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corporate website: www.sustainable-design.ie
**technical blog: www.cjwalsh.ie**

SDI is a professional, trans-disciplinary and collaborative
design, architectural, fire engineering, research, and consultancy practice ...
specialists in the theory and practical implementation of a
Sustainable Human Environment (social, built, virtual & economic).

What is Sustainable Development ?

World **C**ommission on **E**nvironment & **D**evelopment [WCED]
1987 Report: 'Our Common Future' - Chapter 2, Paragraph #1

#1. Sustainable Development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts:

- the ***concept of 'needs'***, in particular the essential needs of the world's poor, to which overriding priority should be given ; and

- the ***idea of limitations*** imposed by the state of technology and social organization on the environment's ability to meet present and future needs.
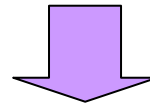
1992 UN Rio Declaration on Environment & Development

[1992 United Nations Framework Convention on Climate Change + 1997 Kyoto Protocol]

1972 UN Stockholm Declaration on the Human Environment

[1985 UN Vienna Convention for the Protection of the Ozone Layer + 1987 Montreal Protocol]

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What is Sustainable Development ?

World **C**ommission on **E**nvironment & **D**evelopment [WCED]
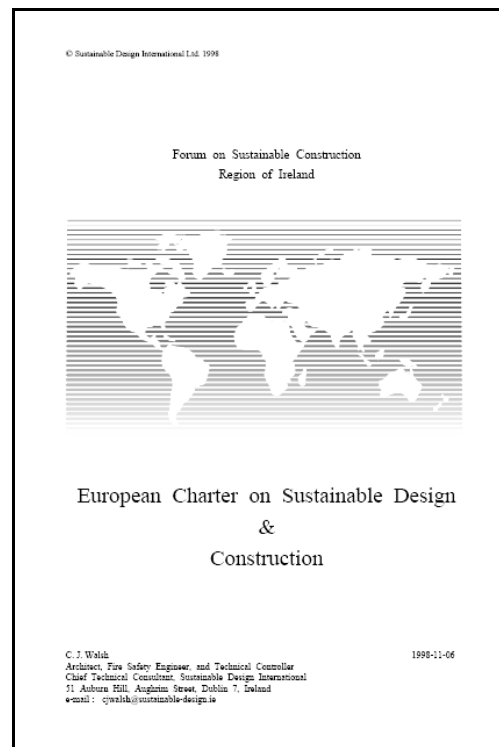**1987 Report: 'Our Common Future' - Chapter 2, Paragraphs #2, #3 & #4 - Key Phrases**

#2.   Thus, the goals of **economic and social development** must be defined in terms of sustainability in all countries - developed or developing, market-oriented or centrally planned. Interpretations will vary, but must **share certain general features** and must flow from a **consensus** on the basic concept of sustainable development and on a **broad strategic framework** for achieving it.

#3.   Development involves a **progressive transformation** of economy and society.   A development path that is sustainable in a physical sense could theoretically be pursued even in a rigid social and political setting. But physical sustainability cannot be secured unless development policies pay attention to such considerations as changes in **access to resources** and in the **distribution of costs and benefits**. Even the narrow notion of physical sustainability implies a concern for **social equity between generations**, a concern that must logically be extended to **equity within each generation**.

#4. The satisfaction of **human needs and aspirations** is the major objective of development. The essential needs of vast numbers of people in developing countries - for food, clothing, shelter, jobs - are not being met, and beyond their basic needs these people have legitimate aspirations for an **improved quality of life**. A world in which poverty and inequity are endemic will always be prone to ecological and other crises. Sustainable development requires meeting the **basic needs of all** and **extending to all the opportunity** to satisfy their aspirations for a better life.

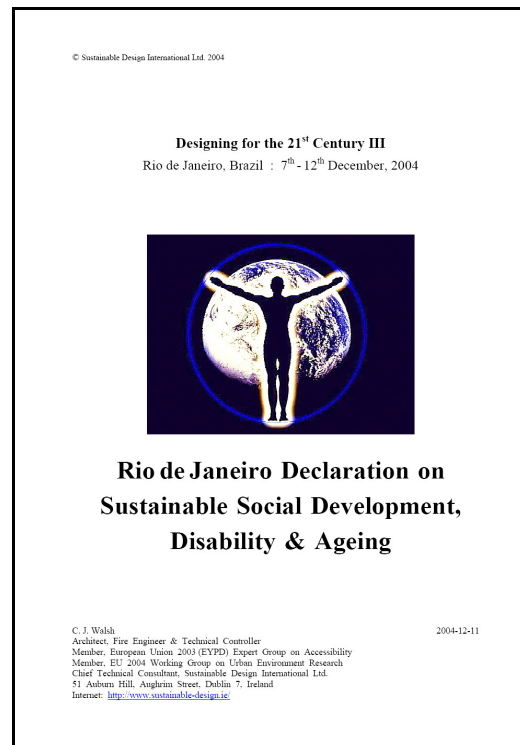# 1998 European Charter on Sustainable Design & Construction

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Forum on Sustainable Construction
Region of Ireland

European Charter on Sustainable Design
&
Construction

C. J. Walsh   1998-11-06
Architect, Fire Safety Engineer, and Technical Controller
Chief Technical Consultant, Sustainable Design International
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[refer to - http://www.sustainable-design.ie/sustain/documents.htm#eurocharter]

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2004 Rio de Janeiro Declaration on Sustainable Social Development, Disability & Ageing

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Designing for the 21st Century III
Rio de Janeiro, Brazil : 7th - 12th December, 2004

Rio de Janeiro Declaration on Sustainable Social Development, Disability & Ageing

C. J. Walsh   2004-12-11
Architect, Fire Engineer & Technical Controller
Member, European Union 2003 (EYPD) Expert Group on Accessibility
Member, EU 2004 Working Group on Urban Environment Research
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Internet: http://www.sustainable-design.ie/

[refer to - http://www.sustainable-design.ie/sustain/documents.htm#rio-social]

... / ...

... / ...

Sustainable Human & Social Development

Sustainable Design International [SDI]

Development which meets the responsible needs, i.e. the Human & Social Rights*, of this generation - without stealing the life and living resources from future generations, especially our children ... and their children ... and the next five generations of children.

* As defined in the 1948 Universal Declaration of Human Rights

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Transforming Social Organization ... the **Ultimate Goal** is to arrive, quickly, at a dynamic and harmonious balance between a Sustainable 'Human' Environment and a flourishing, not just a surviving, 'Natural' Environment ... with the **Overall Aim** of achieving Social Wellbeing for All.


Social Wellbeing

A general condition - in a community, society or culture - of health, happiness, creativity, responsible fulfilment, and sustainable development.

Many Aspects to Sustainable Development

Social + **Economic** + **Environmental** + **Institutional**

[Social Organization]

+ **Political** + **Legal** + **Judicial**

[Regional & National]

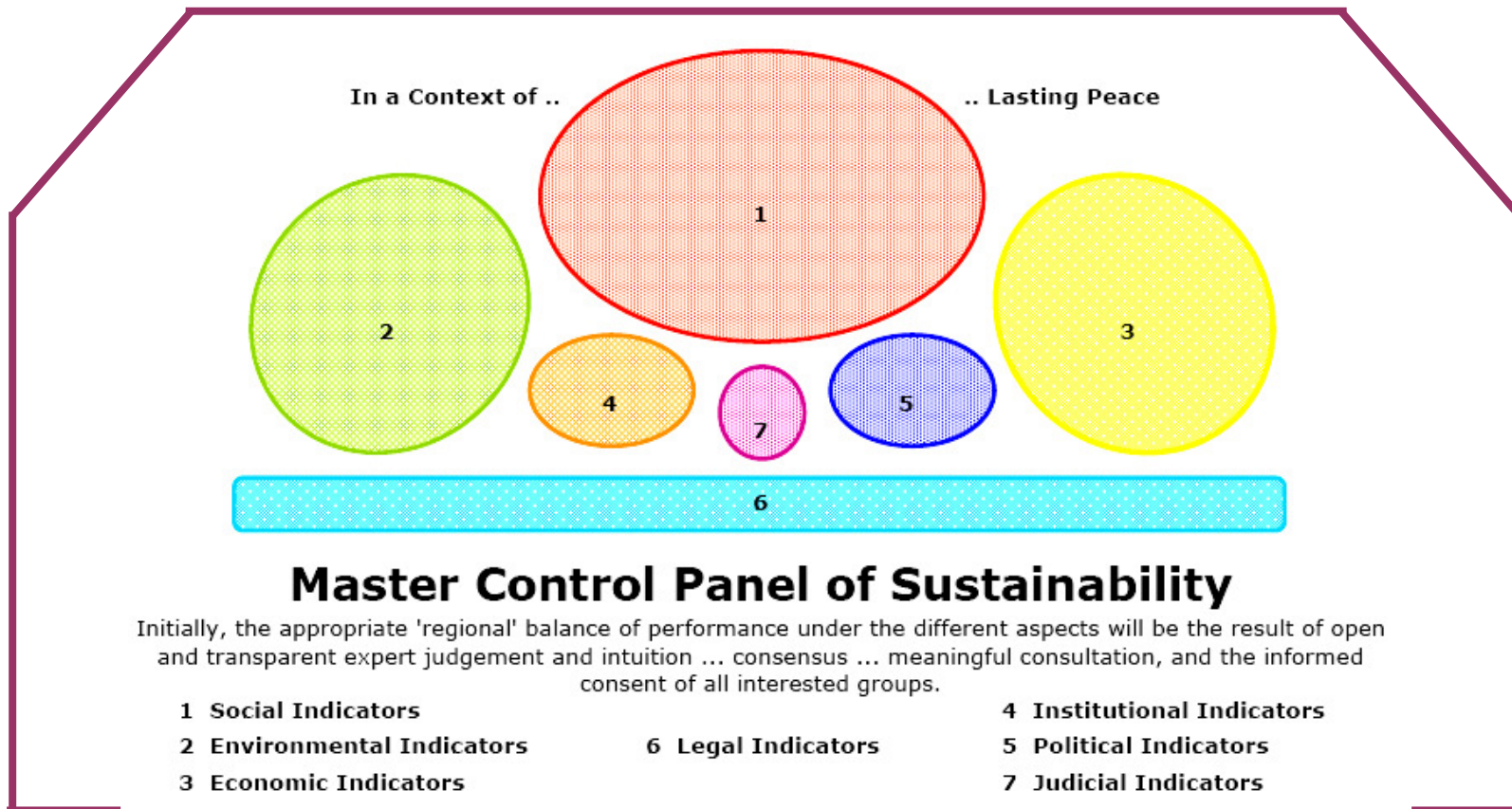... in a context of **Effective International Law** & **Lasting Peace**
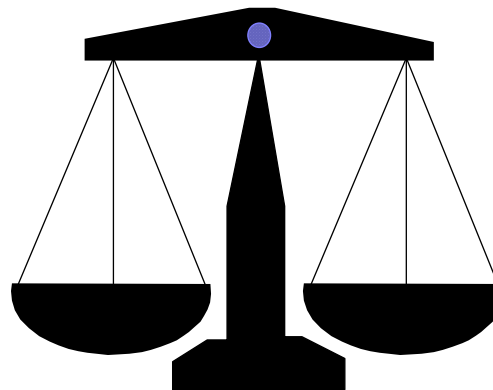
Balanced, Synchronous Implementation of All Aspects is a Fundamental Value & Principle !

[see 2007 Leipzig Charter on Sustainable European Cities]

Targeting & Monitoring Sustainability
Developed in 2004 by Sustainable Design International [SDI]

In a Context of ..   .. Lasting Peace

1

2

3

4

7

5

6

Master Control Panel of Sustainability

Initially, the appropriate 'regional' balance of performance under the different aspects will be the result of open and transparent expert judgement and intuition ... consensus ... meaningful consultation, and the informed consent of all interested groups.

1 Social Indicators   4 Institutional Indicators

2 Environmental Indicators   6 Legal Indicators   5 Political Indicators

3 Economic Indicators   7 Judicial Indicators

[refer to - http://www.sustainable-design.ie/sustain/internationalpapers.htm#bari]

Fundamental Matrix of Construction Indicators

Developed in 1999 by Sustainable Design International [SDI]

Design, Construction & Logistics			Social			Economic			Environmental			Institutional			Political		
			Driving Force	State	Response	Driving Force	State	Response	Driving Force	State	Response	Driving Force	State	Response	Driving Force	State	Response
1 Design	a Spatial Planning	i Region															
		ii Urban															
		iii Rural															
		iv Marine															
	b Architectural																
	c Engineering																
	d Industrial																
2 Construction																	
3 Use																	
4 Maintenance																	
5 Adaptation																	
6 De-Construction																	
7 Disposal		i Re-Use															
		ii Recycle															
		iii Waste															
8 Products (Dir. 89/106/EEC)																	
9 Services																	
10 Incentives																	

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Climate Change as Sustainability Driver

International 'efforts' at **Climate Change Mitigation** continue to disappoint, and fail utterly ...
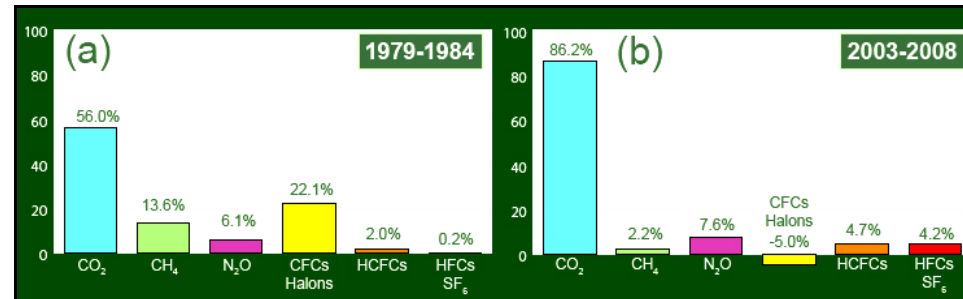
UN WMO, Greenhouse Gas Bulletin No. 5 - Published 23 November 2009

The solution ... **Climate Change Adaptation** ... encompassing urgent and immediate actions at local, national, regional and international levels ... to reduce the vulnerability and strengthen the resilience of the Human Environment, including ecological and social systems, institutions and economic sectors ... to present and future adverse effects of climate change, including variability and extremes, and the impacts of response measure implementation ... in order to minimize the local threats to life, human health, livelihoods, food security, assets, amenities, ecosystems and sustainable development ... is also the most important driving force for Sustainability.

> **Adaptation** to Climate Change is **Urgent** ... **Reliable Implementation** is the **Challenge** ...
> **Integration** into Sustainability Strategies is **Essential**.

[refer to - http://www.cjwalsh.ie/cib-w108-climate-change-the-built-environment/]

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International Law Association (ILA)

Extracts from:
2002 New Delhi Declaration of
Principles of International Law relating to Sustainable Development
+
2012 Sofia Guiding Statements on the Judicial Elaboration of the 2002 New Delhi Declaration

Noting that sustainable development is now widely accepted as a global objective and that the concept has been amply recognized in various international and national legal instruments, including treaty law and jurisprudence at international and national levels,

Emphasizing that sustainable development is a matter of common concern both to developing and industrialized countries and that, as such, it should be integrated into all relevant fields of policy in order to realize the goals of environmental protection, development and respect for human rights, emphasizing the critical relevance of the gender dimension in all these areas and recognizing the need to ensure practical and effective implementation,

Is of the Opinion that the realization of the international bill of human rights, comprising economic, social and cultural rights, civil and political rights and peoples' rights, is central to the pursuance of sustainable development,

Considers that the application and, where relevant, consolidation and further development of the following principles of international law relevant to the activities of all actors involved would be instrumental in pursuing the objective of sustainable development in an effective way:

... / ...

... / ...

1. The Duty of States to Ensure **Sustainable Use of Natural Resources**

2. The Principle of **Equity and the Eradication of Poverty**

3. The Principle of **Common but Differentiated Responsibilities**

4. The Principle of the **Precautionary Approach to Human Health, Natural Resources and Ecosystems**

5. The Principle of **Public Participation and Access to Information and Justice**

6. The Principle of **Good Governance**

7. The Principle of **Integration and Interrelationship**, in Particular in Relation to Human Rights and Social, Economic and Environmental Objectives

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On-Line Database of Sustainable Development Law
http://cisdl.org/tribunals/

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Sustainable Design International

WE are committed to ... the protection of society, the best interests of our clients, and 'user' welfare ... not just cost-effective compliance with the Minimal Health & Safety Objectives in Legislation & Codes

Critical Design Issues, such as ...

- **Sustainable Human & Social Development** ;

- Adaptation to **Climate Change**, including Variability and Extremes ... a recurrence interval of not less than 100 yrs. is used in calculations (min. sustainable building life cycle is 100 yrs.) ;

- Protection of **Weak and Vulnerable Building Users** in 'situations of risk' - see Articles 9 & 11 of the 2006 United Nations Convention on the Rights of Persons with Disabilities (CRPD) ;

- Resistance to **Fire-Induced Progressive Damage** & **Disproportionate Damage** ... incorporated in all building types, not just buildings above an arbitrary threshold height ; and

- **Safety of Firefighters & Rescue Teams** - see Basic Requirement 2 in Annex I of European Union Construction Product Regulation 305/2011 ;

... are referenced in our comprehensive **Professional Code of Ethics**:

World Federation of Engineering Organizations (WFEO/FMOI)
2011 Updated Model Code of Ethics

[refer to - http://www.cjwalsh.ie/2011/02/personal-ethics-the-heart-of-sustainability-implementation/]

Sustainable Design Solutions

♦ Are adapted to Local Geography, Climate Change, Social Need, Culture, and Economy ; and are ...

♦ 'Reliability-Based'

That design process which is based on practical experience, competence and an examination of 'real' extreme events, e.g. 2001 WTC 9-11 & 2008 Mumbai Attacks, and 2011 Fukushima Nuclear Incident ... rather than theory alone.

♦ 'Person-Centred'

That design process which places 'real' people at the centre of creative endeavours and gives due consideration to their responsible needs, and their health, safety, welfare and security in the **Human Environment**.
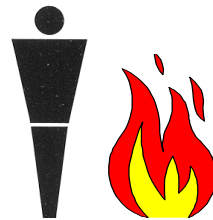
Sustainability ... continues to fundamentally transform our Architectural, Fire Engineering & Consultancy Practice.

Appendix

A Sustainable 'Human' Environment

Social Environment

The complex network of real and virtual human interaction - at a communal or larger group level - which operates for reasons of tradition, culture, business, pleasure, information exchange, institutional organization, legal procedure, governance, human betterment, social progress and spiritual enlightenment, etc.

The Social Environment shapes, binds together, and directs the future development of the Built and Virtual Environments.

Built Environment

Anywhere there is, or has been, a man-made or wrought (worked) intervention by humans in the Natural Environment, e.g. cities, towns, villages, rural settlements, service utilities, transport systems, roads, bridges, tunnels, and cultivated lands, lakes, rivers, coasts, seas, etc ... including the Virtual Environment.

Virtual Environment

A designed environment, electronically generated from within the built environment, which may have the appearance, form, functionality and impact - to the person perceiving and actually experiencing it - of a real, imagined and/or utopian world.
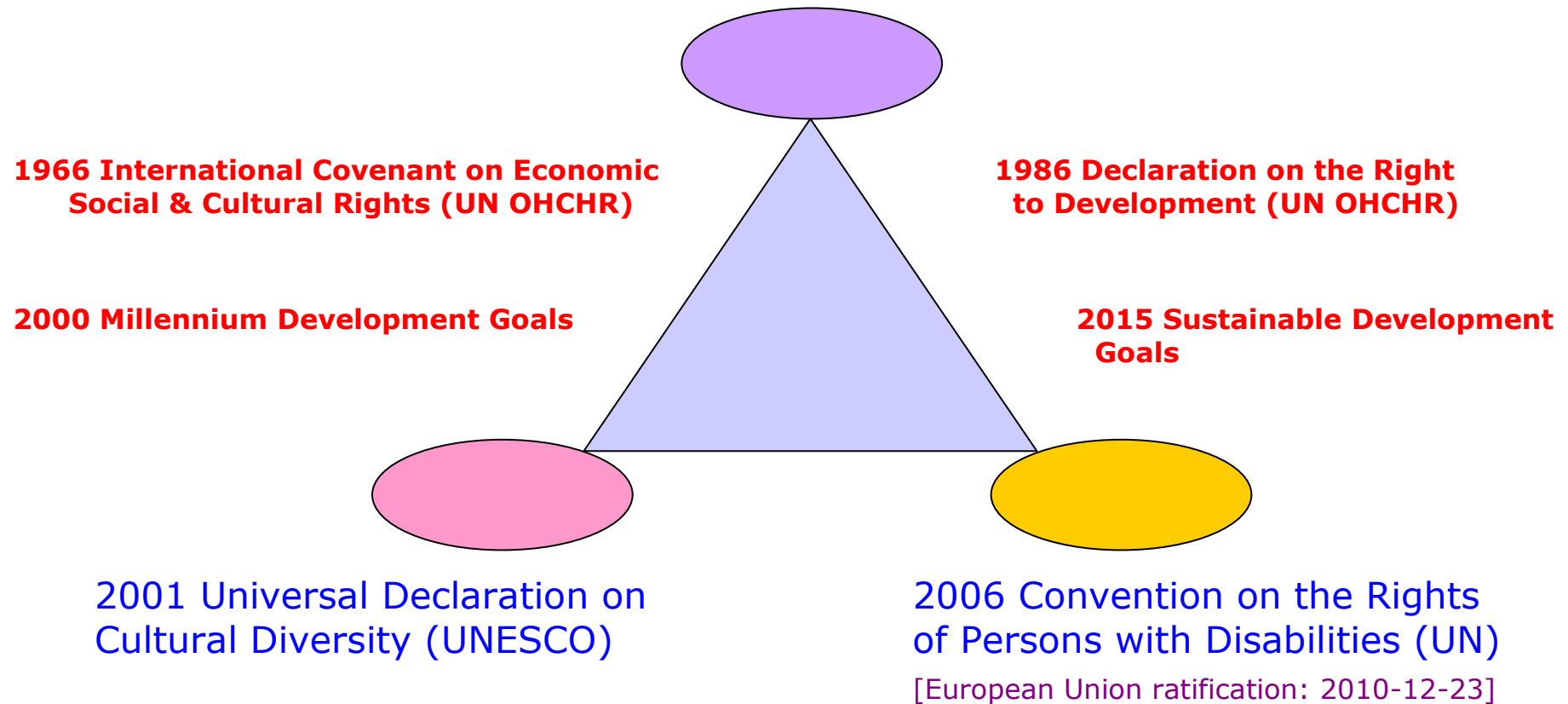
The Virtual and Built Environments continue to merge into a new Augmented Reality.

Economic Environment

The intricate web of real and virtual human commercial activity – operating at micro and macro-economic levels – which facilitates, supports, but sometimes hampers or disrupts, human interaction in the Social Environment.

Framework of International Rights Instruments

1948 Universal Declaration of Human Rights (UN OHCHR)

1966 International Covenant on Economic Social & Cultural Rights (UN OHCHR)

1986 Declaration on the Right to Development (UN OHCHR)

2000 Millennium Development Goals

2015 Sustainable Development Goals

2001 Universal Declaration on Cultural Diversity (UNESCO)

2006 Convention on the Rights of Persons with Disabilities (UN)

[European Union ratification: 2010-12-23]

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2007 Leipzig Charter on Sustainable European Cities

The Ministers Declare:

Paragraph #2 ...

" With the objective of protecting, strengthening and further developing our cities, we strongly support the EU Sustainable Development Strategy, building on the Lille Action Programme, the Rotterdam Urban Acquis and the Bristol Accord. In doing so, all dimensions of sustainable development should be taken into account at the same time and with the same weight. These include economic prosperity, social balance and a healthy environment. At the same time, attention should be paid to cultural and health aspects. In this, due attention should be paid to the institutional capacity in the Member States."

European Union

Regulation (EU) No. 305/2011 of the European Parliament and of the Council, of 9 March 2011, laying down Harmonized Conditions for the Marketing of Construction Products and Repealing Council Directive 89/106/EEC

ANNEX I - 'Basic Requirements for Construction Works' 1 & 2 (of 7) ...

1. Mechanical Resistance & Stability

The construction works must be designed and built in such a way that the loadings that are liable to act on them during their construction and use will not lead to any of the following:

(a) collapse of the whole or part of the works ;

(b) major deformations to an inadmissible degree ;

(c) damage to other parts of the construction works or to fittings or installed equipment as a result of major deformation of the load-bearing construction ;

(d) damage by an event to an extent disproportionate to the original cause.

2. Safety in Case of Fire

The construction works must be designed and built in such a way that in the event of an outbreak of fire:

- the load-bearing capacity of the construction can be assumed for a specific period of time ;

- the generation and spread of fire and smoke within the construction works are limited ;

- the spread of fire to neighbouring construction works is limited ;

- occupants can leave the construction works or be rescued by other means ;

- the safety of rescue teams is taken into consideration.

... / ...

EU Regulation 305/2011 (contd.)

ANNEX I - 'Basic Requirements for Construction Works' 3, 4 & 7 ... Selected Extracts ...

3. Hygiene, Health and the Environment

The construction works must be designed and built in such a way that they will, throughout their life cycle, not be a threat to the hygiene or health and safety of workers, occupants or neighbours, nor have an exceedingly high impact, over their entire life cycle, on the environmental quality or on the climate during their construction, use and demolition, in particular as a result of any of the following:

(b) the emissions of dangerous substances, volatile organic compounds (VOC's), greenhouse gases or dangerous particles into indoor or outdoor air ;

4. Safety and Accessibility in Use

The construction works must be designed and built in such a way that they do not present unacceptable risks of accidents or damage in service or in operation such as slipping, falling, collision, burns, electrocution, injury from explosion and burglaries. In particular, construction works must be designed and built taking into consideration accessibility and use for disabled persons.

7. Sustainable Use of Natural Resources

The construction works must be designed, built and demolished in such a way that the use of natural resources is sustainable and in particular ensure the following:

(a) re-use or recyclability of the construction works, their materials and parts after demolition ;

(b) durability of the construction works ;