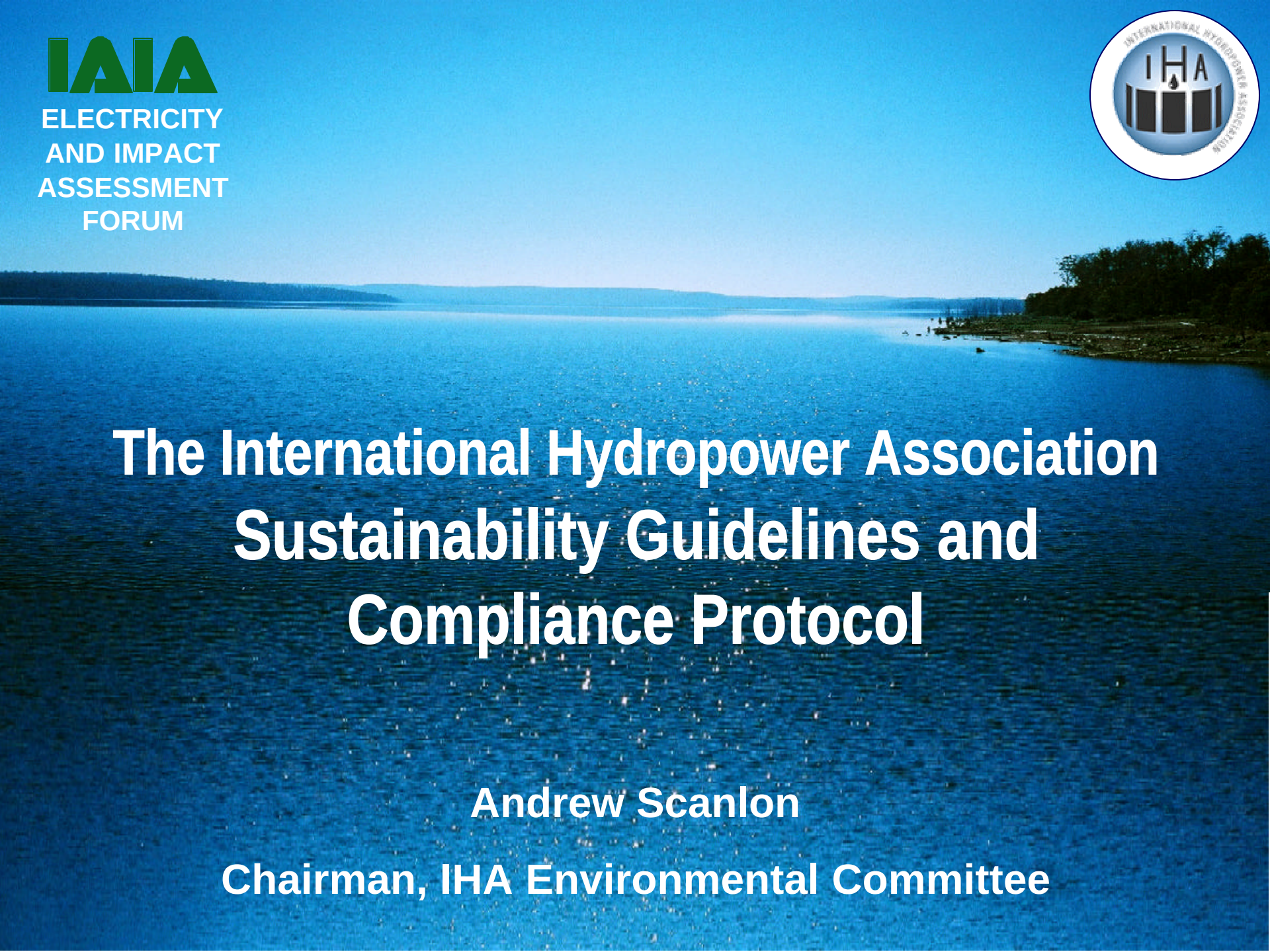

IAIA
ELECTRICITY
AND IMPACT
ASSESSMENT
FORUM
IHA
The International Hydropower Association
Sustainability Guidelines and
Compliance Protocol
Andrew Scanlon
Chairman, IHA Environmental Committee

# The International Hydropower Association

The IHA is a non-governmental mutual association of organizations and professionals working or studying in the hydropower sector.

Membership is open to all who are involved in the pursuit of excellence in the field of hydropower and its related subjects. Currently, the IHA has 874 Individual and 83 Corporate Members coming from 82 countries, representing:

- public corporations or utilities
- national or international institutions
- non-profit-making associations (professional bodies)
- commercial companies (developers, owners, manufacturers, engineering and construction companies)
- educational and research establishments

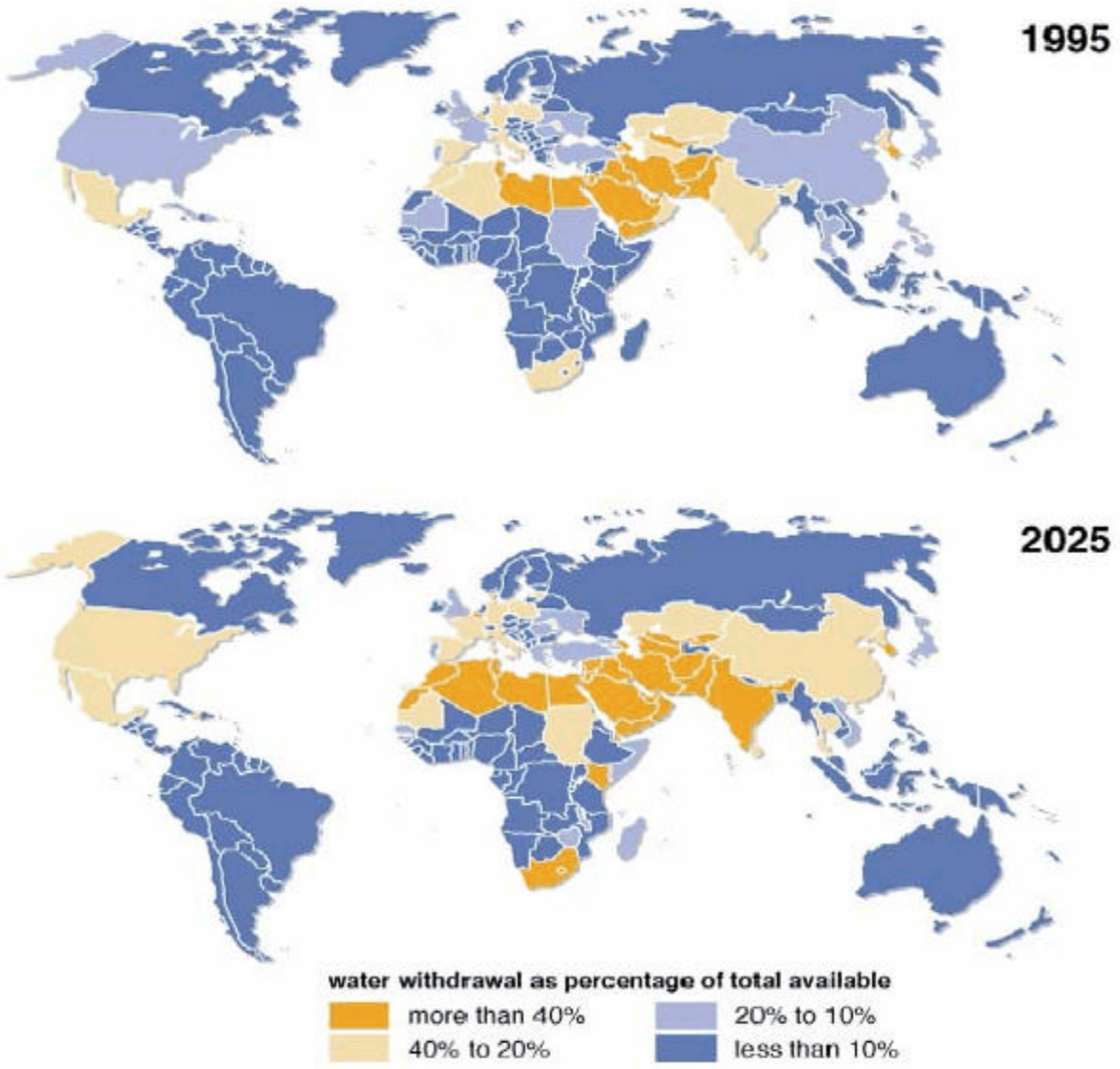
# Defining Sustainable Development

***Sustainable development*** meets the needs of the present without compromising the ability of future generations to meet their own needs (*WCED, 1987*).

- Economic development
- Social development
- Environmental protection

# World's Water Availability

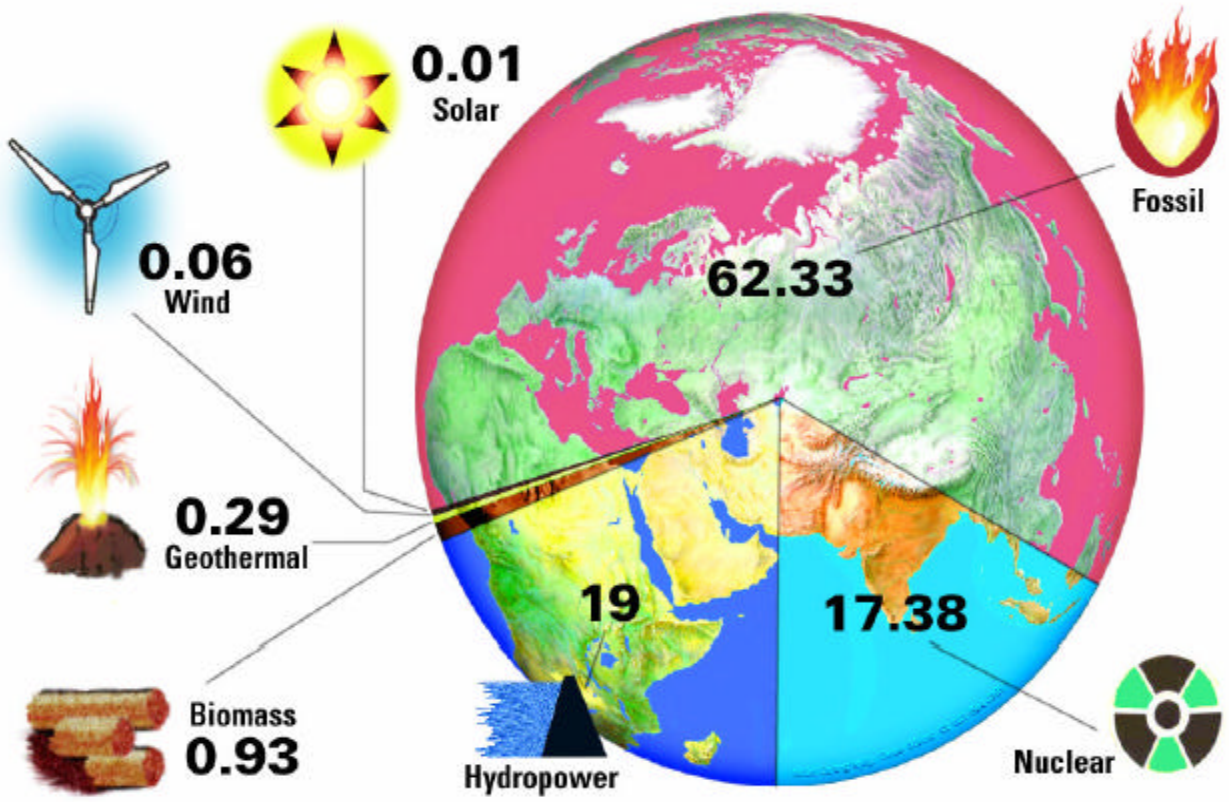
- By 2025, nearly half of the world's people will experience water shortages
- Today, over 1 billion people are without adequate water supply




Source: UNEP, 2002

# World's Electricity Sources

- At present, about 1.6 billion people have no access to electricity
- About $^{2}/_{3}$ of the world's electricity is generated from burning non-renewable fossil fuels, intensifying global warming




Source: Electricité de France

# Recent Policy

**"We recognize the role of hydropower as one of the renewable and clean energy sources, and that its potential should be realized in an environmentally sustainable and socially equitable manner."**

Ministerial Declaration of 170 Countries, World Water Forum, Kyoto 2003

**"Water, Energy, Health, Agriculture and Biodiversity (WEHAB): five key areas in which progress is possible with the resources and technologies at our disposal today."**

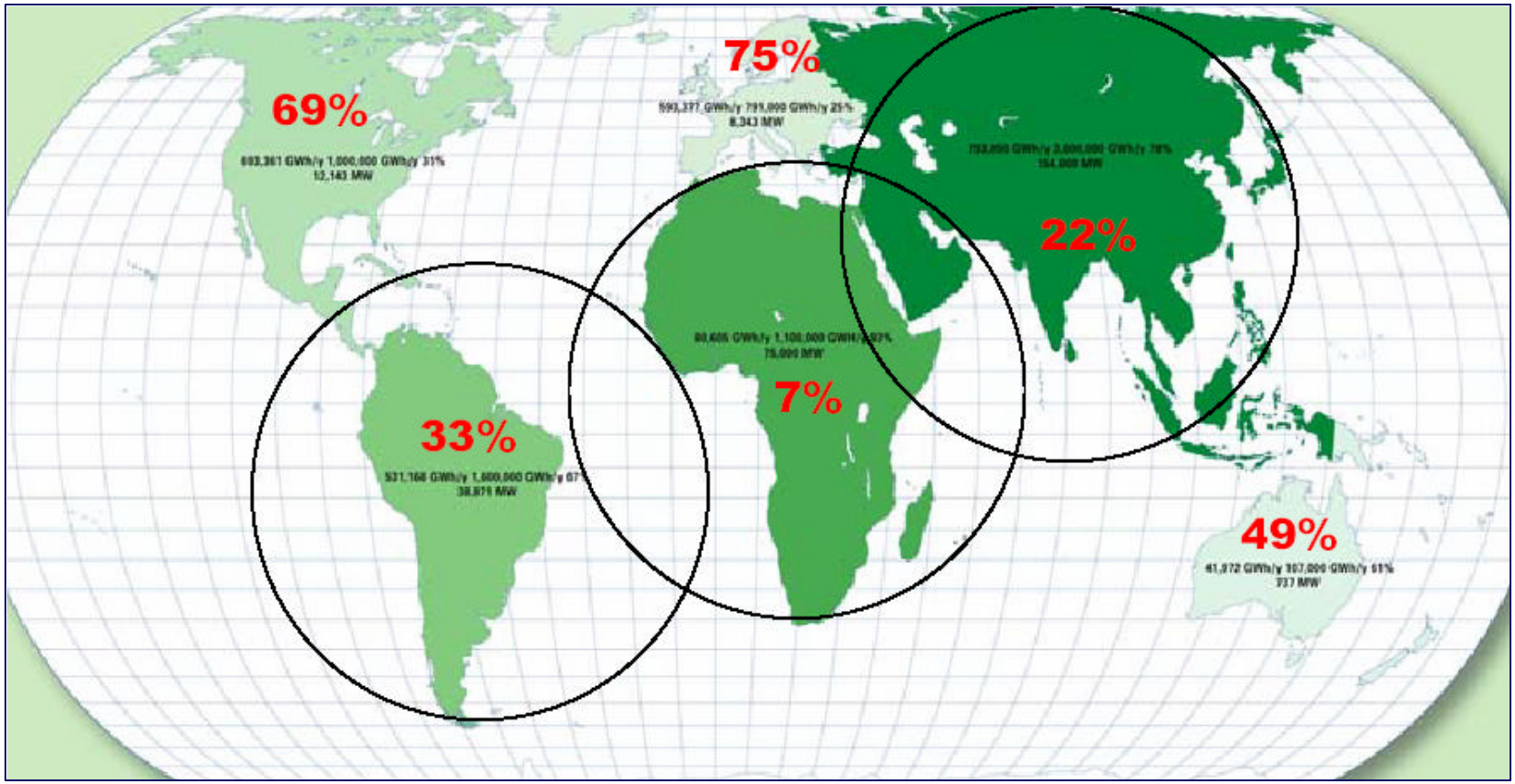
Kofi Annan, UN Secretary-General, World Summit on Sustainable Development, Johannesburg 2002

# Worldwide Hydropower Potential

World's realistic potential developed: 33%

Current hydropower production: 2740 TWh/y

Realistic potential production: >8000 TWh/y

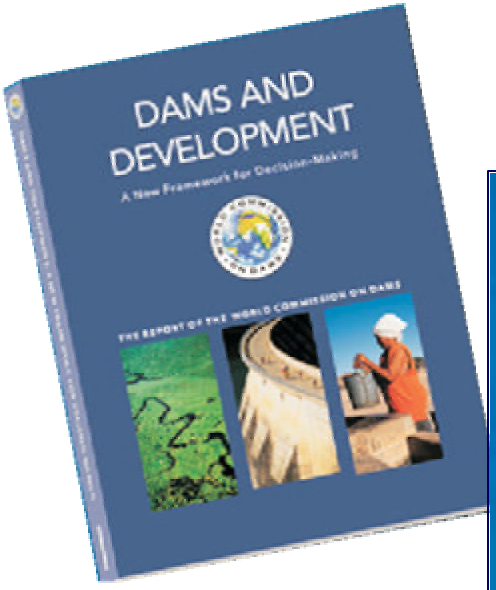


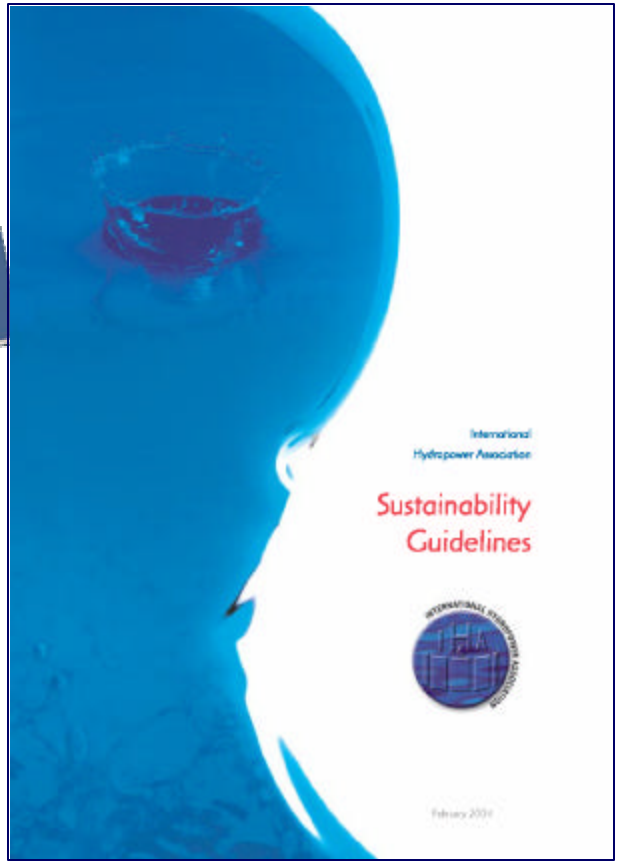
# Criticisms of hydropower

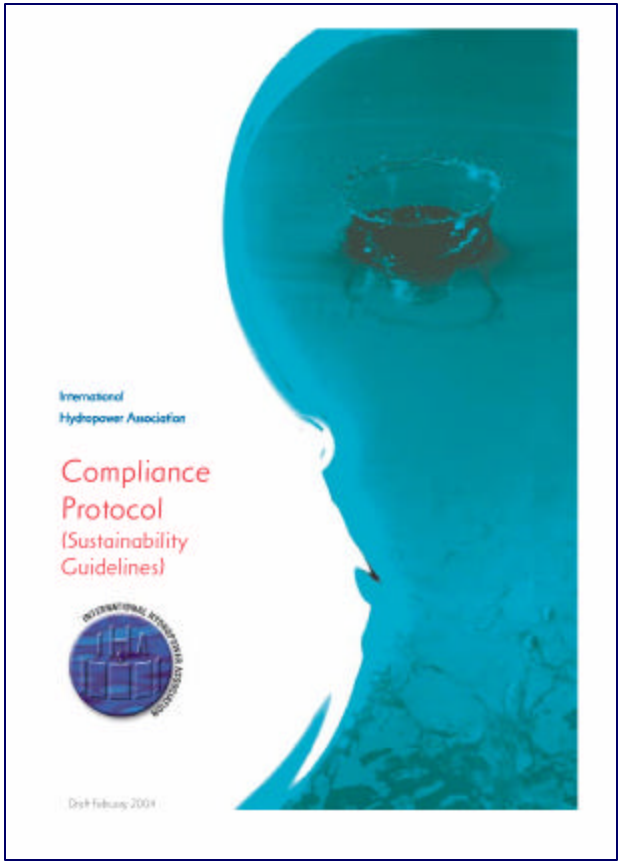
- Damages ecosystems
- Disrupts societies through population displacement
- Detrimental downstream economic impacts
- Greenhouse gas emissions
- High risk investments

# The International Hydropower Association

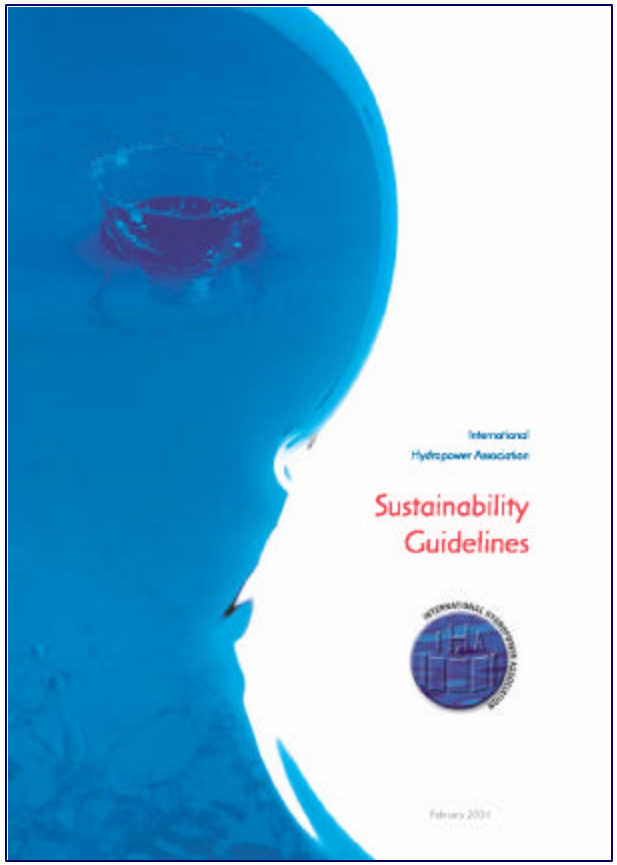
*has developed guidelines that will deliver the core values and strategic priorities of the WCD report*



# Sustainability Guidelines- table of contents



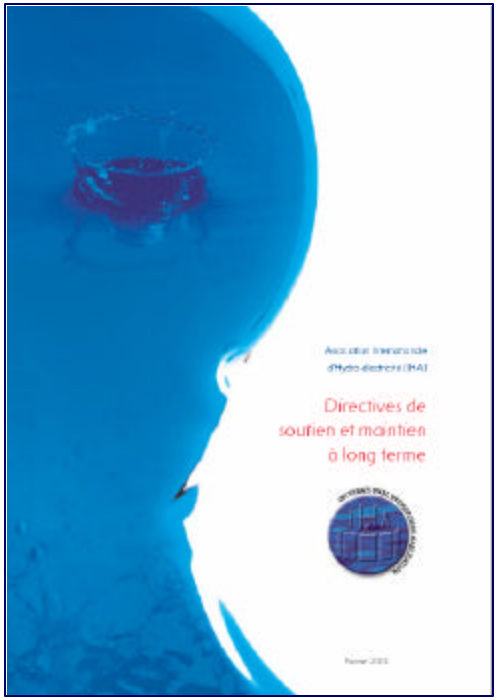

- IHA Policy
- The Role of Governments
- Decision-making Processes
- Hydropower- Environmental Aspects of Sustainability
- Hydropower- Social Aspects of Sustainability
- Hydropower- Economic Aspects of Sustainability
- IHA Member Commitment to Sustainability

# Spreading the word…

IHA is promoting the use of its Sustainability Guidelines among member organisations.

To facilitate this the Guidelines are being translated into other languages:

***French***



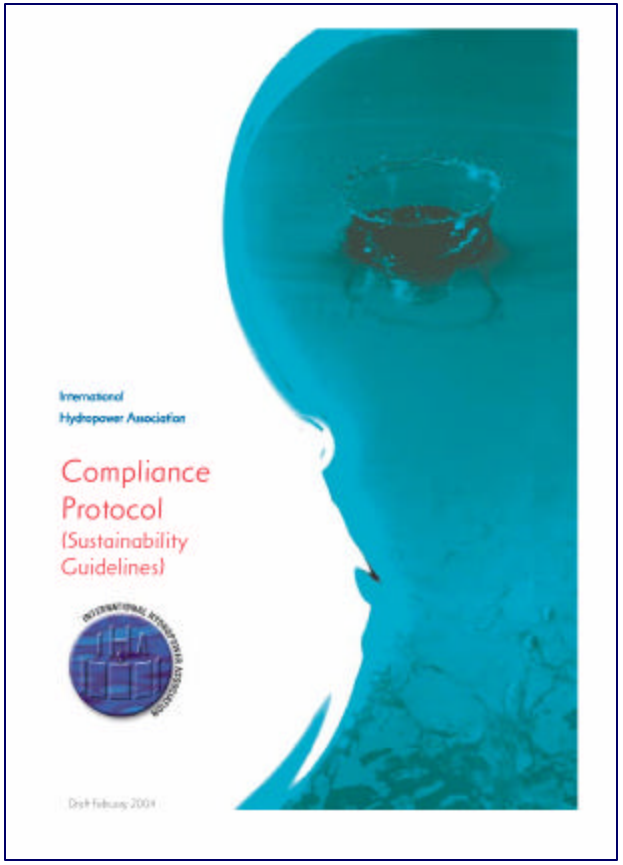


***Portuguese***

# IHA Sustainability Compliance Protocol

The Compliance Protocol objectively evaluates:

- New Energy Supply Options
- New Hydropower Project Alternatives
- Operation and Management of Existing Hydropower Schemes

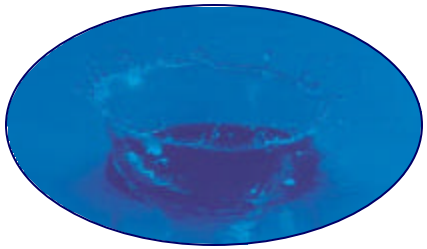


# IHA Sustainability Compliance Protocol

The first two rating assessments are intended to be used to establish which supply options would best meet sustainability criteria.

The third is intended to be used as an industry self-evaluation tool to identify opportunities for performance improvements against sustainability criteria.

For each of the three themes, an assessment and ranking system is proposed considering fundamental economic, social and environmental aspects of sustainability.



# New Energy Supply Options

## Summary of Aspects and Scores

| | Aspect | Score | | Aspect | Score |
|---|---|---|---|---|---|
| A1 | Demonstrated need for the project | | A11 | Community acceptance | |
| A2 | Supply-side and demand-side efficiencies | | A12 | Multiple use benefits | |
| A3 | Economic viability and planned monitoring for ongoing performance | | A13 | Opportunities and threats to vulnerable social groups | |
| A4 | Distribution and sustainability of economic benefits | | A14 | Cultural heritage | |
| A5 | Longevity of benefits | | A15 | Safety issues and hazards | |
| A6 | Range and flexibility of electricity supply services | | A16 | Environmental impact assessment | |
| A7 | Reliability of primary energy supply | | A17 | Level of environmental impact | |
| A8 | Energy efficiency of option | | A18 | Environmental footprint | |
| A9 | Energy payback ratio | | A19 | Waste products | |
| A10 | Long-term resource depletion | | A20 | Carbon intensity | |

# New Energy Supply Options

## Aspect A1: Demonstrated need for the project

**Assessments have been carried out by regulatory authorities or the proponent to demonstrate a need for the project.**

**These assessments should include:**

- **evidence of likely future energy requirements**
- **evaluation of a range of alternative options (including practicable efficiency measures) to meet those requirements, and**
- **evidence that this project is the best option to meet those requirements.**

| Score | Assessment carried out | Demonstrated need for the project |
|---|---|---|
| 5 = highest | Yes | And need for the project is clearly demonstrated and it is the best option |
| 3 = medium | Yes | And some degree of uncertainty in the need for the project or whether this project is the best option |
| 1 = low | Yes | And significant uncertainty in the need for the project or whether this project is the best option |
| 0 = zero | No | Or need for the project not demonstrated or it is clearly not the best option |

# New Energy Supply Options

## Aspect A11: Community acceptance

**Assessments of the degree of community acceptance for the project and the processes used to gain that support**

| Score | Degree of community acceptance | Stakeholder consultation process |
|---|---|---|
| 5 = highest | Strong community support or no significant community opposition | …and comprehensive stakeholder consultation process |
| 3 = medium | Strong community support or no significant opposition | …and modest stakeholder consultation process |
| | **OR** | |
| | Some continuing opposition to the project | …and comprehensive stakeholder consultation process |
| 1 = low | Some continuing opposition to the project | …and modest stakeholder consultation process |
| 0 = zero | Significant, broad-based opposition to the project | …or no stakeholder consultation program |

# New Energy Supply Options

## Aspect A16: Environmental Impact Assessment

**An environmental impact assessment has been undertaken for the project, and it:**

- **Thoroughly identifies relevant issues**
- **Has included appropriate levels of stakeholder consultation, and**
- **Recommends effective and community and regulator-supported mitigation strategies and/or compensation measures.**

| Score | |
|---|---|
| 5 = highest | Impact assessment strong in all three areas |
| 3 = medium | Impact assessment has weaknesses in one of the three areas |
| 1 = low | Impact assessment has weaknesses in two of the three areas |
| 0 = zero | Inadequate environmental impact assessment |

# New Energy Supply Options

## Aspect A17: Level of Environmental Impact

**Measures the degree of environmental impact due to the project. The level of environmental impact relates to:**

- **The extent and severity of impact**
- **The value of the environment upon which the impact occurs, and**
- **The degree to which it can be mitigated and/or compensated.**

**Environmental value relates to uniqueness, rarity and existence of threatened or endangered species or habitat.**

| Score | |
|---|---|
| 5 = highest | Minor environmental impacts with adequate planned mitigation and/or compensation |
| 3 = medium | Moderate to significant environmental impacts largely able to be mitigated and/or compensated |
| 1 = low | Significant environmental impacts on lower value environments not able to be largely mitigated and/or compensated |
| 0 = zero | Significant environmental impacts on higher value environments not able to be largely mitigated and/or compensated |

# Operating Hydropower Schemes

## Aspect C14: Environmental Impact Assessment and Environmental Management Plans

**Scheme is meeting commitments in the environmental impact assessment (EIA) and environmental management plans (EMPs)**

| Score | Assessment of compliance with EIA/EMP commitments | Standard of Compliance |
|---|---|---|
| 5 = highest | Assessment completed | And scheme is meeting or exceeding commitments made during EIA and EMP processes |
| 3 = medium | Assessment completed | And nearly all commitments met |
| 1 = low | Adequacy of assessment in question | Or some commitments not met |
| 0 = zero | No assessment carried out | Or scheme operations failing to meet a large number of commitments |

*…questions?*