

Towards Sustainable Sport

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Abstract

Ecological disasters, climatic emergencies, soil air and water pollution, are indicators that confirm that we are faced with an environmental crisis never before seen, and that the future of our planet is more uncertain with every passing day. We need to develop solutions within a holistic political project that calls upon multidisciplinary sector interventions. Sport is not immune to these environmental challenges, and a future model of sustainable sport is required, one founded on the strength of multidisciplinary participation and knowledge, that motivates lifestyle changes and who's ultimate goal is a cultural revolution.

Keywords: Sport; sustainability; impact assessment.

Introduction

Ecological disasters, climatic emergencies, soil air and water pollution, are indicators that confirm that we are faced with an environmental crisis never before seen, and that the future of our planet is more uncertain with every passing day (1).

In parallel, social and economic disparities grow: absolute poverty is increasing, work has become precarious, unemployment has increased, and the gap between those who have and those who don't seems to be widening. Consequently cities seem to be expanding territorially, owing to the greater conglomeration of individuals migrating from rural areas, creating crowding and thus accelerating the metabolism of cities, which is where 75% of climate altering emissions are produced.

The consequences are: a reduction of space, an increase in concrete structures, greater use of Energy and resources, increased waste production, emissions and refuse. In Italy, in fact, the worsening quality of life trend within cities was confirmed for 2015 also (2).

The problem is old: there are currently 7 billion people on the planet, and soon to be 9 billion (3), but the dimension of the planet is the same. . We face emergencies that we must deal with now, without procrastination, because increasing smog, less and less clean and available public water, increased waste production, reduced use of public transport , more and more private cars on the roads, ever diminishing pedestrian areas within cities, too few limited traffic zones and cycle paths, are all serious ongoing problems (4).

We need to develop solutions within a holistic political project that calls upon multidisciplinary sector interventions.

Sport is not immune to these environmental challenges, and a future model of sustainable sport is required, one founded on the strength of multidisciplinary participation and knowledge, that motivates lifestyle changes and who's ultimate goal is a cultural revolution.

From the "White Book on Sport" presented in Brussels (CE, 2007): Sport activities, facilities, and events have a significant impact on the environment. It is important to promote an ecologically rational

management of these activities, compatible with green projects, with a view on limiting green house gasses, respecting Energy efficiency, eliminating waste and improving treatment of waters and soils. "Sports organizations and event managers in Europe should adopt an ecological approach when promoting their activities. This improves personal credibility on the theme of green sport, and may also lead to other benefits when submitting candidatures to hold events, or to economical advantages if there is a pre-supposition to use natural resources more wisely" (5).

These indications are still not respected. Just think about the devastating ecological scars some National and International sports events leave in their wake, such as a irrational use of water, a proliferation of waste production, a public transport nightmare, to cite but some (6). All these negative themes can be felt concurrently with those large events (such as marathons, Olympics, World Cups), where often participants receive welcome packs full of cellophane or polystyrene, which are non recyclable, not to mention miles of colored plastic tape used by the roadsides, hundreds of adhesive numbers for the athletes themselves, post event non degradable thermal blankets, paper registration forms and promotional flyers (mountains of papers, posters, cards etc), pins and needles made from non-recyclable materials. This without mentioning the waste of food resources (distribution of food and drinks along routes) and the prizes themselves (medals, cups, diplomas, t-shirt...the list goes on).

The first thought goes to those so called green sports, and particularly to those activities linked to water and wind powered sports. No one considers the true problem linked with disposal of unwanted boats and similar sports products, which represents a difficult and challenging problem. Every year, due to safety and /or commercial reasons, dozens of ships from defense fleets are eliminated following legally defined and regulated pathways; sailing ships and historical vessels are often recycled and "refitted", but similar practices do not exist for smaller vessels such as powerboats or small sailing vessels etc. (7). An example of this could be a boat that has participated in the America's Cup, which has a brief life cycle and which, besides its use as a publicity vehicle, loses its charm and perhaps its navigational efficiency for the scope for which it was designed i.e. participating in the regatta (8).

More than 50 years ago, when resin composites were first developed they were talked about in terms of a nautical revolution. In effect, the way of producing boats was revolutionized; the use of wood and metal progressively fell by the wayside and became almost completely substituted by these fiberglass resins, which

are composites formed from glass and resins which possess noteworthy mechanical properties. This material has great resistance, elasticity, and lightness, making it ideal for the construction of boats, and this has led to its widespread, almost exclusive, use in the sea craft building industry (9).

Nowadays, we know that dismantling these vessels poses a complex problem, because they must be demolished, along with the templates used for these vessels which, either due to design or taste, no longer satisfy boat buyers, thus making them obsolete. In this instance, one realizes the enormous problems associated with this material: how to recycle it. At the time, the only aim was to build, and no one foresaw the ecological impact of this material, perhaps due to the fact that there were less boats in navigation. But nowadays, with the increase in numbers of boats on the sea, the problem has come to the forefront. Of the 103.493 port vessels registered in Italy up to 2012 (source ICOMIA - International Council of Marine Industry Associations), almost 90% are made from fiber glass and this number doesn't even include such vessels that do not legally require a license plate and whose number is estimated to be around 504.000 boats.

Abandoned and obsolete vessels account for another 30000 units. If one considers that the average weight of fiberglass per vessel is around 1,37 tons, we are faced with a 41.100 ton fiberglass recycling problem. And that's not all: it's estimated that a 15 meter vessel costs around 16000 euro to recycle/dismantle. However, a European directive 2008/98/CE (10) states that the dismantling of the boat is not the responsibility of the owner, but of the dockyard that constructed the vessel, which obviously impacts upon the overall cost of the vessel when it is purchased (11). For this reason, it is not uncommon to see numerous crafts abandoned in ports, along rivers, in fields or even intentionally sunk.

Regarding the fiberglass shell, the architect Antimo Di Martino, counselor of UCINA (Unione Nazionale dei Cantieri e delle Industrie - part of CONFINDUSTRIA NAUTICA, a non-profit organization, representing boat builders) has, with an authorization based on environmental issues, presented a product developed in the laboratories of the CNR (National Research Council) of Naples (in collaboration with the engineer, Stefano Pagani Isnardi), that may put an end to this problem. This product is an emulsion made from lesser quality fiberglass residues like polystyrene, capable of yielding a newer plastic material.

In practice, an industrial process reduces the vessel into sand which can then be inserted in Policem, a product registered by the CNR. Policem, in turn, can be

emulsified and added to other inert compounds from which products such as sinks and even tiles can be derived from.

The time span for a formal process of dismantling and recycling vessels is too long and the problem is most definitely present. In this way, this requalification of the material used in boat building can reduce the negative impact that it has on the environment, not to mention the economical advantages for boat owners who no longer have to keep their unused ships parked in shipyards (12).

The volume of material is significant. In the current state of play, vessels are just dismantled and the only materials re-used are just wood trimmings and steel parts, but the percentage that these materials represent is minimal (13).

Sport, in its purest form, is for all citizens, sustaining healthy living, with a core vision of tackling pollution issues holistically (thus bettering quality of life), from adopting cleaner and renewable energy resources to the sustainability of industrial production, as well as considering the eco-efficiency of sporting facilities and venues.

It's a duty to report that there are sporting facilities in Italy that have been constructed and never used,, or only used briefly and for a limited time (see Winter Olympic structures), with vast extensions of land devastated by cement and infrastructure . Many towns with less than 10000 residents build sporting facilities of their own without considering that facilities may be available in neighboring demographically similar towns, and regardless keep on building (14).

Let's also consider Lead, whose toxicity is well known, and who's use in gun sports (both air guns and firearms) is fundamental: the recuperation and recycling of Lead is necessary owing to the great stability of the mechanical metal itself, the low level of corrosion of the lead shots, and its lack of solubility and absorption into the underlying soil. Recuperating lead on the soil saves from costly soil recovery at a later date (15).

Not of less importance are problems related to Kevlar (a material used in all kinds of sports) and those related to synthetic turfs. According to a brief report published by the journalist Christian Benna, "In Europe every year 1,5 billion euro is spent on installing more than 2.250 artificial playing surfaces , equivalent to 41,6 million square meters, and around half the global market. The growth rate is in double figures " (16).

This is the state of play in Europe, and Italy. A newspaper article in *Il Sole 24 Ore* reported estimated figures on "the market of synthetic grass in Italy", in 2010, to be around 3,5 - 4 million square meters per year, and a generated business of around 120 million euro , principally revolving around the sport of football (17). Every day, throughout the world, new footballs, and other balls for other disciplines are produced to satisfy the demand from those disciplines.

The use of plastic water bottles in sports practices is widespread and out of control. To produce and transport a single 1,5 liter PET (polyethylene terephthalate) bottle one needs 120 cubic centimeters of oil, 610 cubic cm of water and 45 liters of CO₂ are generated Perhaps we can better understand the extent of the problem if we reason that in order to produce 11 KG of PET, 2 KGs of oil and 17 KGs of water are needed. Each bottle weighs 35 grams, so one kilo of PET produces around 30 bottles.

It is estimated that it takes up to 7 centuries for these bottles to fully degrade if thrown on the ground, and four and a half centuries if thrown into the sea (18).

A blatant example of the exaggerated use of these bottles was seen during a large scale event, the Jubilee, (though not a sportive one): 4.000 buses from around Europe, the presence of 3.500 voluntary civil protection officers, 67 ambulances, and 1.000.000 bottles of water distributed, along with 25.000 roses and 30.000 asparagus plants, 230 tons of waste produced, all in one day for the canonization of a saint, to gauge the importance of the event for the Vatican (19).

These data are alarming. From official AMA data (the municipality of Rome city) we signal the following, somewhat alarming. Figures related to SUR (solid urban refuse) for some events that took place in the year 2013/14 (**Table 1**):

Table 1 - Solid urban waste for some events that took place in the year 2013/14 in the Municipality of Rome city

Sporting Event	date/period	tons SUR produced
Football Games (Olympic Stadium area)	2013/2014 season	93,00
Italian International	may '13	65,00
6 Nations Rugby (Italy-France)	03/02/2013	9,00
6 Nations Rugby (Italy-Wales)	23/02/2013	7,50
6 Nations Rugby (Italy-Ireland)	16/03/2013	8,00
Rome Marathon	17/03/2013	25,00
Rome-Ostia Race	03/03/2013	6,00
C.S.I.O. Piazza Di Siena	21/27 May 2013	45,00
Beach volley at the Foro Italico	18/23 June 2013	7,00
"Corsa dei santi" - Race	01/11/2013	0,90
"Corsa futurista in Ostia" - Race	31/10/2013	0,80
Hunger Rome	20/10/2013	4,50
Italy-Argentina (rugby, Olympic Stadium)	26/11/2013	9,50
m.t.b. at the Circo Massimo	13/04/2013	1,50
We Run Rome	31/12/2013	3,50
Basketball events by the Virtus team (held in Palatiziano)	season 2013/2014	19,00
Miguel Race	20/01/2013	2,50
Mini rugby Nicola Alonzo	17/03/2013	1,20
Roma- Appia Run	28/04/2013	3,80
Corriroma	22/06/2013	2,50
Total		315,20

All this is no longer acceptable, nor sustainable. We need to confront sport event planning issues with an eye towards the overall pollution an event can cause, from the use of clean renewable energy to the transformation of mobility, from the sustainability of industrial production to the eco- efficiency of sports facilities.

All National competitions should be projected in such a way as to reduce the carbon footprint they generate from both direct and indirect transport services needed, as well as rethinking materials and services used: bring to the forefront the theme of water conservation: confront the issue of a sustainable requalification of sports facilities: tackle sustainable mobility by observing city infrastructure planning events that impact positively and not negatively on the quality of life.

Additionally, events must be supported by an information campaign for participants, as well as training organizers on how to prevent things such as waste production and forcing them to create more eco-friendly events. A good example of such good practice was seen at the London Olympics in 2008 where the Olympic stadium itself was designed in such a way as to require 75% less steel structural columns respect to a traditional stadium of similar size (20).

It is unquestionable that future aims must reduce the impact of sport on the environment, through a dissemination of eco-sensitive information to all stakeholders (participants and organizers) of these events, in order to create a synergy between the sports world, and local and central administrators.

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