

International Forum
“The sports facilities”
planning, design, building, management

Turin, October 20, 21 and 22 2005

Session “The Torino2006 system: needs, interventions plan,
environmental sustainability, accessibility”

**THE TORINO 2006 SYSTEM:
FROM THE INTERVENTIONS PLAN
TO THE TECHNICAL-ECONOMICAL
FEASIBILITY STUDY**

Engineer Nicola Bianchi, Venues construction coordinator - TOROC

Ladies and Gentlemen,

When I sat down to write this brief report, I thought rapidly back over the last few years to February 2001, when I was one of the first to join TOROC to be part of the adventure of the Games.

Then as now, I was faced with a blank sheet of paper. Today it is certainly easier to fill that sheet, in fact I have to select, and edit the many things that spring instinctively from my memory and my experience, if I am to limit my speech to a few minutes, and to the topic I have been assigned: the Programming stage of the Olympic Projects.

I would like to start from the **Time** parameter. As my friend Enrico Carbone brilliantly underlined this morning, the Olympic Games do not give you a second chance, just *one shot*.

In the space of five years, we had to go from the ideas for our candidacy to the finished facilities, which must be ready to use, perfectly functional and of outstanding quality.

Time, therefore, and the way it affects the various stages of the overall process, an element that conditions our decisions and our operational approach.

After the City of Torino was awarded the Winter Olympic Games in June 1999, we took legal steps to identify the operating bodies and the best procedures to implement the necessary organisational activities on one hand, and to generate suitable funding for the necessary Olympic infrastructure work on the other.

The result was the so-called Olympic Law, **no. 285/2000**. This law established the Olympic Agency, the contractor for most of the Olympic works, and it entrusted the role of programmer of the projects and, to use a term that is simple even if it is not strictly correct, the role of customer,

to a private entity, TOROC, the Organising Committee of the XX Winter Olympic Games. (We must remember that TOROC is a private entity and cannot therefore receive or spend public money.)

In particular the Committee was given the task of drafting the Intervention Plan, a document that identified seven basic elements for each project:

1. Location
2. Technical-functional characteristics
3. Social characteristics
4. Priorities
5. Execution times
6. Economic cost and related funding
7. Evaluation of post-Olympic use

The Olympic Law was significantly extended and modified in 2003, first and foremost by the creation of the **Control Committee**. The Law saw the Intervention Plan as a document that had to be defined in full before any activity could start. This put a number of serious constraints on the initiative of all the bodies involved, and did not allow suitable answers to be given to the physiological need for the subsequent adaptation, refinement, and analysis of complex matters, which could not be defined in advance for all the projects.

In this context, an important Convention was agreed between TOROC and the Agency, which, among other things, established that the Plan was to be issued in successive **Extracts**. As a result, the concept of the dynamic nature of the Plan was clarified, agreed and eventually taken on board by all the bodies involved in the Olympic programming. It became

a truly operational tool that could activate the various Projects, making it possible to introduce any corrections, modifications and supplements that became necessary as implementation progressed.

The **Intervention Plan** currently contains 77 works/groups of works, and the total value of these works comes to about Euro 1,784 million, with total charges of approximately Euro 1,182.5 million covered by Law no. 285, and Euro 600 million charged to third parties, led of course by the Public Authorities.

This dynamic process to gradually refine the definition of the works, either by analysis of actual requirements, or because of changes dictated by construction requirements, has produced 146 Plan Extracts so far, which have emerged from the original 32.

When it was first issued, each Extract of the Intervention Plan was backed up by an associated “Feasibility Study”. The Feasibility Studies related to the Law 285 Intervention Plan regard a total of 71 projects:

- 7 Ice Venues
- 11 Mountain Venues
- 9 Non-competition Venues
- 20 Road and parking projects
- 14 Ski lifts
- 10 Snow-making plants

From the beginning, it was obviously important to establish a minimum accepted level of “accuracy”, even though all the technical aspects were not yet known, and the requirements of each work were not fully defined. The aim was to avoid uncertainty in the definition of works for which the

Contractor, whether the Agency, ANAS (the Italian Highway agency), or any other body, would have to activate public procedures to select the companies that would plan and subsequently build the works.

It was a very intense period, and there were natural differences of opinion, but it was certainly a great success. By the end of 2001, ten months after activities started, 44 Extracts had been completed and the remainder were underway and nearing definition.

The documents produced were based on art. 14 of Law 109/94 and art. 11 of Presidential Decree 554/99, as you can see in the slides that are being projected. But that is not all; with the agreement of the Agency, it was decided that Toroc, although a private entity, should also apply the prescriptions laid out in Law 144/99 regarding investments, and should, wherever applicable, adopt the models and prescriptions outlined in circular 1240/2000 of Cassa Depositi e Prestiti, the Public development fund.

The definition of building and infrastructure components that are necessary and essential to organise the Games obviously has certain peculiar features that stem from the Event itself.

The Olympics, whether the Summer Games or the Winter Games, have two distinctive characteristics: the scale of the event, and the presence of strict rules, in some cases laid out as protocols, which direct the organisation in a particular way and therefore impose limitations as to space and location.

One consideration about the **Scale of the Games**: the Olympic Games are not the sum of several simultaneous World Championships. They have a structure all of their own; to try to convey this synthetically, we could say

that they have the complexity of a Pert programme rather than the immediate chronological simplicity of a Gant curve.

The second consideration, which we were certainly not aware of at the start, but which became apparent as our activities progressed, is that while, in terms of what we could call “Sales”, the Winter Olympic Games are worth half, or less, as much as the Summer Games, in terms of the complexity of the Facilities, it is the exact opposite. To give an example, we only have to think of the utilities necessary for a simple Alpine ski slope: ski lifts, programmed snow-making equipment, water reservoirs and the related collection systems and mains.

In terms of the overall approach, the project for the **Olympic System** – and here the definition of a System as a combination of interdependent elements that are not only material but also abstract (such as procedures, *policies*, etc.), organised to form an organic complex, is tangible – took as its reference the optimisation of the Projects, and the identification of the minimum number of necessary works, together with careful evaluation of the heritage of existing buildings and infrastructure which could be recovered and used.

Where the programming of individual works was concerned, the Studies followed three principles, three important guidelines: **Functionality**, **Essentiality**, and **Post-Olympic exploitation**.

We can rapidly consider the first aspect with particular reference to the sports facilities.

Annex one of the Olympic Law listed the sports facilities that could be built with public funds under Law 285. These included five Ice Rinks – all with rinks measuring 30x60 m – as well as the stadia for Curling and

for Figure and Short-Track Skating. But assessment of the various opportunities brought two results. The first reduced the number of facilities actually built to 3 (and 1 of these, the one in Torre Pellice, was originally envisaged as a reconstruction, but eventually had to be built from scratch after a dramatic flood which caused the old sports arena to collapse).

The second: careful analysis of the existing buildings revealed that the old pavilions of the Torino Esposizione exhibition centre, a superb example of post-World War 2 engineering designed by Nervi, would be ideal as Hockey venue no. 2.

So the Games are also an opportunity to upgrade existing buildings.

The project and execution of the Torino Esposizioni project was entrusted directly to Toroc, and this takes us to another topic, which we will examine rapidly in a minute, which is the question of works of a temporary nature compared with the so-called permanent works.

Similar situations, even on a larger scale, and at an urban level, enabled us (and here I do not only mean Toroc but all the organisations involved, starting with the Torino City and Provincial Councils and the Piemonte Regional Council) to imagine and activate drastic conversion and recovery programmes for large urban areas. I would like to mention the project for the Torino Olympic Village which is being built in the area of the former general market, and has painstakingly safeguarded the main architectural features such as the arcades, which house the main facilities at the heart of the Village, and the tower built in the 1930s, which is now inscribed in the panorama of the arch that represents a new, strong symbol of the City.

Functionality, Essentiality and post-Olympic exploitation of the Facilities.

How did we actually imagine the Facilities, and how did we draft the Feasibility Studies and the related **Tables of Requirements**?

Although we could be more flexible with the Villages and non-competition Venues, a Sports venue as such has constraints and principles that cannot be ignored.

In an ordinary context, a programming body assesses the advisability of undertaking a work in terms of general costs and overall benefits. This is obviously not possible for Olympic facilities. When the candidacy is confirmed and the Games are awarded, the city acquires an all-inclusive, complete Event that cannot be broken up.

We therefore have to see the **Economic sustainability studies of Facility Management**, which the Committee undertook at the planning stage, not as tools that decide whether a work can be built, because it will be built anyway, but as a means of judging whether the proposed design solution is capable of improving on the expected result or of identifying other possible design solutions.

We must take some examples:

while facilities such as sports halls in which the arena, or Field of Play, is always potentially a multipurpose stage, facilities like ski jumping hills have no such margin of use. They therefore require two different approaches. In the first case, which is more common, we respond to the social needs noted, proposing and developing a project that focuses on its multipurpose use.

In the second, we need to think of solutions that build on the sports qualities of the facility, making it a benchmark in its field, the state of the

art, capable of representing a pole of excellence and therefore an attraction in the world of competitive sport, both as a venue for competitions and as an outstanding training centre. And, at the same time, we must endow the Facility with added advantages, additional features that allow it to be used for associated and sustainable activities over and above its role as a competition venue.

There are other examples: the bob, luge and skeleton track was commissioned and designed as a course where the athlete is not driven but a driver. It is a difficult track, in technical terms, that will appeal to athletes and Federations. But that is not enough: we needed a facility that would attract athletes even out of season, in the Summer for example. Which was why we decided to combine the race facility with a thrust track with independent technical systems, where athletes can train on ice even in the Summer. But even that was not sufficient. We have to ensure the facility is part of a public **exploitation circuit** as far as possible. So we envisaged intermediate starts, so that the track could be enjoyed by taxi-bob enthusiasts on ice in the Winter, or on CLS in the Summer, using bobsleighs with neoprene wheels. And we added a restaurant, and an intermediate station on the Cesana – Sansicario ski lift, designing the course alongside the ski slope from Roccia Rotonda, so that the Facility could be incorporated in a vaster Snow Park in future.

The Ski jumping hills of Pragelato are another example of sports facilities. The economic sustainability study indicated that we needed to improve profitability, which would not be sustained by its use for competitions, by adding three training jumps, together with the necessary technological system that will allow the structure to be used for jumping even without snow and at night. This will make the Pragelato facility a national and international centre for ski jumping and for the Nordic

combined discipline, thanks to the nearby cross-country trail. Here the added feature is a multipurpose building. The large space under the permanent stands incorporates a hotel with 100 hundred beds, a restaurant for over 100 guests, a disco and a gym. Well, the economics of using the facility for sport and tourism changed radically, inverting the sign, even with a fairly conservative estimate.

Another peculiar element of the definition of each site can be expressed in a single word, the **Protocol**, which is the sum of the various standards and procedures that strictly regulate access to the Sites and to specific areas of each site. First of all, we must bear in mind that there are many different families of users of an Olympic facility: the athletes, obviously, with their technicians and staff, the members of the Olympic family, the press and television, the sponsors, the public and the workforce. Each of these families of users has its own access privileges. So one of the elements of the design of any Olympic Venue is the **Flow Study**, which starts from the access roads for the various site users, well before their entrance into the “Hard Ring”.

We have to define specific routes that prevent specific flows from intersecting, studying dedicated access points of a suitable size, defining homogeneous accreditation areas, and creating specific services, which often cannot be shared, for the different types of users. It is clear that in relation to their post-Olympic exploitation, this type of approach results in oversized areas and services, which reflect a unique, peculiar **use peak**.

We must now dedicate a few moments to a topic that we have referred to indirectly several times: that of the temporary outfits and works, which immediately brings us back to the concept of Essentiality.

When we began to draft the Table of requirements for each facility, we obviously started from the sports requirements. We were helped by our colleagues from CONI, and I would like to take this opportunity to recall the figure of architect Gianni Brandizzi, a friend who left us prematurely a few months ago. The first step was to consult all the national and international standards that could have some bearing on the facilities and their critical analysis. Direct, immediately applicable prescriptions obviously exist for some facilities, while for others, things were much more complicated: for example, the first proposal for the bob track.

Performance requirements are a different matter, and they range from the characteristics of the air conditioning and heating systems in relation to the required level of environmental comfort, to those of the lighting systems that must also take the requirements of television broadcasts into consideration.

We then had to discuss the necessary space. As you are certainly aware, the Organising Committee draws together numerous professional capabilities, starting from those related to Sport itself, and all these capabilities, together and individually, need space, structures and logistic support to cater for the activities performed and the services delivered.

Well, the work was organised by asking each department to draft a table of the services to be rendered and the personnel necessary to do so. We then drew up a matrix (slide) and worked together to define the various quantities.

The results of this process, which the Committee developed in a series of successive *loops* of verification and discussion, gradually enabled us to define the Olympic needs. But, as we said earlier, they represent a unique “use peak”, which, we can reasonably expect never to be repeated in the normal life of the Sites. So the next problem was to define how much and

what aspects of this need could be absorbed permanently, and thus be included in the works financed by the government, and what had to be achieved with temporary constructions. This produced two types of planning activity, which developed in parallel, with the obvious goal of rendering the resulting works compatible and complementary, and likely to be approved by the competent bodies, both individually and jointly for the staging of the Event. This was also necessary because the **level of performance** of a work cannot and does not depend on the type of construction adopted.

You will immediately realise that the topic can take on very different aspects depending on the work in question. We usually distinguish between two types of works: **Temporary Works** and **Overlays**. Many people tend to confuse the two terms and consider them substantially synonymous. This is not the case. A Temporary Work is a non-permanent component of a building or system, whose duration is limited in time, and whose lifespan is established exclusively to respond to a specific need, and which is only authorised by the competent administrative organs for that purpose. To give an example, the Torino Esposizioni grandstand or the Superstore tensioned membrane structure in Piazza Vittorio Veneto. Overlays are a different matter, consisting of structures that are usually, but not always, superimposed on an existing building. One example is the Power Supply project, which is certainly one of the most complex projects that my Department has had to develop. Just to give you an idea of the complexity of the matter, the temporary power installed and therefore generated and distributed, both prime and back-up, is little less than two hundred MW.

I think that I have summed up the activities related to the creation and programming of the various initiatives, certainly not exhaustively but within the limits assigned to me. This activity has actually developed over the years, accompanying the development of the various projects, at the planning and realisation stage. It received a boost during the Sport Events, which provided useful information and ideas for improvements and fine tuning. And it now continues with the definitive structuring of the sites with the Temporary Works and Overlays.

I would like to conclude my presentation by quoting a Chinese proverb which says:

“When you drink the water remember the Source”. I hope that the water springing from this source is good and clear, and that it brings the well-being that we all hope for.