

# **MAINTENANCE AND MANAGEMENT COSTS OF OPEN SPORT FACILITIES**

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## **1. INTRODUCTION**

Outdoor sport facilities: football and athletic fields, tennis, basketball and volleyball courts etc. are an important part of the community which public and private managers pay particular attention to.

Where outdoor sport facilities exist, young and old alike who want to have a healthy life and enjoy friendly competition have the possibility to keep fit.

It's important to stress that sport facility is not linked only to the performance and the spirit of high level competition. In modern society sports hold more and more a social value. Therefore the planning of sport facility must be based on the concept of the system as a whole and looking at sports as a form of exercise and service to the community.

This involves social the study of social organisation of minor spaces and alienated areas where poor housing quality, unemployment, low income and ethnic minorities are concentrated. These such of situations need particular attention and a sport facilities planning with low costs both in production and management, with the possibility to be used for many other purposes as well and also accessible to all. Therefore it's better to adopt solutions which assure the highest level of versatility and output in sports training, especially for a target group which does not practice high level sport activities.

## **2. PLANNING AND DESIGN**

The most important thing to do initially is to organise the different stages of building process in which sport facilities are made: planning stage where measurement and locations are defined in relation to the sport activities and targets; preliminary design stage in which practical and distributive characteristics, general criteria for technological and building choices are fixed; feasible design stage in which operational and maintenance aspects have to be considered in order to reduce operating costs and to minimize the global cost.

Open-air sports facilities must not only give young people the chance to do some kind of sport and physical activities, but they must take into consideration also older and disabled people striving for a healthy life and not despising competition.

The planning of sport facilities must be based on the concept of facilities as a system and of sport as practice and service within a rational organisation of the spaces and areas at one's disposal.

Preferably, solutions should be chosen which guarantee the highest degree of versatility and yield in sport activities hours, above all for those user brackets which don't do sport at a high-level.

The planning analysis is based on the kind of environment where sport activities take place and which naturally splits sports into three main areas:

- ground sports
- water sports
- aerial sports

As far as this survey is concerned, we are going to talk about outdoor ground sports. In this case it is necessary to single out the type of sport activity (football, athletics, tennis, volleyball, handball, basketball, and so on), its environment and the corresponding practising areas.

For a correct and rational planning the local programming office should implement an urban-sporting means (development and planning program of ten-year sporting plant engineering) which takes into consideration the requirements and the development of outdoor sporting plant engineering in the District, in the Town, and in the Territory.

Once this urban means has been introduced and needs and priorities have been defined, it is time for the second phase to start: preliminary planning; in the course of it functional and distributive characteristics and general standards are determined. These standards point out 3 different types of facilities that better satisfy the requirements of a correct costs-benefits ratio in addition to reasonable operating and maintenance costs.

If possible, every district of a certain population density should dispose of a not too large multi-purpose facility to be built in a residential or completion area. Generally, it is enough for a district to have 1 or 2 multi-purpose fields with synthetic floor - standard measures 40 \* 20 m., with lighting and wire-net fencing – where many sports can be done such as five-a-side football, handball, volleyball and other gymnastic activities. Generally, structures such as dressing-rooms, bathrooms, and terraces for spectators are not included in the plan of such district facilities, these being mostly used by young people living in the district. If, however, the facility should also dispose of dressing-rooms and sanitary services, a good solution would be prefabricated dressing-rooms and sanitary services which are transportable and usable in other places and for other events. As far as the executive part is concerned, it is necessary to employ materials which don't require particular maintenance and which can be easily operated. There will be a synthetic permeable floor on a draining foundation that can quickly discharge a great amount of water, there will be floodlights on 12 – 15 m piles for an average lighting of 80 lux, there will be a 3.00/4.00 m high plastic-coated wire-net fencing. The realization of the work costs about 200,000 USD, the purchase of the ground being excluded. Annual maintenance costs: 2,500 USD and operating costs of the facility: 7,000 USD.

***Sport facility with football ground for competitions, running track for fast running, boards and throwing circles, football ground for training purposes and multi-purpose field with synthetic floor***

This type of facility is suitable for schools and smaller middle towns where football is the main sport; at the same time, however, it allows to do some track and field athletics and team sports such as volleyball, basketball, handball. There could be the following standard equipment:

- A regular football ground - 100,00 \* 60,00 m – with grass floor and automatic irrigation system divided into sectors and fold-away irrigators, running track for fast running;
- long jump and high jump take-off boards, discus and hammer throwing circles;
- a 90 \* 50 m training field with earthen floor, equipped with lighting system for nocturnal training sessions with an average lighting of 100 lux;
- a 40 \* 20 m multi-purpose field with synthetic floor;
- a terrace made of prefabricated elements for about 400 spectators;
- a building consisting of 4 athlete dressing-rooms, 2 referee dressing-rooms, technical rooms, first aid, store-rooms, warehouse, bar, and ticket office;
- separated ways for spectators, athletes, and referees. The wire-net fencing is at least 2.50 m high from the walking surface.

The price of realization amounts to about 2.000,000 USD, ground costs and the realization of parking lots and approach routes excluded.

Annual operating costs amount to about 15,000 USD, annual maintenance costs to about 12,000 USD.

***Multi-purpose sport facility with main football ground, running track provided with boards and throwing circles, secondary football ground, 2 multi-purpose fields with synthetic floors to play handball, basketball, volleyball, and five-a-side football.***

A complete and optimized open-air multi-purpose facility for football, handball, basketball, volleyball and track and field athletics, suitable for town and territory, is represented by the following model:

A 105 \* 65 m grass field, provided with lighting system with an average lighting of 200 lux, automatic irrigation system divided into sectors and fold-away irrigators, running track with 6 tracks and synthetic boards approved by FIDAL (Federazione Italiana di Atletica Leggera / Italian association for track and field athletics) for national competitions;

- a 100 \* 60 m football ground, either with grass floor or with gray or red earthen floor, for competition and training purposes, provided with lighting system with an average lighting of 100 lux, automatic irrigation system;
- two multi-purpose fields with synthetic floor;
- a grandstand designed for 1,200 spectators and the corresponding underground with 6 athlete dressing-rooms, 3 referee dressing-rooms, warehouse, store-rooms, and bathrooms;
- a spectators' terrace made of prefabricated elements for about 200 people;
- attached to the grandstand a building with press room, meeting room, bar, ticket office and technical rooms in the basement;
- separated ways for spectators, athletes, and referees, the whole area being surrounded by fences.

The described facility can be defined as an open-air multi-purpose facility allowing one or more competitions of different sports to take place at the same time.

The price of realization amounts to about 1.750,000 USD, ground, parking lots and approach routes excluded. Annual operating costs amount to about 30,000 USD, annual maintenance costs to about 30,000 USD.

### ***Facility maintenance and operation***

One of the aspects gaining increasing influence in engineering open-air sporting plants is how to maintain and operate the facilities.

It has only been within the last five or six years that value analysis has been taken into consideration already at the planning stage of the facilities.

In Italy this new tendency has coincided with the process of privatisation of public enterprises which though reporting economic losses would still go on to operate.

In addition, sports activities are more and more considered an opportunity to be offered to every citizen, and private entrepreneurs are well aware of the importance of this field.

Whether it is on their own or together with public-law corporations, private enterprises demonstrate a growing interest in the construction and in the following operation of sports facilities.

Customized Facility Management (CFM) is a decisive factor for the success or failure of an investor/operator.

As is true also for the real estate industry, it is vital to obtain good benchmarks in order to stimulate a constant improvement process by analysing the following criteria:

- investment cost
- construction cost
- secondary costs
- maintenance cost of structural elements
- operating cost of non-structural elements
- net cost
- market value
- annual rate of return

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### **BIOGRAPHICAL NOTE**

**Gianfranco Morocutti** is a chartered surveyor in private own practice since 1984.

Actually, his main line of activities are: designer and technical consultant of recreational and sporting complexes (stadiums, football, tennis courts), building and cadastral surveying, consultant to the F.I.G.C. (Football's Italian Federation) from 1988-1994 and member of The Chartered Institute of Building of London.

From 1994 until 1997 President of Consiglio Nazionale Geometri, (Italian Surveyor Council). Responsible of the Consiglio Nazionale Geometri for international department.

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