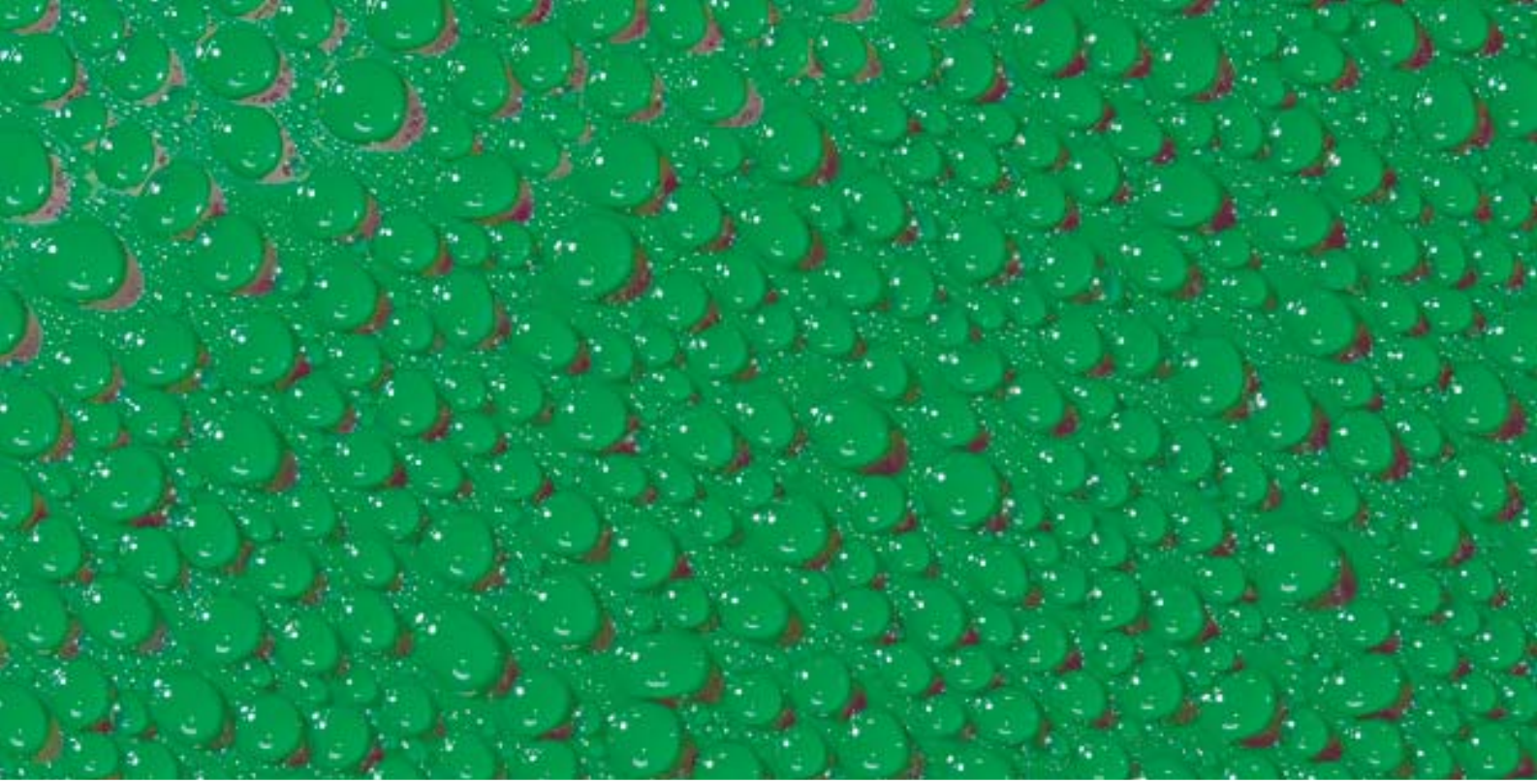


The Olympic Movement and the Environment

Joseph Tarradellas

Series **University Lectures | 10**

ceo UAB
Centre d'Estudis Olímpics
Universitat Autònoma de Barcelona

This work has been published as part of the educational project promoted by the Olympic Studies Centre (CEO-UAB), *University Lectures on the Olympics*, within the framework of the International Chair in Olympism (IOC-UAB). The project aims to provide online access to texts covering the main subjects related to the written by international experts and aimed at university students and lecturers.

To cite this work, you can use the reference:

Tarradellas, Joseph (2010): *The Olympic Movement and the environment: university lecture on the Olympics* [online article]. Barcelona : Centre d'Estudis Olímpics (UAB). International Chair in Olympism (IOC-UAB). [Date of consulted: dd/mm/yy]
<http://ceo.uab.cat/pdf/tarradellas_eng.pdf>

ISBN: 978-84-693-6934-0

Summary

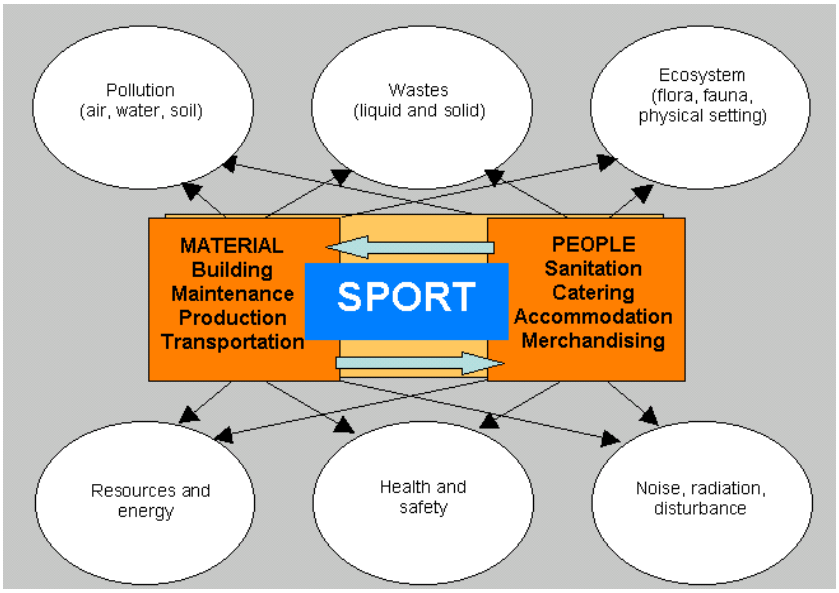
1. Introduction

In 1866 the German biologist Ernst Haeckel defined the concept of "ecology". According to Haekel, ecology studies the relationships between the living beings and their surrounding place of life. However, the influence of mankind on nature and its consequences can be found already in texts from Hypocrates and Aristoteles. With the development of the industrial civilisation and the growth of the human population, ecology became during the 20th century a fundamental need to protect natural resources and environment. The first World Conference on Environment took place in 1972 in Stockholm.

After Stockholm, more than 100 governments set up environmental ministries and agencies. Policies on environment protection boosted environmental industries and, now, the environmental economy is a major actor in the global economy with a world-wide growth rate of about 5.5%. The second World Conference on Environment and "Earth Summit", took place in 1992 in Rio de Janeiro and promoted the concept of "Sustainable development". In spite of the fact that several international Conventions have been adopted (combat desertification, climate change, transport of hazardous wastes, biodiversity, etc.) some important countries do not respect these Conventions and much needs to be done to deal with an increasingly degraded planet. All human groups are concerned in this battle, and the sport family is one of the most concerned due to its fundamental values, and the fact that safe sport needs clean environment and because young people are most affected by the future of our planet and by the practice of sport.

2. The environment and the Olympic Games

The practice of sport, mainly during big events like Olympic Games, generates various impacts on the ecosystem, from insignificant repercussions to major damage. It can be an acute impact when, for big events, a great number of attendants are assembled in a limited place during a short time (for instance, Olympic Games) or a chronic impact when some sportpersons are using an ecosystem during a long period of time (for instance, mountain bike).



It is not easy to describe with accuracy the environmental effects of sport at a general level because environmental issues can be different for each kind of sport, some potential impacts are not direct impacts and the degree of impact is often more relevant than its type.

The following figure shows the potential impacts of sports events on the environment:

For many years the International Olympic Committee and its Presidents have been conscious of the importance for the sport community to protect environment and of the example that has to be shown by the Olympic Games.

In 1992, special care to protect reservations and natural areas was taken for the 16th Winter Olympic Games in Albertville. In the same year, all the International Federations and National Olympic Committees signed the "Earth Pledge" during the 25th Olympic Games in Barcelona. In 1994, the 17th Winter Olympic Games in Lillehammer were declared the "Green Games" for the special attention brought to environment protection during these Games. The same year in Paris, during the Centennial Olympic Congress, the necessity to protect the environment was introduced in the Olympic Charter:

"The International Olympic Committee (IOC) sees to it that the Olympic Games are held in conditions which demonstrate a responsible concern for environmental issues and encourages

the Olympic Movement to demonstrate a responsible concern for environmental issues, takes measures to reflect such concern in its activities and educates all those connected with the Olympic Movement as to the importance of sustainable development."

(IOC, 2003:11)

In 1995 the IOC established the Sport and Environment Commission. This Commission essentially has two types of activities:

- "Taking actions to promote awareness among and educate the members of the Olympic Family and sports practitioners in general of the importance of a healthy environment and sustainable development;
- Promoting Olympic Games which respect the environment and meet the standards of sustainable development."

(IOC Sport and Environmental Commission, 2003a)

In 1999, during its 109th Session in Seoul, the IOC adopted the Olympic Movement's Agenda 21 which includes environmental protection in a broader programme of economic and social actions toward sustainable development.

In practice, the IOC has included in the requirements for cities bidding to host the Olympic Games rules on environmental protection standards. Candidate cities must fulfil the following requirements:

- "Prepare charts and explain briefly the system of natural resource and environmental management put in place by the public authorities and their responsibilities towards the OCOG;
- Provide an overview, including maps and tables, if possible, of the local situation with respect to the state of the environment, protected areas, cultural monuments and potential natural risks;
- Obtain from the competent authorities an official guarantee confirming that all work needed to stage the Games will comply with local, regional and national legislation and rules as

well as international agreements and protocols on town and country planning, construction and protection of the environment;

- State whether impact studies have been performed by the competent authorities for all venues and facilities;
- Provide an environmental plan of action for the Games, indicate the objectives and priorities and describe briefly the environmental management system envisaged by the OCOG;
- Indicate whether there is, within the candidature committee, an environmental protection awareness programme and state what the OCOG's plans are in this respect;
- Describe what efforts will be made to protect and improve the particular characteristics of the natural environment and cultural heritage during preparations for the Games;
- Give details of the intended plans for managing solid waste, sewage treatment and energy management, and state how you hope that this will influence the city and region in the future;
- Describe your environmental pilot projects and development plans, as well as how environmentally-friendly technology will be applied in relation to the Games;
- Mention any specific points not covered in this questionnaire that the candidature committee wishes to raise".

(IOC Sport and Environmental Commission, 2003b)

After Lillehammer, the Sydney and Nagano Games were important milestones for the respect of the environment and preservation of resources during the preparation and the event.

3. Main environmental challenges

The environment is everything that surrounds an organism or organisms, including both natural and human-built elements. Human beings, as all other species that form the global ecosystem, have always interacted with their environment and, in the process, shaped it to some extend. However, human beings are the only species able to affect ecosystems considerably.

Three important factors explain this situation :

- The exponential growth of the human population on Earth since 18th century;
- Industrial development, which needs more resources, more energy and, consequently, emit more gaseous, liquid and solid wastes;
- The limited potential of some of the 11 main ecosystems on earth which cannot fulfil all the needs resulting of an uniform type of development. These main ecosystems are: the toundra, the boreal forest or taïga, the subboreal forest, the temperate forest, the xerophile or Mediterranean forest, the steppe or pampa, the deserts, the semi-deserts, the savanna, the tropical forest and the mountain ecosystems.

The main environmental challenges are:

Climate change and global warming: Climate change is the slow variation of climatic characteristics over time at a given place, directly or indirectly due to human activity that alters the composition of the global atmosphere. Global warming is related to the entire earth. It refers to the global increase of temperature of our planet related with the increase of greenhouse effect gases, such as carbon dioxide or methane.

Ozone depletion: Present in the high atmosphere, ozone protects life on the surface of earth the against the adverse effects of UV rays (mutations, cancers,…). Some gases such as fluorocarbons destroy ozone, mainly in the poles during winter.

Air pollution: All type of emissions (cars, heating of buildings, burners, industries,…) produce components with respiratory effects (sulphur dioxide, carbon monoxide, ozone, particles), mutagenic effects (hydrocarbons) or global effects (carbon dioxide, CFCs).

Loss of biodiversity: A healthy ecosystem has to be rich in number of individuals and of different species. Intensive fishing, hunting and agriculture, urbanisation, tourism and translocation of invading species are reducing the natural biodiversity all around the world.

Deforestation and desertification: There is a dramatic decrease of forest surfaces, mainly tropical forests. In tropical climates, deforestation often brings desertification because, after cutting trees, the soil become sterile.

Freshwater scarcity: For a normal life with equilibrated food, each individual needs to mobilise around 1'300'000 litres of fresh water each year: 1'000 L for drinking and cooking, 100'000 for his hygiene and 1'200'000 L to create his food. In several dry regions of the world there is insufficient water reserves or equipment is not adapted to fulfil this requirement. In addition, in several places little water available is used for non-basic purposes for local population such as export agricultural or manufactured products.

Freshwater and sea pollution: Urbanisation, lack of wastewater treatment plants bring in surface and underground water toxic factors like bacteria, viruses and toxic organic matter and chemicals. Shipwrecks are the main cause of sea pollution, mainly by hydrocarbons and fuels.

Soil deterioration: Intense agriculture using fertilisers and pesticides, favouring soil compactation and erosion by run off waters but also traditional processes of clearing vegetation by burning and deforestation are the main causes of the soil deterioration. This phenomena is accelerated in several ecosystems such as semi-deserts, savanna and tropical forest.

Waste and hazardous waste disposal and transport: Non-controlled disposal of wastes and toxic products can bring severe health effects on surrounding populations but also can contaminate severely surface and underground waters. In addition the risk of contamination is magnified by the transport of these products, which is often done by non adequate systems (menmade, trucks, ships,…).

Chemical pollution: In our civilisation, we are in contact with about 100'000 different chemical molecules. Some of them are toxic (heavy metals, organochlorines, aromatic hydrocarbons,…) but, in addition to being non degradable they are bioaccumulated in the food chain.

Radioactive pollution: Global radioactive pollution can be the consequence of incidents in nuclear powerplants or nuclear engineered ships. However, local contamination can result from inappropriate disposal of radioactive materials used for some equipment in radiology, research or industry.

Genetic engineering: The effects on biodiversity, natural defences and population dynamics of the dissemination of genetically modified organisms in open environments is still discussed and not very well known on a long term of time. Precaution principle has to be applied.

Natural resource depletion: Oceans have been overexploited, and fishing catches are decreasing where policies for assuring the reproduction of the fish population do not exist. Our main energy resource, petroleum, is a non-renewable resource which can be used, instead of being burned, for a lot of other much more noble applications, such as plastic materials.

Uncontrolled urbanisation: Metropolis with increasing propositions of the population being poor are growing all around the world. Most of these metropolis do not have the possibilities, or the political will to implement infrastructures adapted to these immigrants. It results the development of poor suburbs with the lack of minimal sanitary conditions, social exclusion and informal economy. In these situations, health conditions are deteriorated and local environment is totally degraded. In addition, public transportation is not adapted to such situation of growth, it is substituted by personal means, bringing high rate of accidents, traffic jams, loss of time and air pollution.

4. The sport activities and the environment

4.1. General concepts

In general, protecting environment results of two types of measures: preventive and corrective measures.

Preventive measures

When planning an event, environmental prevention measures should be included. Although some emphasis must be placed on modifying processes and behaviours, the reduction of environmental impacts must remain the primary objective. This principle requires that

environmental impacts be avoided from the very outset. If this is not possible, such impacts should be reduced or replaced by other products, management systems or technologies. The "cradle to grave", or life cycle assessment (LCA), principle should also be adopted, together with the concept of "product stewardship" which stipulates that all the necessary steps to minimise environmental impacts be integrated into a product, from the extraction of raw materials, through the manufacturing process, use of product, recovery and reuse of wastes, to their ultimate disposal.

Corrective measures

Environmental measures must also be applied to reduce effects, both during and after a sports event. This means recycling, eliminating and compensating. The application of the "polluter pays" principle, although obvious in its implications, also provides an incentive to develop environmentally friendly products, uses and approaches. Such a principle must therefore be extended to all sports events, with compensation projects paying for environmental deterioration, preferably in the form of restoration.

4.2. Location of a sport activity or event

Location is the critical point of a sport facility or event. It determines not only its environmental impact but also its accessibility, proximity to users and visual impact. The choice of location can either reduce or intensify the negative influence of the facility or event. The objectives are to:

- Minimise environmental impacts by choosing the most convenient site;
- Conserve and protect special landscapes.

Cities and regions bidding to host a sports event should prove that they comply with the environmental recommendations of IOC for Olympic games or the relevant sports federation. An environmental report, such as an EIA (environmental impact assessment) should be compulsory.

4.3. Sports facilities

Special attention must be paid to the use of existing sports facilities, to keep them in good condition and to improve them by increasing safety and reducing their environmental impact.

Sports facilities constitute the most visible part of any sport activity, event or organisation. Their location, construction, materials and operation processes constitute potentially high nuisance and source of damage.

The objectives are to:

- Avoid useless venues;
- Reduce location-related impacts (landscape, land use);
- Minimise water and energy consumption;
- Reduce pollution;
- Facilitate the use for disabled persons.

a) Planning phase

When carrying out detailed planning, environmental criteria should be part of the decision-making process. Thinking of the environment at this stage can help organisers and planners avoid subsequent problems.

b) Construction phase

During this phase, accidents and disturbances can occur, like the accidental release of toxic substances, increased traffic, soil packing or noise. A sound and rigorous planning of construction can protect not only the environment, but also the workers and the people living nearby.

c) Operational phase

The operational phase is almost always the longest in a facility's life. The facility is supplied with water, energy and other goods, the equipment is maintained and the waste removed. The facility hosts training and competition activities. It should be adopted a "green step" approach for all these activities.

4.4. Sports equipment

Due to the great variety of sports and to the development of new technologies in sports equipment, the market of sports articles is varied. This evolution has led to the use of new substances in the manufacturing processes. Some of those substances are potentially toxic and can be damaging during the manufacturing, use or disposal of the equipment. Another point to

keep in mind is the shorter life span of some equipment, which becomes obsolete before being out of order, and generates waste as a result. The objectives would be to:

- reduce pollution due to sports equipment;
- reuse and recycle articles where possible;
- promote environmentally sound equipment;
- favour local products and manufacturing knowledge.

Companies manufacturing sports equipment would obtain ISO 9'000 and 14'000 certificates for Quality Assurance and Environmental Management and will develop the use of LCA (Life Cycle Assessment) methods to control and reduce the global impact of their products.

With respect to sports equipment, several of society's players have an opportunity to act at their own level:

- individual responsibility of the athlete/sports club in the choice of equipment;
- responsibility of IOC, IFs and National Federations and other sports organisations in defining environmental standards for their sponsors and equipment.

4.5. Transportation

Transportation is required to get to the sports facility. Transportation contributes to many environmental hazards, particularly air pollution (greenhouse effect, ozone formation at ground level, hydrocarbons, dusts,…), related health problems and consumes petroleum, a non renewable resource. A reduction in the distances travelled with private cars, incentives to promote public transportation and non-pollutive transport (e.g. electric cars, bicycles) together with sound transportation planning could greatly minimise air pollution, noise and disturbance and save energy.

4.6. Energy

In sports events, energy is required to produce goods that are consumed, to run the event and related facilities, and to transport people and products to the event. Most of the energy used is currently unsustainable. It is largely produced by non-renewable sources such as fossil fuels,

which cause a great deal of pollution and are the biggest contributor to global warming and localised air pollution. Many forms of energy production, like nuclear plants or fossil-fuel burning, involve some degree of risk to human health or to the environment. Even if sports organisations can generally not exert an influence on the global energy policy of a region, they are able to act at their own level. The IOC will continue to exclude motor sports. Night events needing powerful lights can be avoided if possible. At a local level, sport facilities or events would be powered with renewable energy sources such as solar or wind energy.

4.7. Food and accommodation

The way of feeding is closely related to our attitude to respect environment. Some agricultural and food distribution practices, and some catering businesses have highly negative impacts on environment. At a personal level but also when Olympic Games, championships or local competitions are considered a responsible attitude concerning food and accommodation can have very positive effects on health and our local or global environment. Its necessary to:

- Observe hygiene conditions strictly;
- Minimise waste by maximising recycling;
- Favour as possible local farm products;
- Make use of goods and foots that have been created with due respect for the environment and the development of local populations.

4.8. Water management and sanitation

Water is the most important ecosystem on earth for its surface and, also, when fresh, it is the only media that is able to transport most of the chemical elements necessary for life. Water is life. Freshwater resources are finite and exist in a closed system. Water supply depends on rivers, lakes, and aquifers and the need for drinking water and irrigation and, increasingly, the need of power for industries. In most parts of the world, freshwater resources are being subjected to intense pressure. Industrial wastes, sewage and agricultural runoff overload rivers and lakes with chemicals, wastes and nutrients, poisoning water supplies as a result. Quality of life, quality of health, hydroelectric energy and food production are closely related to water access and quality. In sport, water can be the natural or artificial environment of the sport

(sailing, canoeing, swimming, etc.). To preserve water resources following basic recommendations should be respected:

- Satisfy the needs generated by the sports activity or event without endangering the water supply of the region;
- Protect water resources;
- Treat wastewater;
- Promote activities and facilities that decreases water requirements;
- Reuse treated water for field irrigation, bathrooms services, etc;
- Avoid any practice which runs a risk of contaminating underground or surface waters. Never throw wastes, oil, grease or any chemical product in natural waters or in non treated wastewaters.

4.9. Waste management

Sports activities, especially large-scale ones, can generate considerable waste, some of which cause little more than dirt or minor disturbances, while others have a harmful and lasting effect on the environment and human health. Waste is unavoidable, but sound management ensures that waste quantities are kept to a strict minimum. The following basic recommendations should be respected:

- Minimise waste to be disposed of and treated;
- Choose carefully the goods and materials handled, in particular: - avoid goods containing toxic substances - choose reusable or recyclable goods - choose goods whose waste can be appropriately treated;
- Dispose wastes in adequate facilities, specially in places non accessible to general public;
- Minimise pollution due to waste by separating recyclable (organic matter for composting, glass, iron, aluminium, paper and some plastics) and non-recyclable wastes.

4.10. Protection of the biosphere

Water use and management, waste disposal, feeding habits, transportation can influence directly or indirectly the biosphere. However some sports activities are still more closely

related to nature, and consequently needs special attention to protect biosphere. Sport practice in natural ecosystems is a nice way to discover the beauties of our environment but it has to be done respecting some basic recommendations:

- Never practice sport in a conservation area;
- Avoid intense practice of sport in fragile or endangering ecosystems such as high mountain, wetlands or mangrove;
- Avoid natural areas during the period of the fauna reproduction;
- Respect natural elements and cultural heritage;
- When a natural area or a forest has to suffer an irreversible change to be used for sport events or facilities, compensate by creating elsewhere an equivalent new natural area;
- Choose specially equipped trails for sport purposes.

4.11. Administration of sport

The management of a club, a team, an event and a sport institution such as the IOC, the NOCs, the IFs or the national federations will respect environment when the following requirements are respected:

- Energy-saving features in the light systems, computer network and photocopying machines;
- Water-saving features;
- Waste management with disposal of hazardous products and recycling of paper, glass, PET plastic, batteries, aluminium, iron, electric cables and copper wires, electronic devices, wood, other conditioning material, ink, oils, household rubbish;
- Use of ecological paper (recycled or chlorine-free paper), double-sided documents, reuse of paper for drafts;
- Encourage the use of reusable supplies and material, with minimal packaging.

5. Environmental friendly attitude, education and awareness raising

The basic philosophy for an environment friendly attitude is to think globally and act locally.

Respecting environment means also respecting life and respecting himself. It also complies with one of the main goals of the Olympic Movement which is « to contribute to building a peaceful and better world ». It is the responsibility of each individual and each organisation, by practising sport in an environment friendly manner but also by education and awareness raising.

Famous athletes, world-wide sport equipment companies and media have special responsibility in that. Parents, teachers and team managers can also influence greatly new generations to respect environment. At a local level, sporting clubs have true opportunities to influence in a positive way the environment: doing activities to clean their facilities and their playground, favouring group transportation when displacing to a competition, respecting natural ecosystems when running, riding, sailing or climbing and collaborating with environmental organisations.

6. From environmental protection to sustainable development

The long-term preservation of our environment will only be possible if combined simultaneously with economic, social and political development particularly geared to the benefit of the poorest members of society. During the “Earth Summit”, in Rio de Janeiro in 1992, most of the world’s nations committed themselves to the pursuit of economic development in ways that would protect the Earth’s environment and non renewable resources. It was called «sustainable development». Sustainable development has to be implement through a theoretical and practical guide named “Agenda 21”.

In accordance with the philosophy of Olympism, the Olympic Charter and particularly its third and sixth Fundamental Principles , and in view of its universal nature, the Olympic Movement

accepted to extend its environmental responsibility to the concept of sustainable development and it has established its own Agenda 21.

The Olympic Movement's Agenda 21 suggests general outlines which should guide the activity of the Olympic Movement in the topics in which it can bring an effective contribution. It provides a programme of action designed to pave the way to better socio-economic conditions, preservation of the environment and natural resources, and a more significant role for its members in sustainable development. This programme of action is built around the following three objectives:

- Improving socio-economic conditions;
- Conservation and management of resources for sustainable development;
- Strengthening the role of major groups.

The Olympic Movement's Agenda 21 must be implemented in a climate of respect for different social, economic, geographical, climatic, cultural and religious contexts which are characteristic of the diversity of the members of the Olympic Movement.

Bibliography

Chernushenko, David (1994): *Greening our Games: running sports events and facilities that won't cost the earth*. Ottawa : Centurion.

IOC (1997): *IOC Manual on Sport and Environment*. Lausanne : International Olympic Committee, Sport and Environment Commission.

IOC (1999): *Olympic Movement's Agenda 21*. Lausanne : International Olympic Committee, Sport and Environment Commission.

IOC (2000): *Be a champion for the environment: summer games booklet*. Lausanne : International Olympic Committee, Sport and Environment Commission.

IOC (2002): *Be a champion for the environment: winter games booklet* . Lausanne : International Olympic Committee, Sport and Environment Commission.

IOC (2003): *Olympic Charter*. Lausanne : International Olympic Committee. Available online: http://multimedia.olympic.org/pdf/en_report_122.pdf

IOC Sport and Environment Commission (2003a): *History and mission of the Commission*. Available online at: http://www.olympic.org/uk/organisation/commissions/environment/index_uk.asp

IOC Sport and Environment Commission (2003b): *Olympic Games and the environment: requirements for candidate cities*. Available online at: http://www.olympic.org/uk/organisation/commissions/environment/games_uk.asp

ISO (1998): *ISO14000 series environmental management systems*. Genève : ISO. Available online at : http://www.iso14000-iso14001-environmental-management.com/

Moran, Joseph M. (1986): *Introduction to environmental science*. New York : Freeman.

Odum, E.P. (1997). *Ecology: a bridge between science and society*. Sunderland *:* Sinauer Associates

Rogers, Adam (ed.) (1995): *Taking action: an environmental guide for you and your community*. Nairobi : United Nations Environment Programme : United Nations Non-governmental Liaison Service. Available online : http://www.nyo.unep.org/action/default.htm

OECD (1999): *OECD environmental data: Donnees OCDE sur l'environnement: compendium 1999*. Paris : OECD.

United Nations (1972): Report of the United Nations conference on the human environment, Stockholm 1972. Available at: http://www.unep.org/Documents/Default.asp?DocumentID=97

United Nations (1992): United Nations Rio declaration on environment and development.

Available at: http://www.unep.org/Documents/Default.asp?DocumentID=78&ArticleID=1163

United Nations (1993): *The Earth summit : the United Nations Conference on Environment and Development (UNCED)*. London : Graham & Trotman : Martinus Nijhoff, 1993
Worldwatch Institute (2003): *State of the World 2003* . Washington : The Worldwatch Institute.

Related web sites

IOC Sport and Environment Commission

http://www.olympic.org/uk/organisation/commissions/environment/index_uk.asp

United Nations Environmental Programme

http://www.unep.org

Series **University Lectures | 10**

The Olympic Movement and the Environment

Environment is one of the most important challenges of 21st century. Conserving natural resources and the quality of water, air, soils and of natural or build ecosystems is the basic condition to ensure an balanced and sustainable development for future generations. Sport activities can be polluting factors but, when realised in a responsible manner, they can contribute to the protection of the environment and resources. This lesson presents general concepts concerning environmental challenges, the responsibilities and actions of the Olympic Movement and the ways in which to develop sport activities with respect to the environment.

Joseph Tarradellas
Ecole Polytechnique Fédérale de Lausanne

ceo UAB

Centre d'Estudis Olímpics
Universitat Autònoma de Barcelona

Edifici N. 1a. planta
08193 Bellaterra (Barcelona)
Spain

Phone +34 93 581 1992
Fax +34 93 581 2139

http://ceo.uab.cat
ceoie@uab.cat