwort — dass
Es die Frage nicht als Naturforscher und Physiker stellen kann, sondern
als Menschenschild... Ich kann nicht sehen, dass mir nicht unmöglich ist,
politische Verbindungen zu machen, sondern dass ich nur angehen will, wie sich
das Problem der Erziehung einer psychologischen Verbindung stellt.

Ein Brief von hoher Bedeutung für Gegenwart und Zukunft.

Internationaler
Psychanalytischer Verlag
Wie., I. Löbengasse 11

“Thus I am led to my first statement:

**The quest for international
security requires that
each nation unconditionally
surrenders some fraction
of its liberty of action,
of its sovereignty.”**

**Letter of Albert Einstein to Sigmund Freud,
30 July, 1932**



Imperative 4: Intensified educational efforts, including ethical and moral education

The **willingness to share** that is indispensable for global sustainability, global fairness, and global governance

requires educational efforts on all levels,

including basic education in public schools, in universities, in life-long-learning, and in mass media.

It is necessary to develop incentives for the public to recognize the importance of **unselfish generosity** .



***“Education
is the most
powerful weapon
which you can use
to change the world”.***

Nelson Mandela

Educating Future Leaders



- *Skills*
- *Knowledge*
- *Ethics*
- *Farsightedness*



“The Global Vehicle”

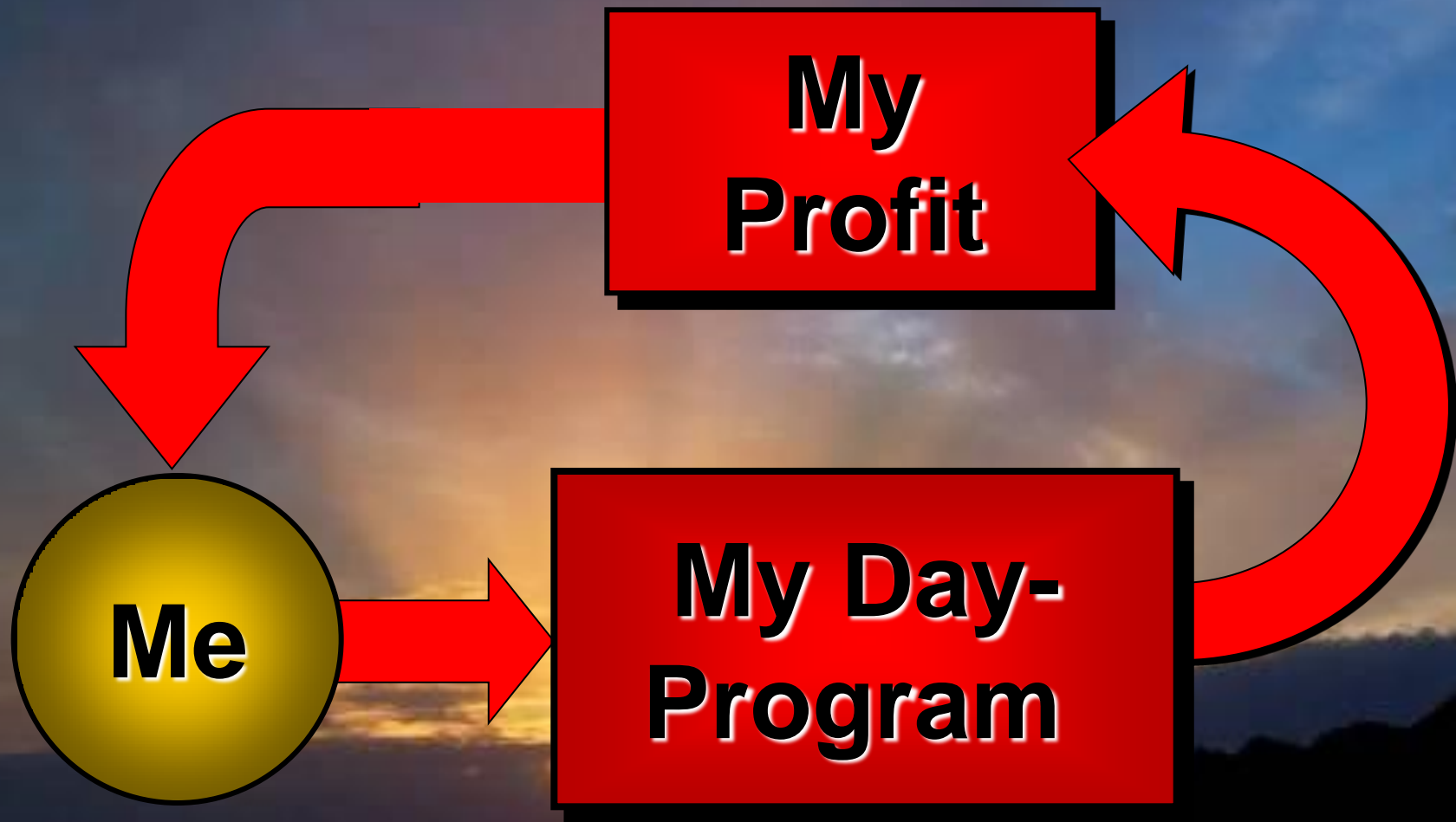
INDUSTRY

SOCIETY
(Politics)

ACADEMIA



Our Standard Business Model



Egoism, the driving force

an unethical moral!

Adam Smith

“It is not from the benevolence of the butcher, the brewer, or the baker, that we expect our dinner, but from their regard to their own interest.”

(The Wealth of Nations, Book I Chapter II)

The diagram illustrates a process flow. On the left, a red-to-orange gradient circle labeled 'Me' has a yellow arrow pointing to a green rectangular box labeled 'My Work'. From the right side of the 'My Work' box, a large yellow curved arrow points to another green rectangular box labeled 'Profit of Society'.

**Profit of
Society**

Me

My Work

Responsibility as driving force

A responsible rather than free market economy.

Many tendencies of today's prevailing free market economy contradict the Four Imperatives. Self-interest and selfishness are poor guides toward fair trade.

Responsibility instead of “freedom” per se!

Imposing restrictions on unethical market behaviour is urgent for individuals, companies, and entire States in their international relations.

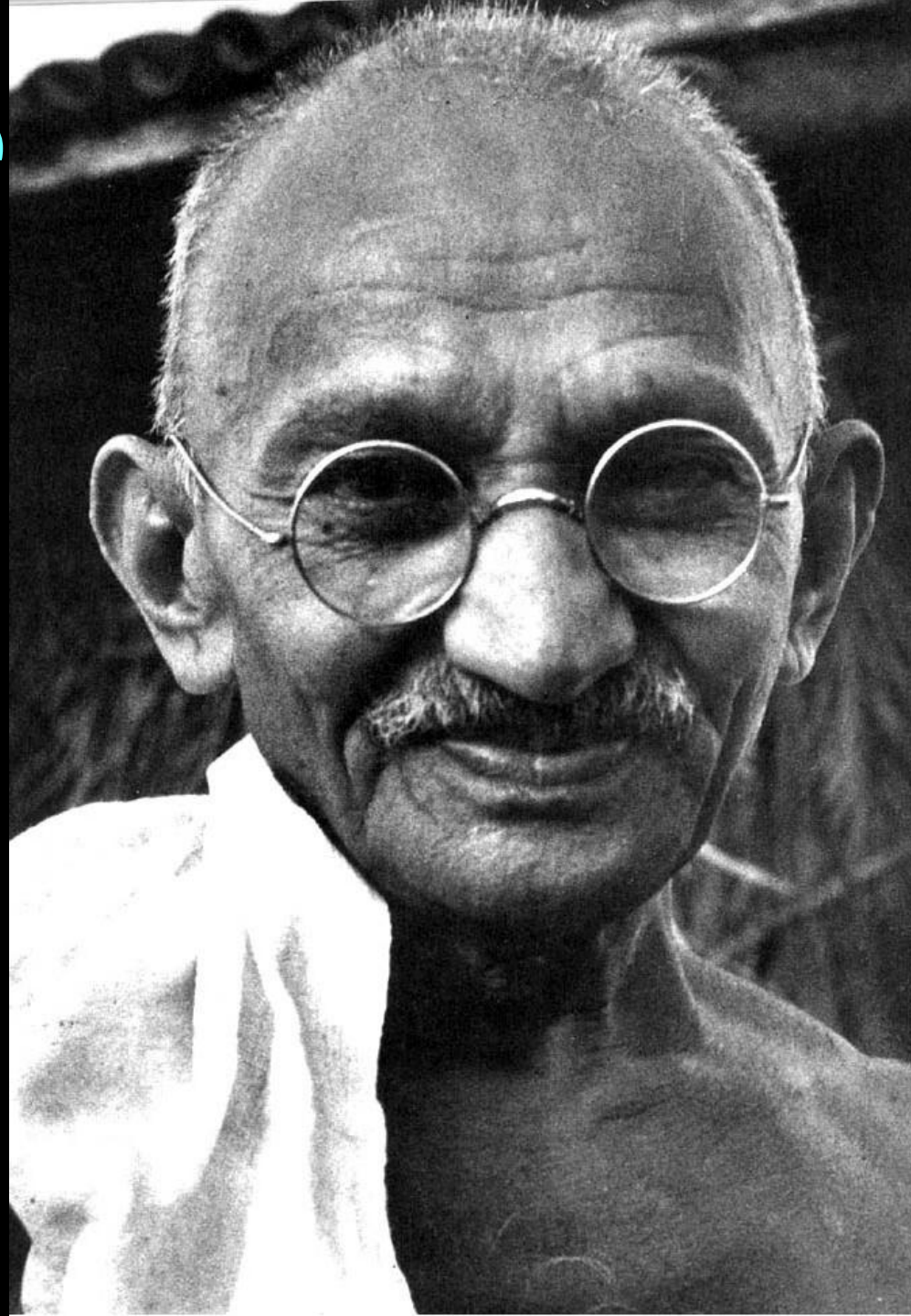
Those who act responsibly and are willing to share can gain astounding freedom in their behaviour, as well as a satisfaction that has no material equivalent.

*We all need
Role Models !*



***“We must be
the change
we want
to see.”***

Mahatma Gandhi



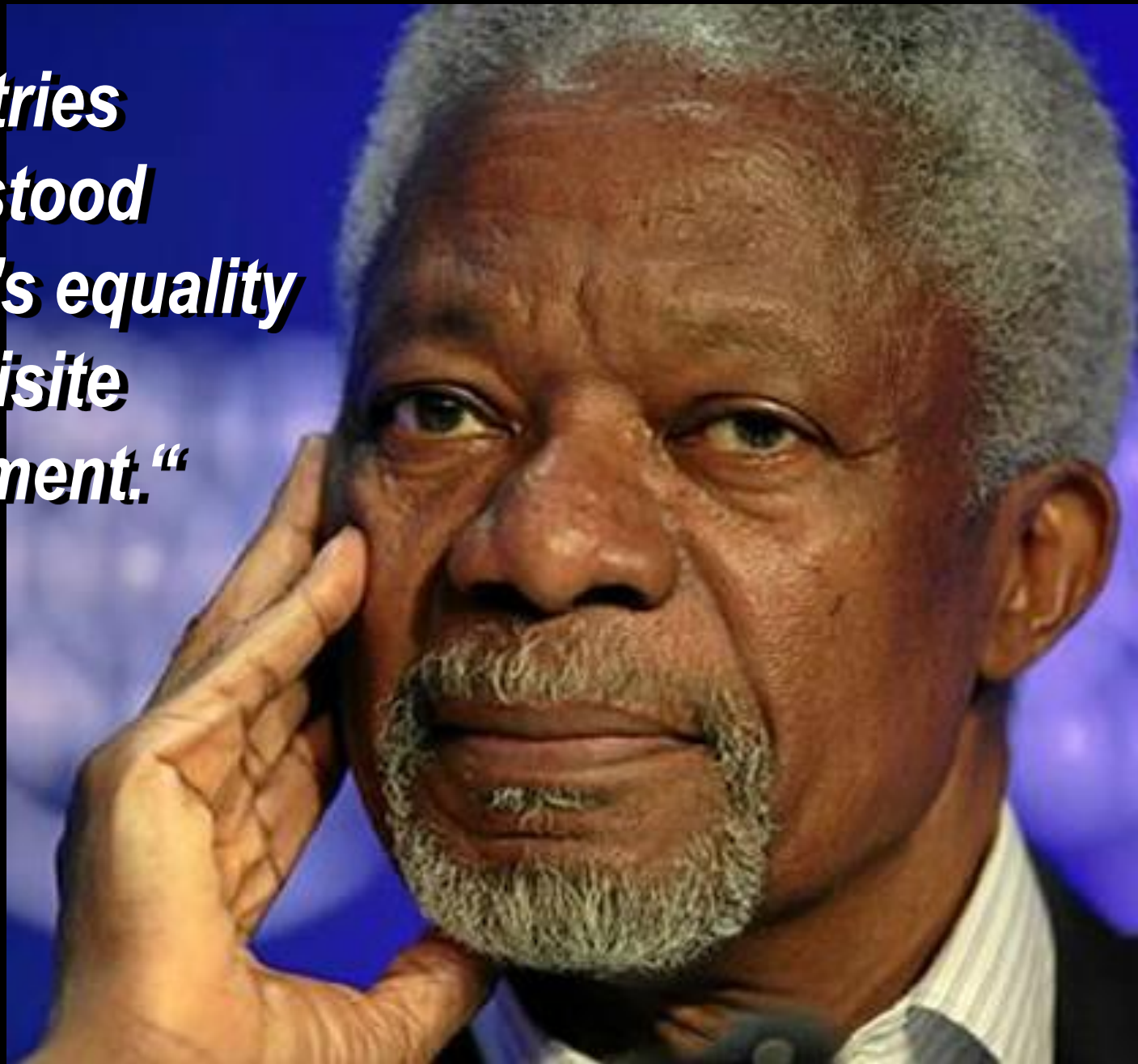
Mother Teresa

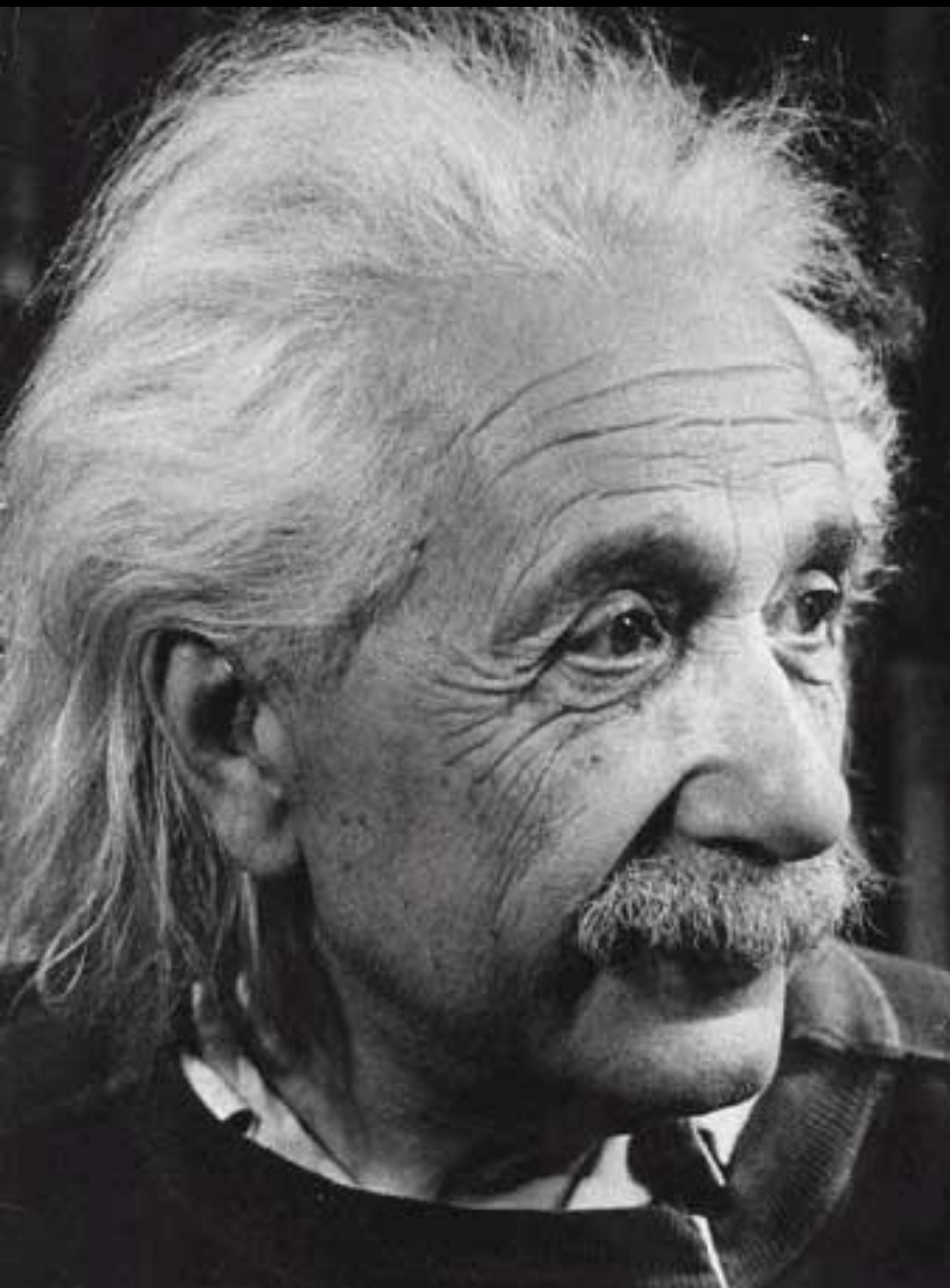
*„If we have
no peace,
it is because
we have forgotten
that we belong
to each other.“*



***„More countries
have understood
that women's equality
is a prerequisite
for development.“***

Kofi Annan





***“Only a life lived
for others is a life
worthwhile.”***

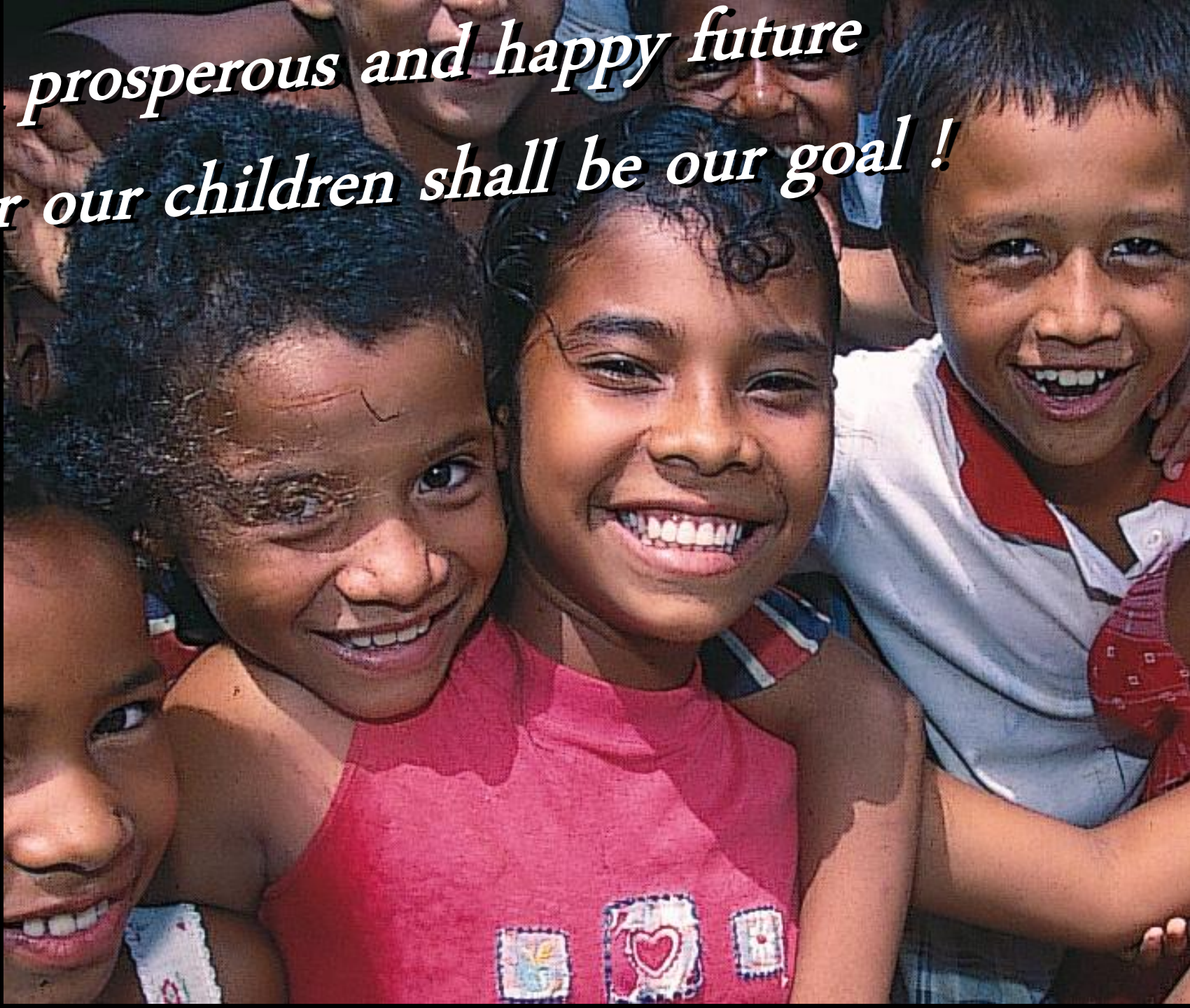
Albert Einstein

**Rigoberta
Menchu
Peace Nobel Prize
1992**

***„We have to fight
without measuring our
suffering, or what we
experience, or thinking
about the monstrous
things we must bear in
life.”***



*A prosperous and happy future
for our children shall be our goal !*







The two goals in education:

1. Helping the poor and illiterate ones towards „help yourself“.

2. Educate the „upper classes“ towards societal fairness, decency and sharing benefits.

A woman with blonde hair and glasses, wearing a blue turtleneck and a dark blazer, is speaking into a microphone. She is standing in front of a white paneled door. In the background, several other people are visible, including a man in a dark suit and a woman in a brown jacket. The scene appears to be a public event or a press conference.

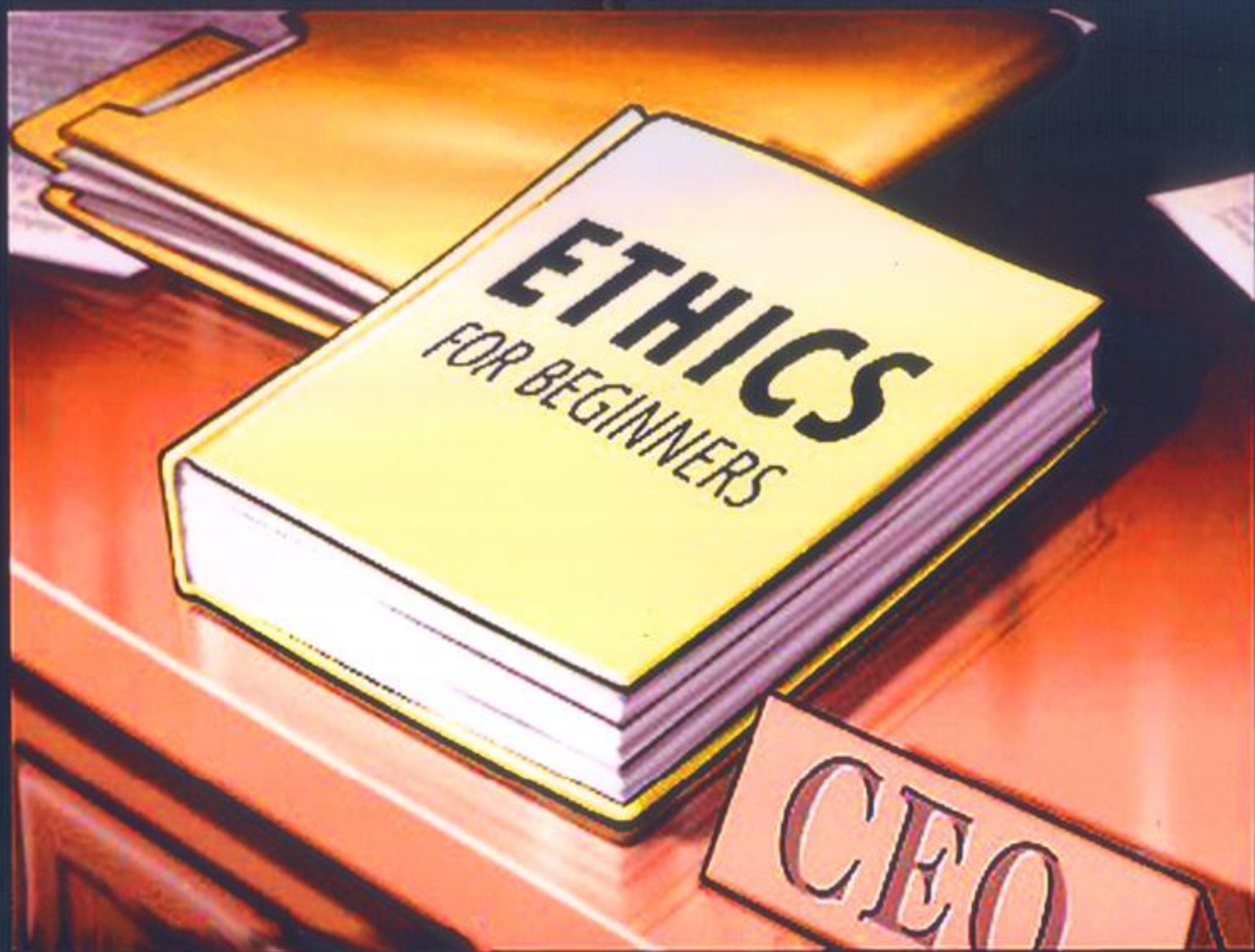
Women will be the leaders of the next Cultural Revolution – that is urgent in our society, particularly in Swiss Banks and in the Catholic Church !

A woman with blonde hair and glasses, wearing a blue turtleneck and a dark blazer, is speaking into a microphone. She has her hand on her chest. In the background, several people are seated, including a man in a dark suit and a woman in a brown jacket. The setting appears to be an indoor event or meeting.

*They will bring us back
our lost altruism, the universal compassion
and, most importantly,
our human dignity.*

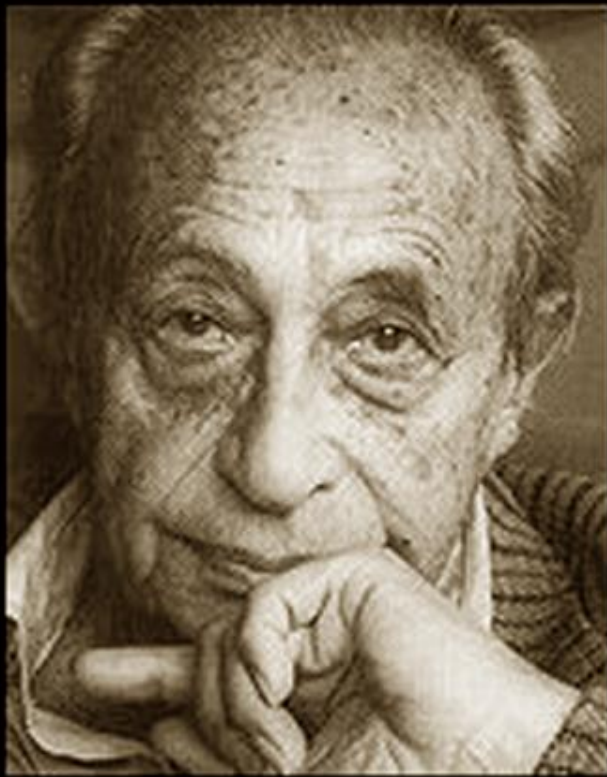
Reasons for major responsibility of academics and scientists

- 1. We share responsibility of **educating future generations** hoping for a better world !***
- 2. Academics are predestined to express unpopular truths that are of vital importance for our survival !***



ETHICS
FOR BEGINNERS

CEO



“The application of science results demands ETHICS.”

Hans Jonas (1903-93)

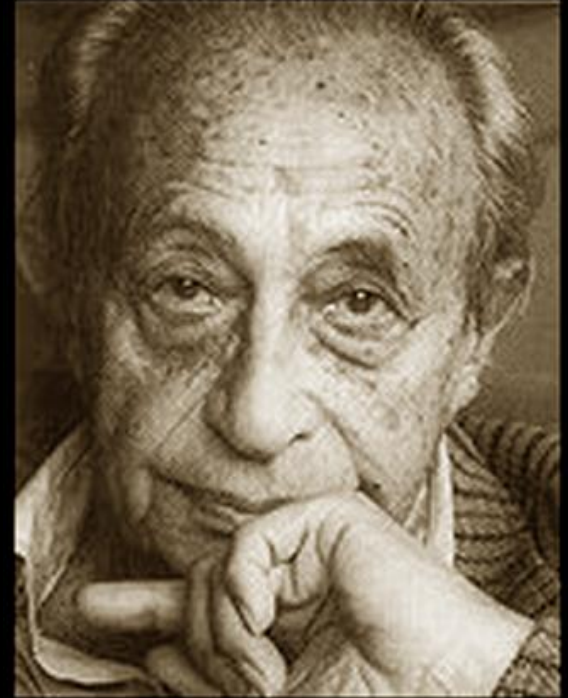
The Imperative of Responsibility

**In Search of an Ethics
for the Technological Age**

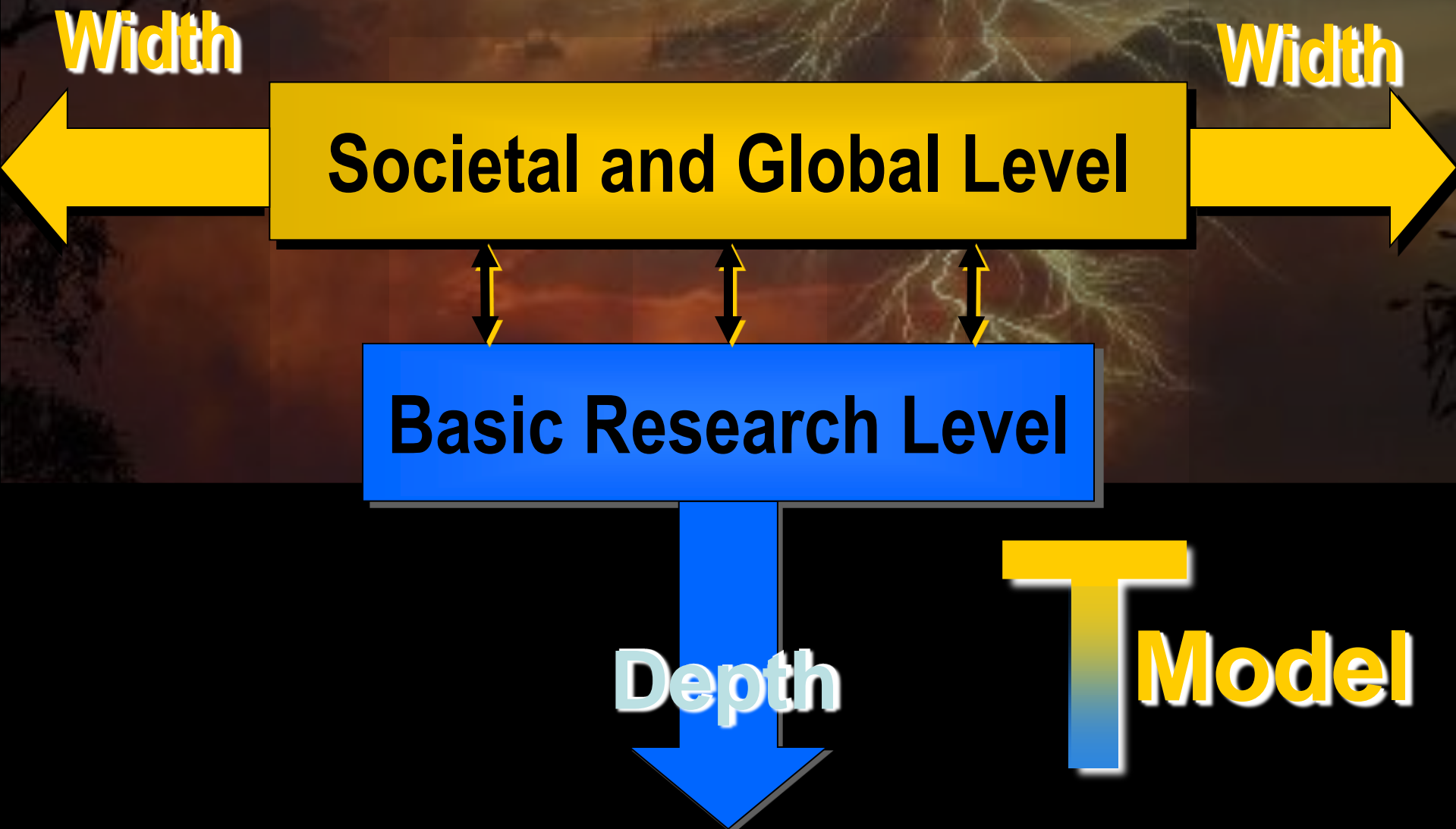
***“What can serve us
as a compass ? -
The anticipated danger
itself !”***

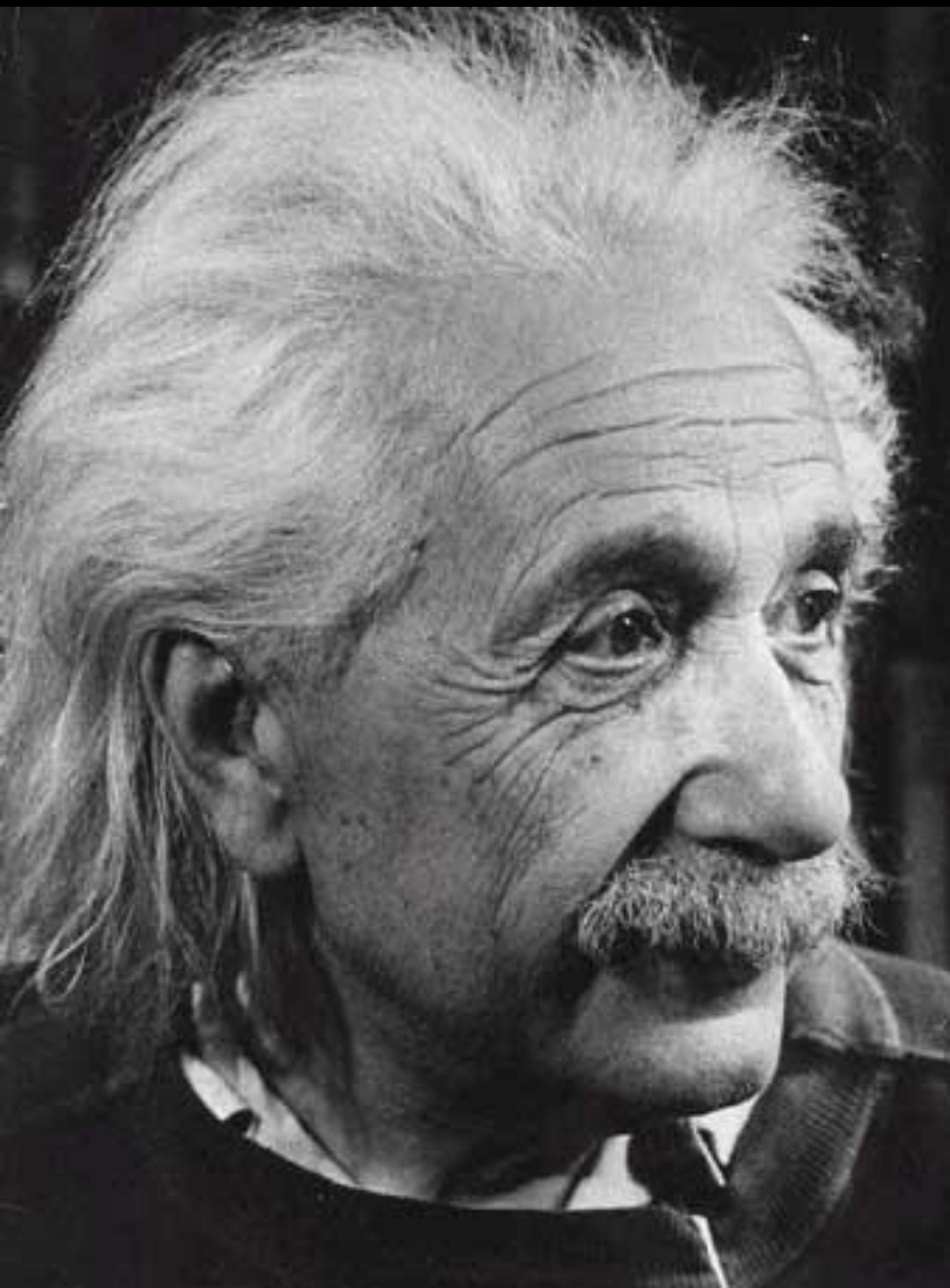
“The Imperative Responsibility”

*Act so that the consequences
of your action are compatible
with the **permanence of
genuine human life on Earth.***



Researchers should learn to operate on two levels





***“The release of atom power
has changed everything
except our way of thinking.***

***If only I had known,
I should have become a
watchmaker !”***

Albert Einstein



***“Two things are infinite:
the universe **and**
the human stupidity;***


and I am not sure about the universe.”

Albert Einstein



Stop using Nuclear Power !

***Current technology and human greed
are unable to safely handle Nuclear
Power and the Nuclear Waste!***

An aerial night photograph of a city with a large, intense fire burning in the center. The fire is bright yellow and orange, with thick black smoke rising from it. The surrounding city lights are visible in the dark, and the fire appears to be spreading across a large area. The overall scene is dramatic and suggests a major disaster or industrial accident.

***Free Enterprises are not in a position to manage
high risk technology in a responsible manner !***

Tight State Control is indispensable !

A satellite view of the Earth, showing the Americas and surrounding oceans. The text is overlaid on the image.

**Politics and
international relations
based on selfishness**

Saturday

A photograph capturing a moment of intense conflict on a cobblestone street. In the center, a man with dark hair and a white shirt is being pushed or thrown to the ground by a man in a plaid shirt. Another man in light blue jeans is also engaged in the struggle. The scene is crowded with other people, some looking on with concern or aggression. The overall atmosphere is one of chaos and violence.

Justification

instead of

Justice

Overwhelmed:
Battling pro- and
anti-Suharto
demonstrators

The Root Problem

ONE WAY

ONE WAY

Our limitless egoism!

Sunday

Bürgerlicher Ze

*The bubble was
nourished by a number of
human properties, by lust, exorbitance,
arrogance, vanity, exaggeration,
unreasonableness, incompetence,
not only at Wall Street. Authorities,
governments, media, and the broad public
suffer all from the same disease.*

...
staatlich, die Investmentbank Lehman Bro-
thers bankrott, eine andere, Merrill Lynch, zu
einem Notverkauf gezwungen, und in Gross-
britannien ebenfalls ein Hypothekarinstitut

...
rung, die Medien und das breite Publikum
krankten alle am Gleichen.

BATIONALES HERDENVERHALTEN

DER SPIEGEL



Lebens-
traum
Reichwerden

Die Erotik des Geldes

**The dream of
becoming rich !
The erotics of money.**

*Each one for
him-self and
against all others !*

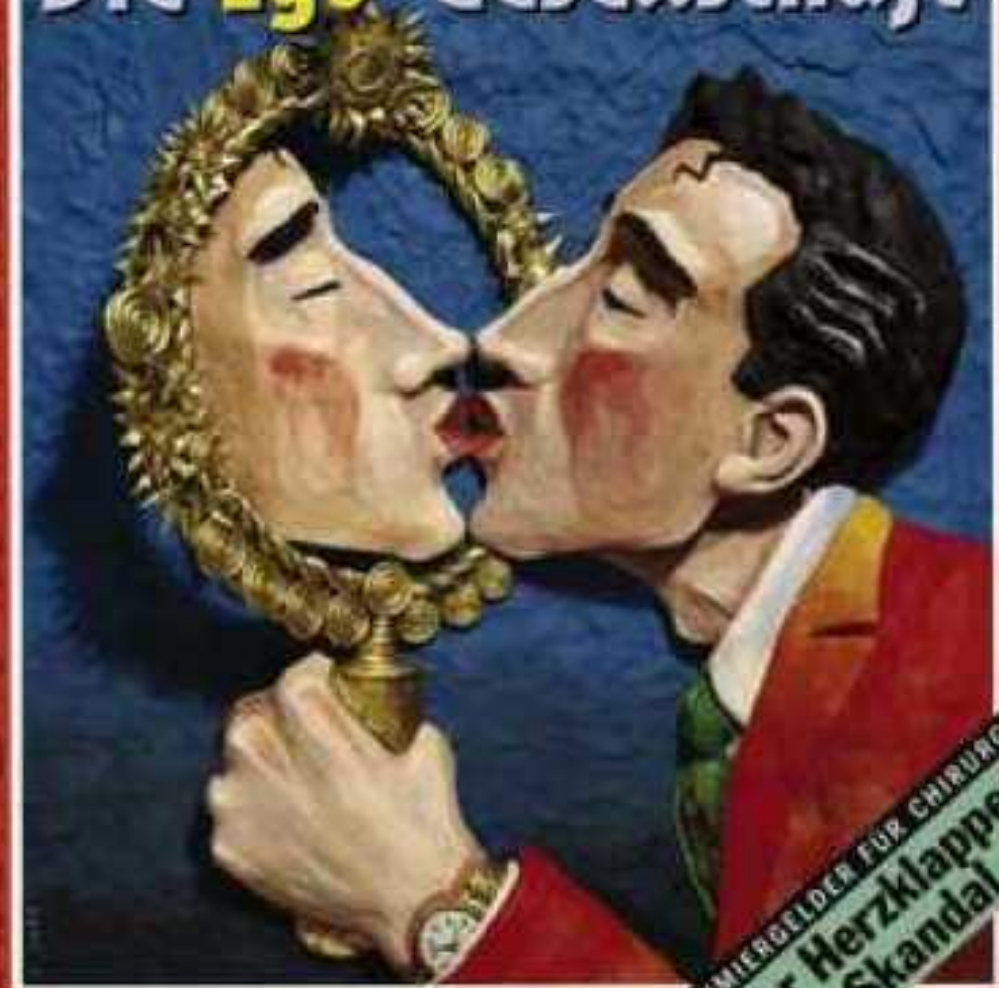
The Ego-Society

DER SPIEGEL



Jeder für sich und gegen alle

Die **Ego**-Gesellschaft

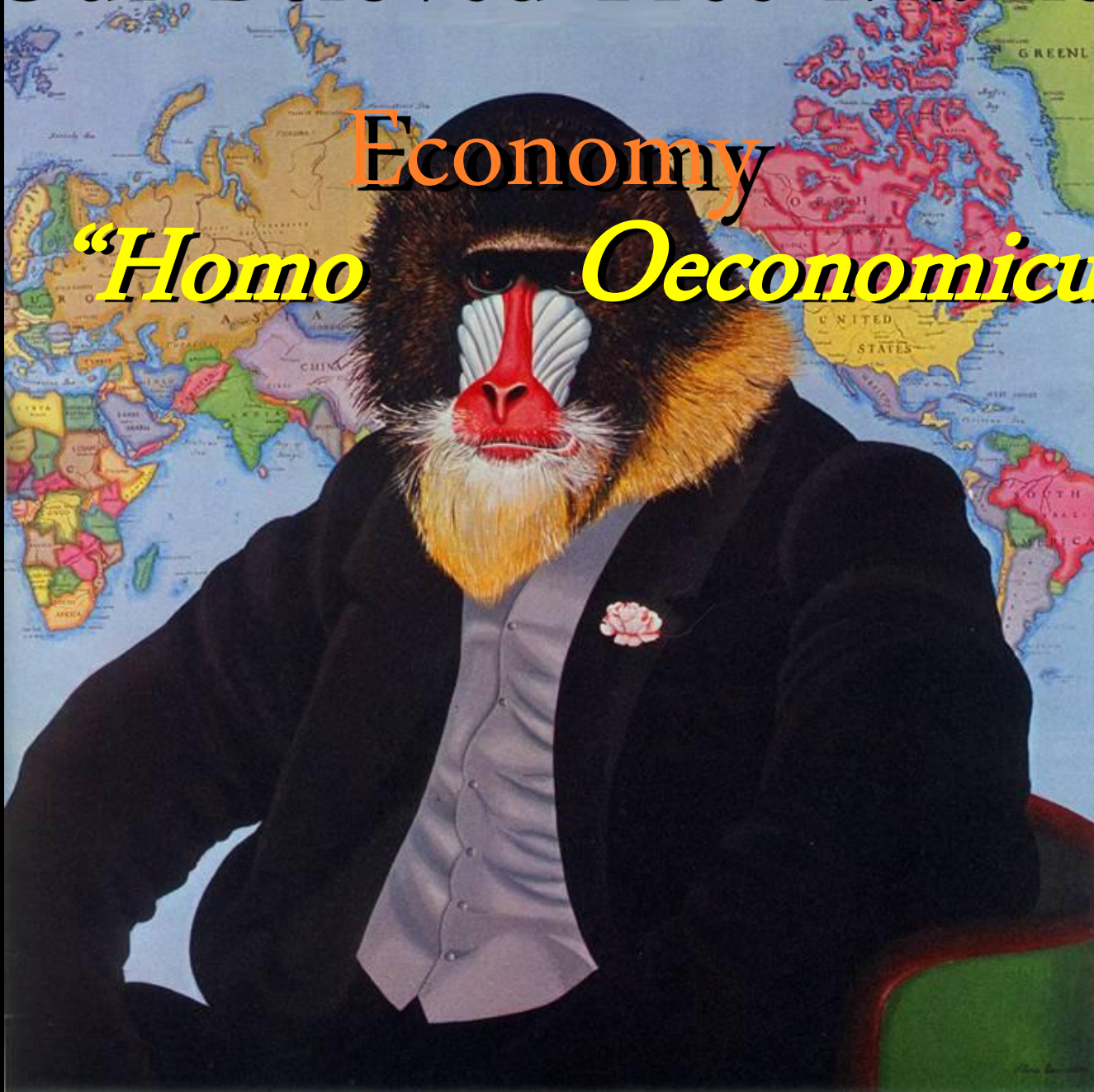


SCHMIERGELDER FÜR CHIRURGEN
Der Herzklappen-
Skandal

Our Beloved Free Market

Economy

“Homo Oeconomicus”



FREE MARKET ECONOMY

- **Maximum Profits**
- **Maximum Share-Holder Value**
- **No Ethics**
- **No Moral**
- **No Global Responsibility**

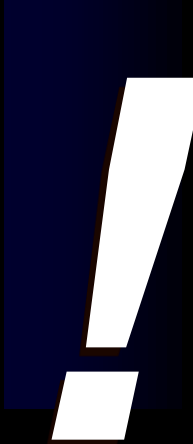


Today,
Competition
*is more
important
than*
Cooperation.



Hurry Sickness!

**To succeed, we have to run
faster every day**



***Are we running in the
proper direction ??***



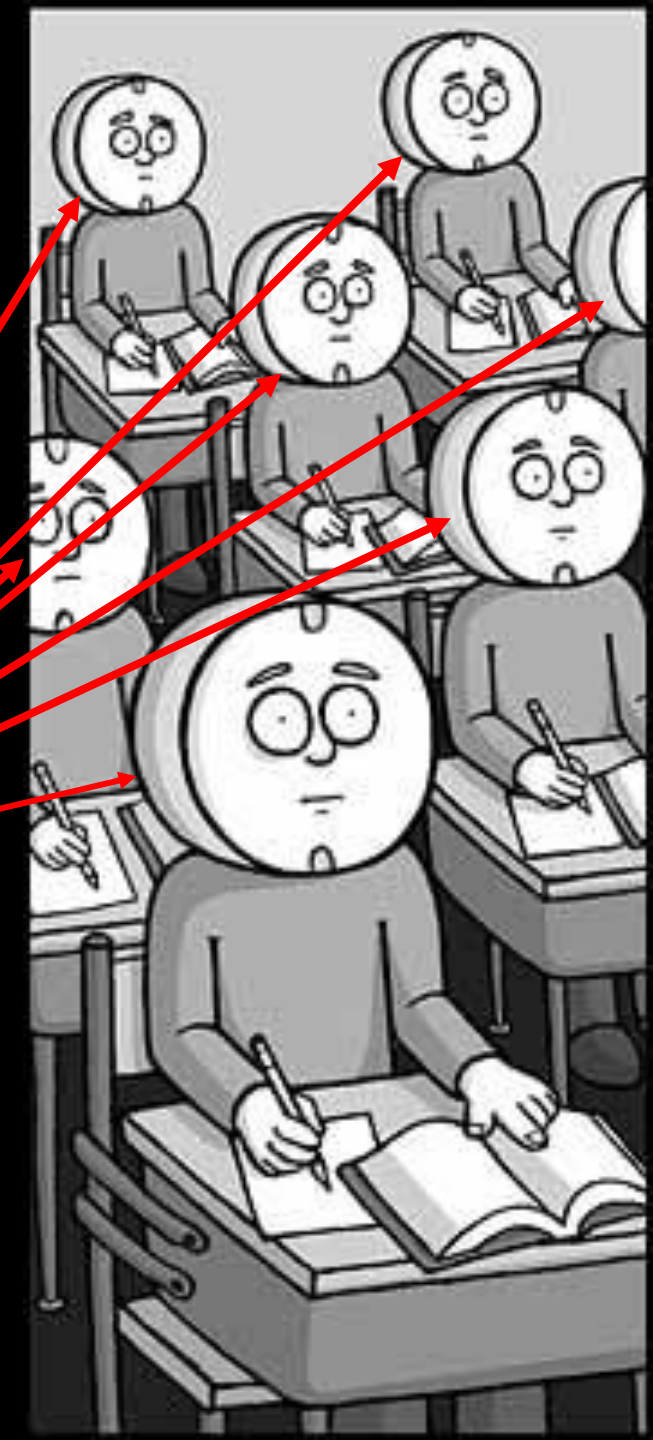
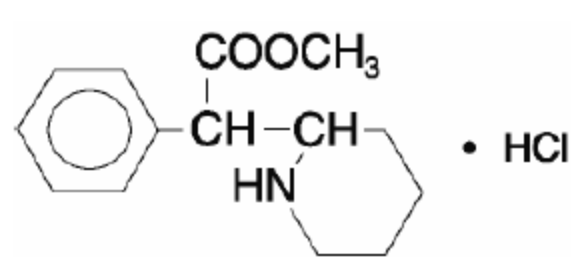


We sit in an acceleration trap !

ADD Attention Deficit Disorder

*The fate of
our Children!*

ADHD Attention Deficit Hyperactivity Disorder





Cure

or

Kill

by

Drugs ?

A painting of a ship's mast and rigging in a stormy sea. The mast is a dark, vertical structure on the right side, with a complex network of ropes and rigging extending across the frame. The sea is depicted with dark, turbulent waves, and the sky is a deep, dark blue. The overall mood is one of danger and uncertainty.

Who will keep our boat afloat ?

*We are in great need of
novel, farsighted, and
fair approaches !*

Politics ?

Economy ?

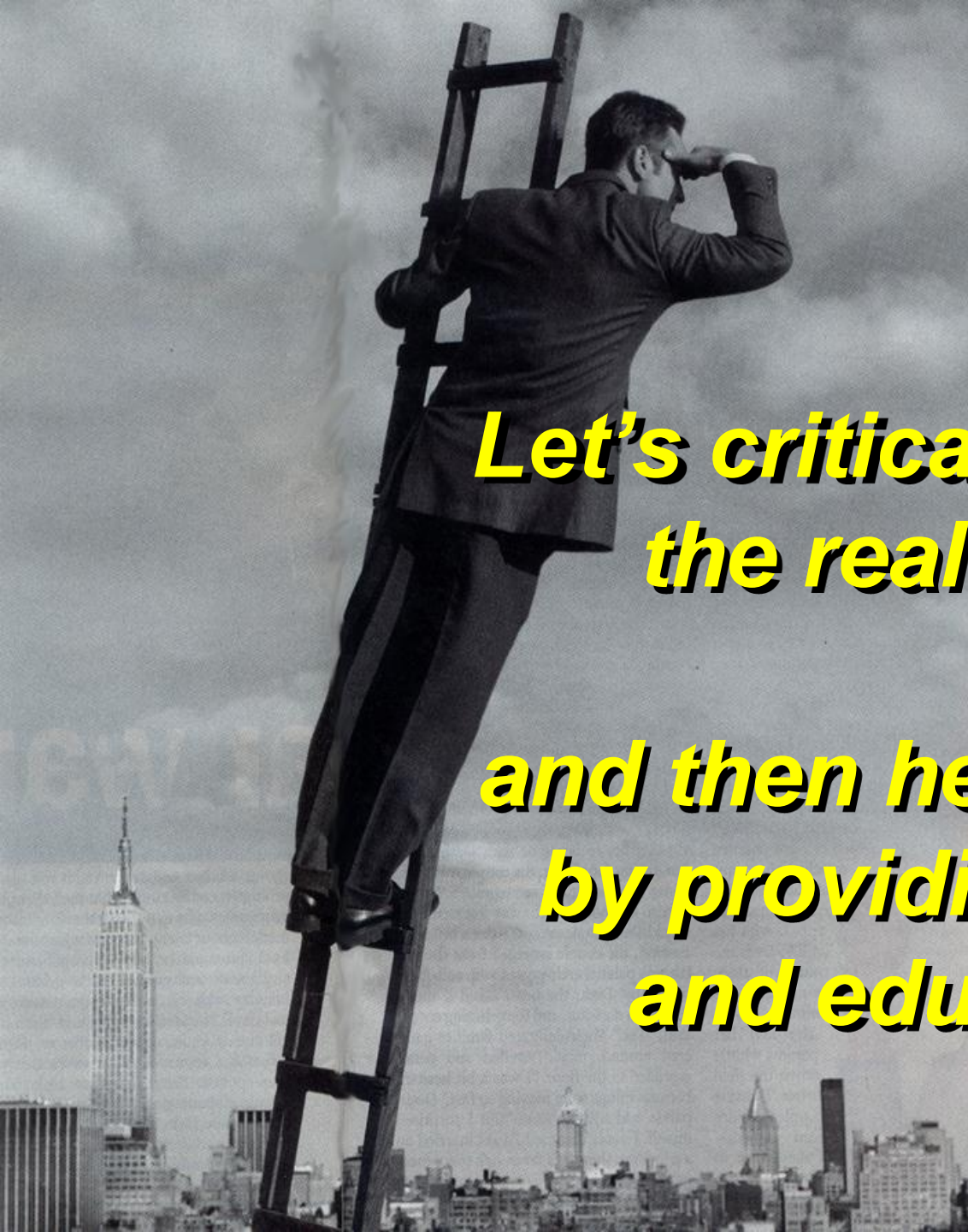
Academic Community?

Subjects yet to be discussed

1. Today's World

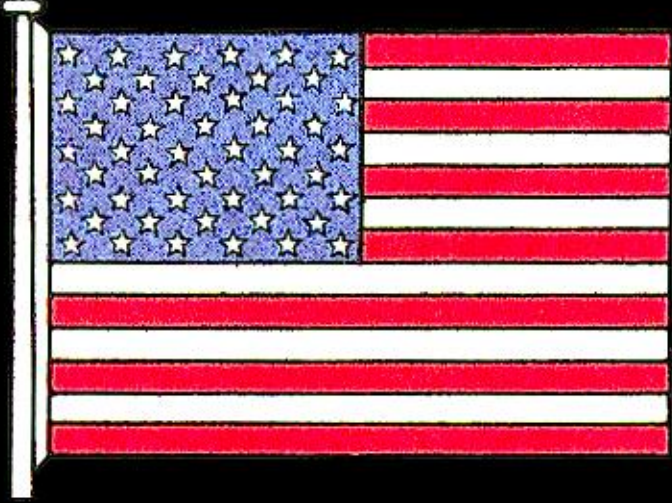
2. Politics, economy, and environment

3. Opening doors



***Let's critically observe
the real world ;***

***and then help steering
by providing advice
and education !***



*“The US cooks
The dinner.”*

*“The EU does
the dishes.”*



Robert Kagan, *“Power and Weakness”*
Policy Review 113 (2002)

What can Europe, Asia, and Africa contribute ?

Strengthening of International Organizations !

- **Renewal of the UN:**
 - Stengthening its Competence
 - New composition of Security Council
 - Elimination of Veto Rights
 - Creation of a UN Force
- **International Criminal Court**
- **Renewal of WTO**
 - Increasing the Third World's Rights
- **World Future Council**

International Organizations

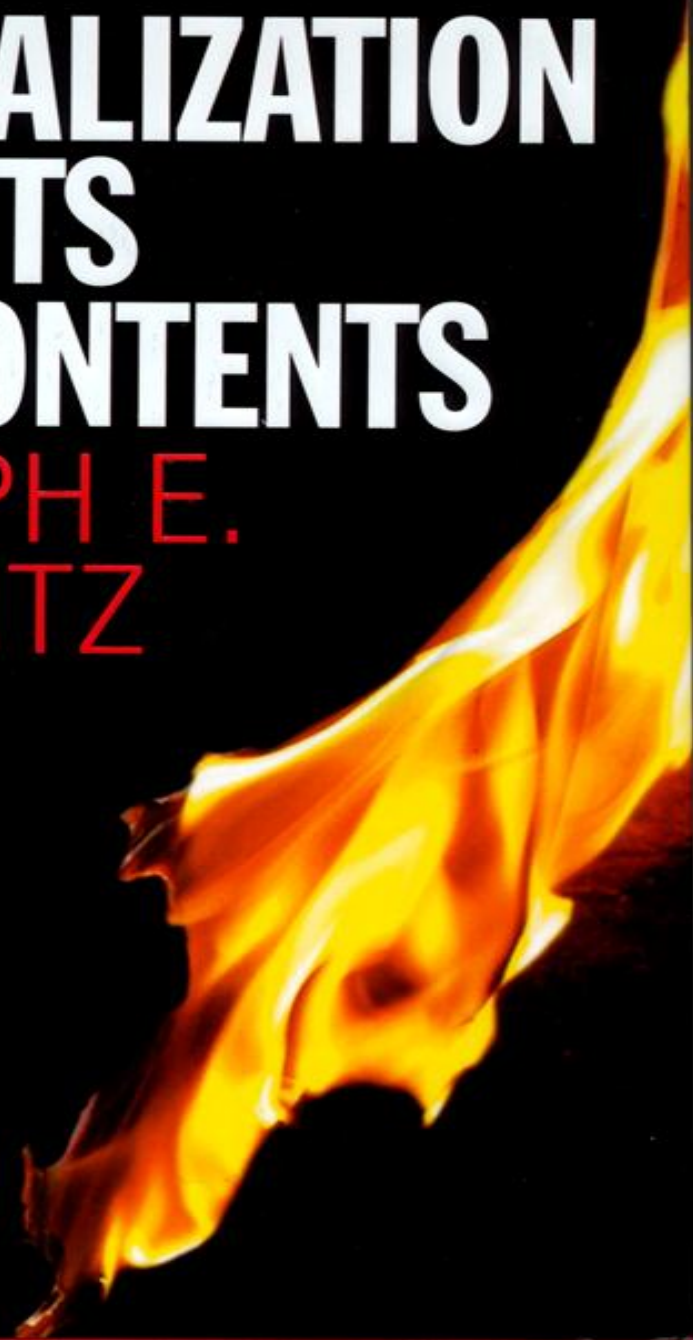
***Help Safeguarding a
Beneficial Global Future***



GLOBALIZATION AND ITS DISCONTENTS

JOSEPH E.
STIGLITZ

Winner of the
2001 Nobel Prize
in Economics



***“We can not go back
on globalization;
it is here to stay.***

***The issue is how we
can make it to work.***

And if it is to work,

there have to be global institutions

to help set the rules.”



Joseph E. Stiglitz

Nobel Prize 2001

What has Europe contributed ?

Idea of Unification



Black Sheep in Europe



A Glimpse of Hope in a Dark

A globe centered on the Indian Ocean region, showing parts of Asia, Australia, and the Indian Ocean. The globe is semi-transparent, allowing the text to be clearly visible. Labels on the globe include 'ARCTIC OCEAN', 'INDIAN OCEAN', 'INDONESIA', 'INDIA', 'Arabian Sea', 'Tropic of Capricorn', 'Equator', and 'PACIFIC'.

***The global market is
not a lemon,
to be squeezed for profits,
but an obligation
for global responsibility!***

A world map with a grid overlay. Several regions are highlighted with colored dots: yellow dots in Russia, Brazil, and parts of Africa; orange dots in Africa; and purple dots in India and Madagascar. The text 'An International Agency for Global Resource Management is urgently needed!' is overlaid in the center. 'An International Agency for' and 'is urgently needed!' are in white, while 'Global Resource Management' is in yellow.

An International Agency for Global Resource Management is urgently needed!



Greenhouse gases do not respect borders!

***An International Tax on
Greenhouse Gases is urgent
for helping the developing Nations
to adapt to the new situation.***

(an initiative supported by the Swiss Government)

Tobin Tax Initiative

Tobin Taxes are excise taxes on cross-border currency transactions. The revenue should go to global priorities: basic environmental and human needs.

Such taxes will help tame the currency market volatility and restore national economical sovereignty.



**Money Mindedness
corrupts !**



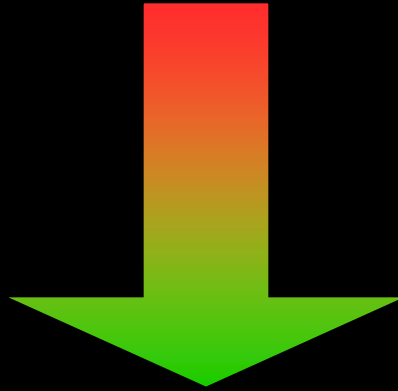
For the payment of our CEOs:

BONUS CERTIFICATE

\$ 100'000.--

TO BE SPENT FOR CHARITABLE CONTRIBUTIONS ONLY !

Free Market Economy



Responsible Market Economy
(possibly enforced by law)

POLLUTION

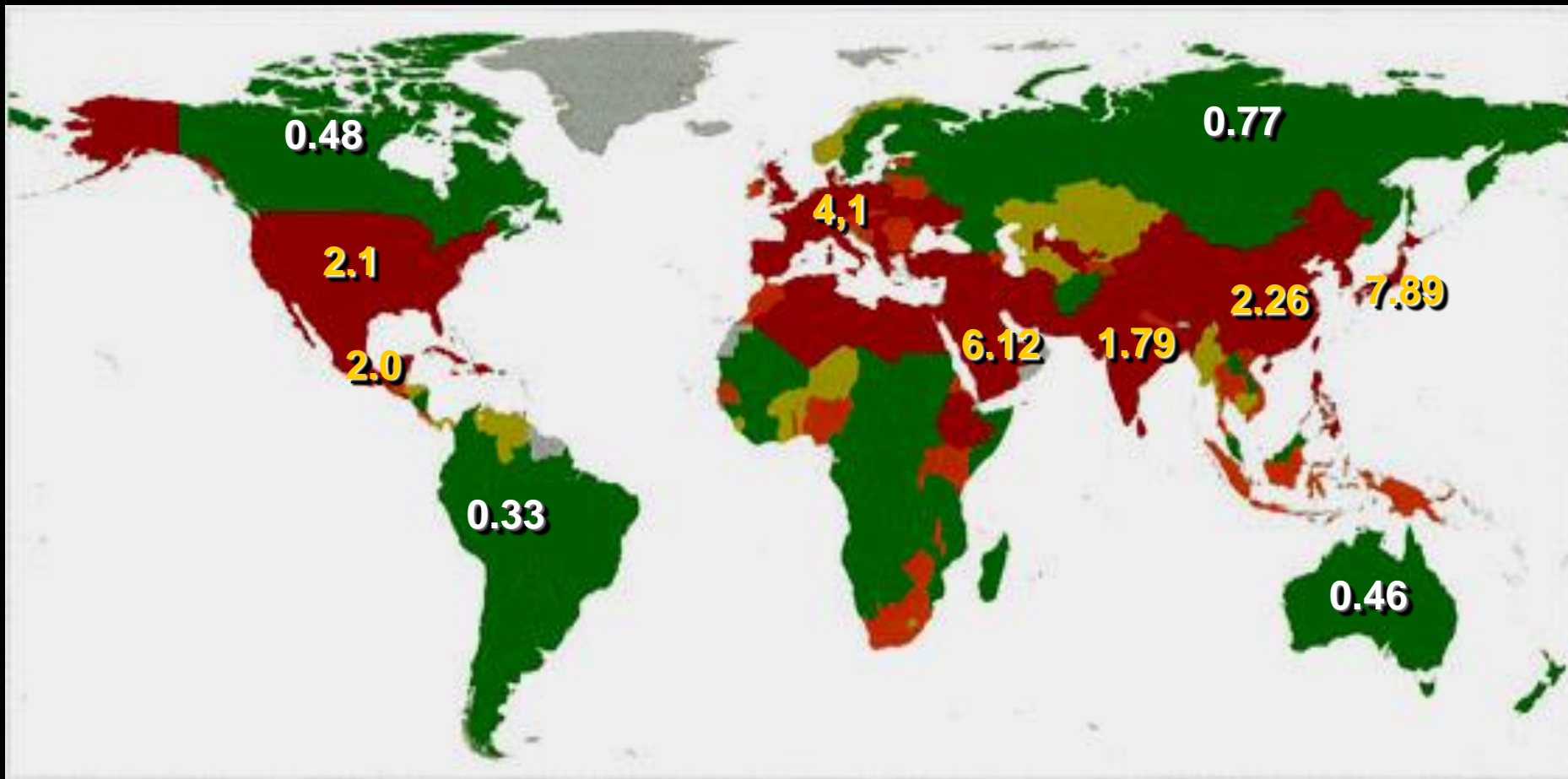
A photograph of an industrial facility, likely a power plant or refinery, with several tall smokestacks emitting thick, dark smoke. The sky is a mix of orange and purple, suggesting a sunset or sunrise. In the foreground, there are dark, silhouetted structures and what appears to be a large pile of material, possibly coal or waste. The word "Ecology" is written in a large, white, italicized font across the center of the image.

Ecology

First Law of Sustainability:
Minimize your dependency
on unnecessary commodities,
even if this might hurt economy!



Ecological Footprint / Biocapacity



Ecological **Debtor** and **Creditor** Countries



***Let's get out
from our Ivory Towers !
Outreach Programs***

"He intends only his own gains
and he is in this, as in many
other cases led by an
invisible hand

**I can assure you,
there is no invisible hand !!**

...pursuing his own interests
...promotes that of
...more effectually than when
...really intends to promote it."

Adam Smith (1776)



Adam Smith was a moral man.

However, the interpretation

of his words is utterly immoral !!

THE THEORY OF MORAL SENTIMENTS

by Adam Smith, 1759

Professor of Moral Philosophy in the University of Glasgow

How selfish soever man may be supposed, there are evidently some principles in his nature, which interest him in the fortune of others, and render their happiness necessary to him, though he derives nothing from it except the pleasure of seeing it.

.....benevolence.....compassion.....sympathy.....love.....



1. Recognizing and **respecting the limits**, imposed by the need to preserve the natural resources for future generations, we call **“sustainability”**.

It has to find its reflections in the national and international laws, as well as in our education towards a considerate usage of global resources.



Sustainability

***requests from us to meet today's needs
without compromising the necessities
of future generations.***



Lake Tahoe - By Annalyn Settelmeyer