
Sustainable **Whitewater** Sport Centers

December 2014

Ramon Ganyet, Carl De Smedt
ICF Strategy Commission



canoeicf.com

The document is addressed to:

IOC and NNFF- Main issue is the value of bringing whitewater to large populations/cities, proof that the sport is a superb asset to the Olympic movement and that the five days of competition is just the start of a lifetime of action.

Local Authorities - Investing in a whitewater venue that meets with ICF Competition guidelines delivers the opportunity to attract world class competition, deliver new revenue streams from additional whitewater activities, become an international training centre, provide a return on investment, boost tourism. The ICF and the National Federation are there to support and provide guidance every step of the way.

Leaseholders/Trusts - running a whitewater centre is an attractive proposition, hosting world-class events is a great way to increase the profile of the venue, it's possible to balance profit through rafting etc. and allow elite level training at the same venue. Again the ICF and the National Federation are there to support and provide guidance every step of the way.

Keywords: Economically sustainable, Legacy, Return on Investment, World-Class Competition, Partnership, Recommendations, Guidelines .

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Foreword

The canoe slalom discipline requires a whitewater course for the Olympic competition. The International Canoe Federation (ICF) encourages the construction of whitewater venues for development of different canoeing activities and associated with present and future sport.

This document, developed by the International Canoe Federation's (ICF) Olympic Strategy Commission, aims to capture the essence of what makes a successful whitewater venue and contains recommendations and guidelines to assist future venue construction.

A facility that is built for the sport of canoeing should primarily be used by the sport. But whitewater venues should also be economically sustainable, offering commercial activities that generate additional income that is necessary to achieve break even financial results. It contains an objective review of six of the most prominent artificial canoe slalom venues across the globe, assess their sustainability, economic impact and legacy. It then focuses on the key commonalities between the venues, pulling out the critical success factors that provide a solid basis for future venue specification, construction and delivery.

However there are key factors that should be attended to succeed in justifying the capital investment cost and provide an economic sustainable venue. This survey is the main objective of this document. A guideline for developers is also been taken into consideration.

The canoeing whitewater venues bring social benefits promoting sport for all and providing economic multiplier effects on the region. Lets plan them and keep management in the most appropriate manner. The ICF is ready to support the developers on benefit of the sport.

This first document on whitewater venues is an initial prospect to prepare an ICF International Observation on Whitewater Centers, to collect data and provide available information to the existing venues around the world.

Moving forward together.

JEAN-MICHEL PRONO

ICF Chairman of Canoe Slalom

THOMAS KONIETZKO

ICF Strategy Commission

Whitewater Sport Centers

Canoeing has a tradition of thousands years of navigation to move and fish on rivers and sea. The popularity of the sport began with the John Mac Gregor's publication, "A thousand miles in Rob Roy canoe" in 1865. At the turn of the nineteenth century many canoe clubs were founded in central Europe and North America. The rivers and lakes became the natural site to develop the activities.

Whitewater paddling had a great expansion on the mid twentieth century because the construction of boats with new materials as fiber glass and, a few years later, polyethylene plastic boats. On the late 1960's there were canals, diverted from the rivers, dedicated to canoe slalom discipline in whitewater. The first great success was in Augsburg, Germany, for 1972 Munich Olympic Games. Where a 600m canal introduced the slalom competition as exhibition sport and had a great impact to develop slalom racing. This Eiskanal is still now in active operation, more than 40 years later. With a similar principle of creating an artificial whitewater course connected to a river flow, nowadays exist in the world more than 30 successful facilities.

In the 1992 Barcelona Olympic Games was created in La Seu d'Urgell, Spain, the first recirculating water course, and canoe slalom could enter in the IOC Olympic programme where it remain until now. Since that experience a dozen closing circle whitewater centers have been created, combining canoe sport and whitewater recreation activities.

Today, the centennial tradition of whitewater paddling in rivers is renovated in hundreds of places over the world, and is still the best option to develop

the sport in places that have the appropriate water conditions: regular river flow and appropriate gradient (examples of Prague in CZE, Tacen in SLO and Cunovo in SVK).

Nevertheless, in flat lands or to approach the sport to urban areas and metropolitan cities, have been created in the last twenty years the venues that combine sport and recreation to produce a permanent facility specialized in whitewater courses.

The International Canoe Federation (ICF) encourages the construction of whitewater venues for different canoeing activities to ensure the future of whitewater sports. There are many examples of sustainable and economically viable venues across the globe; this study highlights the critical success factors to assist and support future venue construction and planning. The study will investigate whether such an investment for the Olympic Games or for sports development can ensure long-term benefits for the region and which requirements will be necessary to ensure such benefits.

The whitewater centers financed for Olympic Games competition should ensure a legacy support to the sport providing preliminary agreements concerning the post-Olympic management.

50 years of design and construction whitewater centers

1972

AUGSBURG
(GERMANY)

- Dam water drop on river Lech for Eiskanal: Diversion water to river

1992

LA SEU D'URGELL
(SPAIN)

- Canoe slalom in Olympic program
- First closing circle concept
- Electricity production

1999

PENRITH
(AUSTRALIA)

- Stadium concept

2006

USNWC CHARLOTTE
(USA)

- Second beginners and training course
- Global nature sport park

2009

PAU
(FRANCE)

- River Gave water diversion
- Combine of river feed and pump water

2012

AL AIN
(ABU DHABI)

- Multisports center
- Whitewater courses in 3 loops



AL AIN (ABU DHABI)

1986

NOTTINGHAM
(GREAT BRITAIN)

- Canoe slalom together with canoe spint
- Dam drop on river Trent

1993

LANNION
(FRANCE)

- Energy from tide
- Movable obstacles to produce whitewater

2004

HELLINIKON,
ATHENS (GREECE)

- Theatre concept
- Sea water

2007

SHUNYI, BEIJING
(CHINA)

- Training course with a single pump house

2011

LEE VALLEY PARK,
LONDON

- (GREAT BRITAIN)
- Water treatment plant
- Segregated training course

2013

VIENNA
(AUSTRIA)

- Compact design in Danube riverside park

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**LA SEU
D'URGELL,
CATALONIA,
SPAIN
PENRITH,
NEW SOUTH
WALES,
AUSTRALIA
CHARLOTTE,
NORTH
CAROLINA,
UNITED
STATES
OF AMERICA
MARKKLEEBERG,
SAXONY,
GERMANY
LEE VALLEY
PARK,
LONDON,
GREAT BRITAIN
VIENNA
WATERSPORTS
ARENA,
VIENNA,
AUSTRIA**



1.0

A survey on existing consolidated centers



A survey on existing consolidated centers

For the study of business have been selected six venues, that in addition of canoe sport offer commercial recreation activities, have host an ICF slalom competition and have a pumping water system.

PARC OLIMPIC DEL SEGRE

La Seu d'Urgell, Catalonia, Spain, Barcelona 1992 Olympic Games

PENRITH WHITE WATER STADIUM

Penrith, New South Wales, Australia, Sydney 2000 Olympic Games

U.S. NATIONAL WHITEWATER CENTER

Charlotte, North Carolina, United States of America

KANU PARK MARKKLEEBERG

Markkleeberg, Saxony, Germany, Leipzig 2012 Olympic Games Bid

LEE VALLEY WHITE WATER CENTER

Lee Valley Park, London, Great Britain, London 2012 Olympic Games

VIENNA WATER SPORTS ARENA

Vienna, Austria

The Olympic venue of Athens (2004) is used exceptionally for canoe slalom World Cup events. A concession of management has recently been implemented. The Olympic venue of Shunyi, Beijing (2008) is not commercially operated. Each project has a particular environment. The selected city/region have different external inputs and specific environmental and social context. The population resident in the area, average income, tourist visitor's attraction, and political and sport organization are varied for each project. All selected whitewater centers share canoe sport and commercial recreation activities. The six centers are economically sustainable. Whitewater canoeing is incorporated to a citizen park.

	LA SEU D'URGELL	PENRITH	CHARLOTTE	MARKKLEEBERG	LEE VALLEY	VIENNA
	Spain	Australia	United States	Germany	Great Britain	Austria
	Year 1991	Year 1999	Year 2006	Year 2006	Year 2011	Year 2013
	Olympic games: Barcelona 1992	Olympic games: Sydney 2000			Olympic games: London 2012	
	Water supply: River Segre	Water supply: Lake (quarry)	Water supply: Ground	Water supply: Lake (old mine)	Water supply: Ground	Water supply: River
	Regular flow: 7 m³/s rafting 10 m³/s canoeing	Regular flow: 14 m³/s	Regular flow: 12 m³/s rafting 23 m³/s canoeing	Regular flow: 10 m³/s rafting 14 m³/s canoeing	Regular flow: 13 m³/s	Regular flow: 12 m³/s
	Construction Time: 20 months	Construction Time: 21 months	Construction Time: 18 months	Construction Time: 14 months	Construction Time: 12 months	Construction Time: 18 months
	Operation years: 22	Operation years: 15	Operation years: 7	Operation years: 7	Operation years: 3	Operation years: 1
CITY POPULATION	12.500	190.000	700.000	20.000	12 million	1 million
VISITORS	375.000	38.0000	750.000	350.000	150.000	1.800
WHITEWATER USERS	50.000	70.000	145.000 raft 12.000 kayak	22.000	51.000	1.000
SIZE (SQUARE METRES)	66.000	100.000	1.619.000	50.000	106.900	30.000
PUMP ELECTRICITY POWER	1.600 kVA	1.600 kVA	3.500 kVA	2.500 kVA	4x1000 kVA	1400 kVA
CONSTRUCTION COST (€)	6.280.000	4.333.000	16.154.000 (13.077.000)*	11.900.000	39.370.000	5.000.000
EQUIPEMENT COST (€)	175.000	167.000	935.000	600.000	486.000	(500.000)
ADDITIONAL INVESTMENT (€)	2.600.000	200.000	2.300.000	600.000	0	50.000
EXPENSES 2013 (€)	988.000	1.227.000	10.122.000	1.100.000	2.776.000	Incomplete year



PARC OLÍMPIC DEL SEGRE

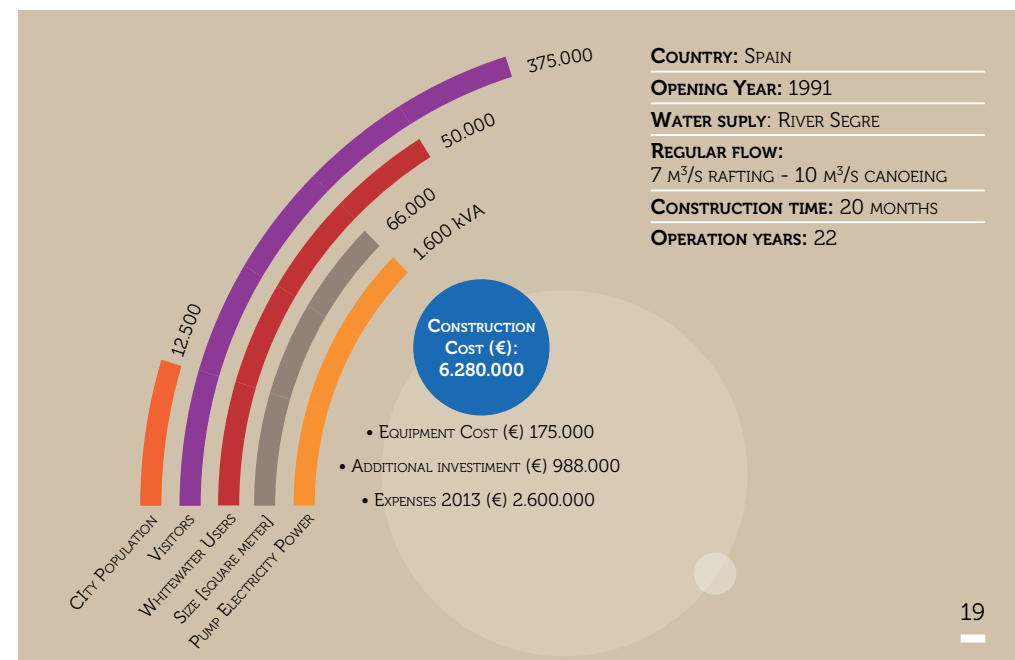
BARCELONA 1992 www.parc olimp ic.cat

Canoeing has fifty years of experience in the mountain Pyrenees range. The recovering of a river Segre flood in 1982 and the project for 1992 Olympic Games Canoe Slalom venue, promoted by the municipality, consolidated an urban renewal in the historic city of La Seu d'Urgell.

- The urban park is next to the old monumental town. The whitewater courses are connected to river by a flat-water canal, which feeds also a reversible turbine-pumping power station. Conveyor belts lift boats and paddlers for the first time in canoe white water venues.
- The organization of canoe slalom competitions is frequent. The facility hosts a local canoe club for development of slalom and a high performance center. There is a consistent school programme to attract kids to the canoe sports.
- Management of the park is done by a public company belonging to the municipality. The employment directly generates 27 equivalent jobs. After 22 years of operation the surplus have permitted to return a loan of 20 per cent of investment cost (1,1 million €) and reinvest 2,6 million Euros in the venue.



> FRANCESC GANYET



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Image
low res

PENRITH WHITEWATER STADIUM

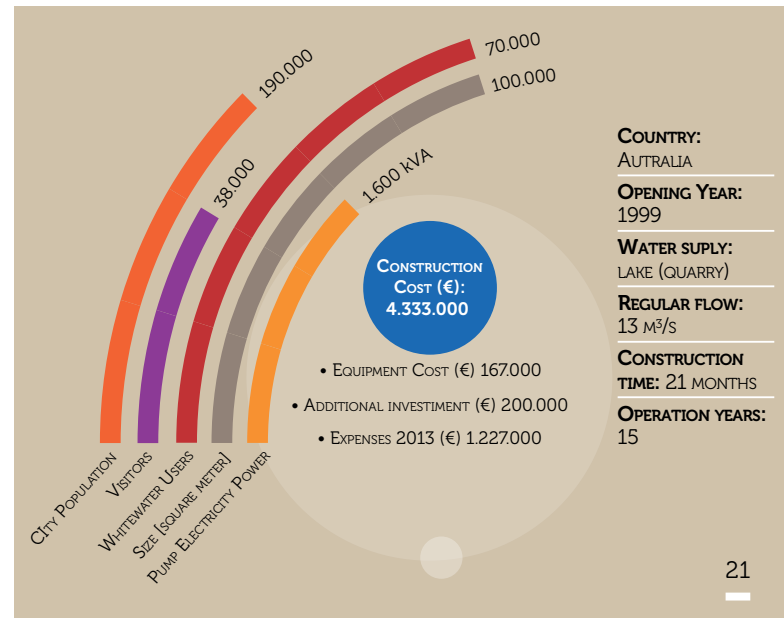
SYDNEY 2000 www.penrithwhitewater.com

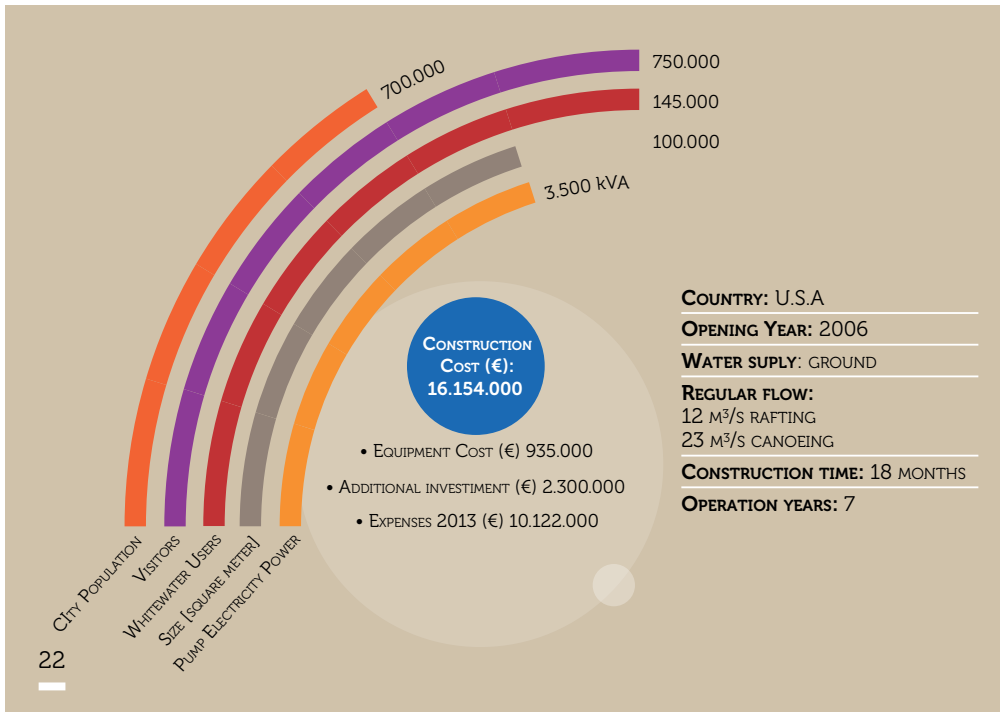
In 1998 the active participation of Penrith City Council facilitated the permanence of canoe slalom in Olympic programme. The course, designed as a stadium, is in the same Olympic area of canoeing and rowing racing center. The low investment cost is consequence of the pragmatism that inspired design and operation. Penrith design layout has been taken as a model for the next generation of closing-circle whitewater courses.

- Canoeing and commercial recreation are distributed according to an agreement that fix the time of each activity. Rescue training and education is a significant activity regularly done.
- Smart business has permitted to pay back the 25 per cent investment cost, (1 million €) provided by city council.
- Up to now this is the only man-made whitewater course of its kind in the Southern Hemisphere.



> JACK HODGE





CHARLOTTE U.S. NATIONAL WHITEWATER CENTER

www.usnwc.org

A small group of motivated and enthusiastic persons started the project in 2006. Originally the idea was inspired and based on the Penrith, Australia model but was amended into a more complete "outdoor recreation" model when the local county land presented itself to the organizing group. The County of Mecklenburg leased a land of 400 acres to the non-profit outdoor recreation company (USNWC) that have constructed the facility and operate the venue. The two whitewater courses (1.140m) were built to accommodate a large recreational population as well as meet the needs of training athletes. The USNWC is an official Olympic Training Center for whitewater slalom racing and has an agreement with the US Olympic Committee as it relates to providing training at the facility.

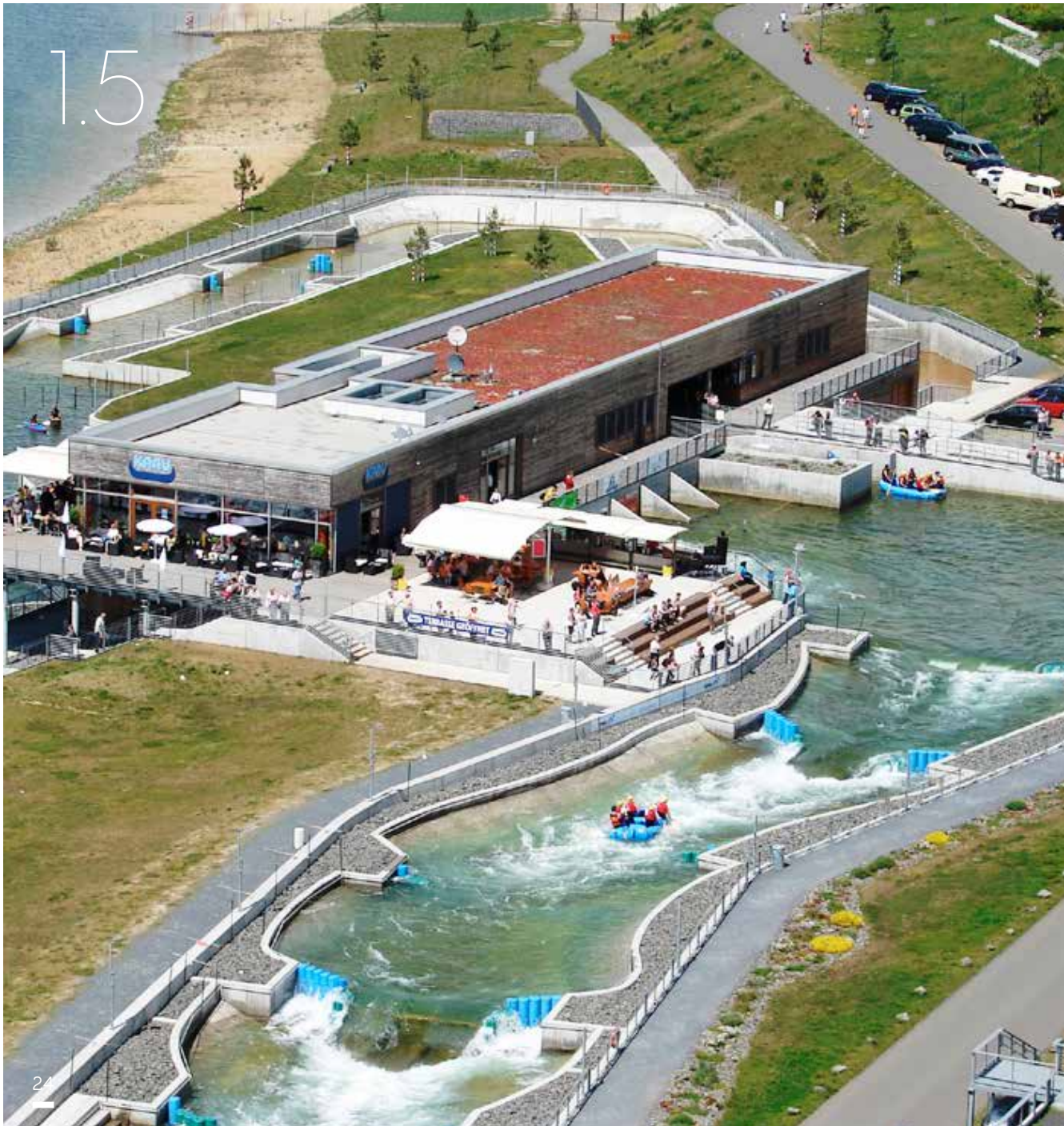
- In addition to whitewater commercial recreation activities and slalom training, there are many land activities offered, such as: mountain biking, rock climbing, aerial sports (zip lines and above ground elements), flatwater kayaking and SUP, and others. Beginning in 2009 the facility amended its operational model to operate more similar to an amusement park by selling a day pass to access all activities for one price. There is also an annual pass option that is very popular for local residents. Organizing 50 concerts per year, several large running, biking, and paddling events per year, providing good healthy food and beer, fireworks, and educational programs have brought many users to know the park. Marketing is a relevant expense. The peak season goes from May to September, while from December, January and February the whitewater channel system is turned off. The USNWC is open 363 days a year. The population of Charlotte is 700,000 residents. The population within 100 miles of Charlotte is an estimated 7 million.



> DAVID HEPP

- Liability is covered by insurance. All activity participants must sign a document assuming responsibility.

- The initial investment cost in 2006 was \$38 million (29M€). In 2009 a debt restructuring resulted in \$23 million of the debt being cancelled. By 2014 the remaining debt had been paid and the facility now has an estimated annual cash flow of \$3 million have been sufficient for a quick amortization. Nowadays the surplus is dedicated to the new investments going back on business, because a non-profit company. The full park (99%) is commercially oriented. Some 6 or 7 national canoe teams and development canoe for kids got some 700 hours per year in the courses. Normally, canoes and rafts share the whitewater courses and the courses run for an estimated 2,500 hours on average annually. Only in competitions and national team training times, are is a time for exclusive use for sport.



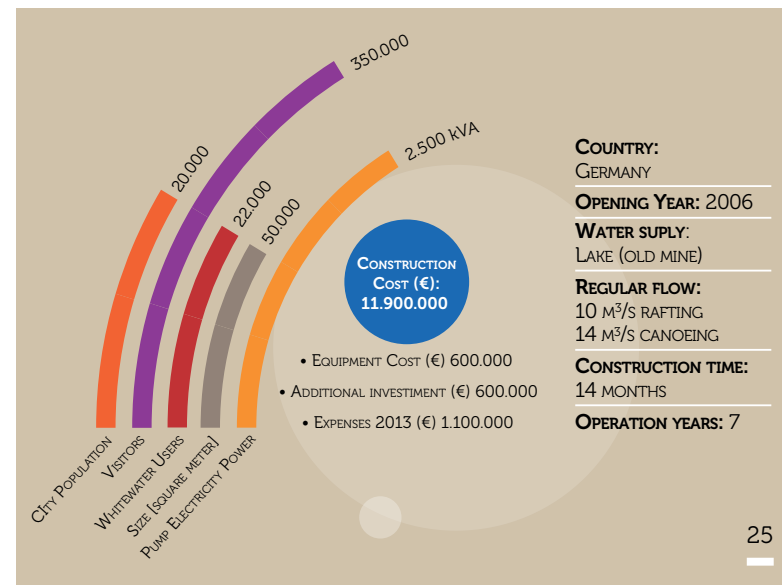
KANUPARK MARKKLEEBOG

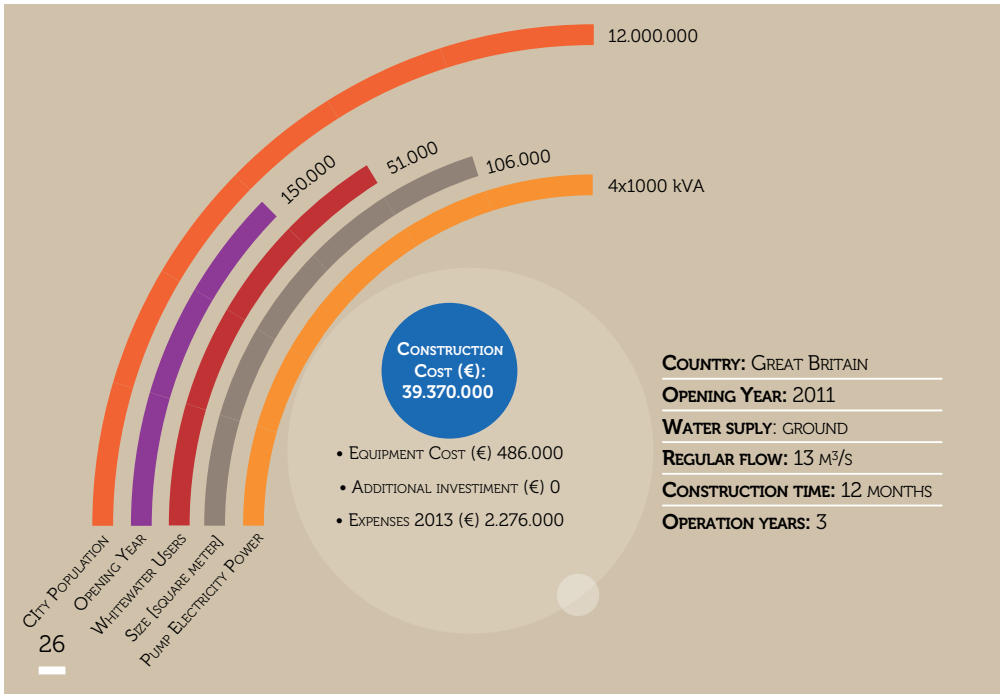
www.kanupark-markkleeberg.com

Leipzig has a very deep tradition of canoe slalom competition, winning medals since 1972 Munich OG. The project was in 2002 included on a bid for 2012 Olympic Games in Leipzig. Later in 2005 the city of Markkleeberg joined together with federal sport administration for construction of the venue on the lakeside of Markkleeberg lake (250 ha in a former open coal mine, 1999). Financing was shared 80 per cent by the Federal Government and 20 per cent by the municipality. And the initial share of use for athletes canoeing 80% and commercial rafting 20% was the same as the investment financing. But activities could not cover expenses and the share has been moved to 60% canoeing (600 hours per year) and 40% commercial (400 hours per year). To balance the economy the share will trend to go to fifty/fifty.

- The training course (130 m long, with smellers pumps) is hardly used 50 hours per year. It looks to be unsafe for swim in it.
- There is room to improve canoeing programs and competitions for using more paddlers at the same time in the whitewater course.

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LEE VALLEY WHITE WATER CENTRE

LONDON 2012 | www.leevalleypark.org

Lee Valley Regional Park Authority in metropolitan London, worked closely with the London Organising Committee of 2012 Olympic Games (LOCOG) in the construction of the Olympic canoe slalom venue in the borough of Broxbourne. The park now operates the venue and from next year [2015] the centre will be operated as a Not-For-Profit Trust, which will benefit from an 80% business rate reduction which will further secure the centres financial stability.

- The original investment cost was 31 million GBP (39 M€) to become the best Olympic canoe slalom venue in the world. The construction was accomplished in 12 months because of the accuracy in the executive project and length of prior preparation. The centre opened Pre-games in 2011 with commercial whitewater operations, having an immediate success attracting large numbers of visitors and income.

- Olympic canoe slalom in London 2012 achieved a huge worldwide audience on TV and for the first time still higher on the internet. The iconic image of Olympic canoe slalom is a strong value to any whitewater venue.

- In 2013 additional building works were commissioned to increase the size of the building by adding additional changing rooms, increasing the size of the café area, creating offices and training areas for the GB National Slalom Team.

In addition to the works within the building, additional legacy works included external landscaping to improve spectator provision around the Olympic course and additional car parking spaces.

- In spite of expenses of 2.776.000 € in the fiscal year 2013-14 the forecast is with similar expenses a break even result for present fiscal year 2014-15 (beginning in April 1st).

- A local agreement is in place with British Canoe Union, which allows for water usage at reduced cost when compared to the usual commercial rates [This is subject to a minimum amount of spend per year]. Regular competitions are held during each year, which include the GB Team selections, Regional/National Slalom competitions. The canoe slalom World Championships are scheduled for September 2015.

- The legacy course, with reduced drop and flow, is used for development programs in paddle sport and local canoe club development for local residents and schools. Fire and Rescue teams use this course most days during the week between 9.00am and 16.00pm.

- The closed system of water used to service the white water courses requires constant treatment to maintain good water quality. This is achieved by filtering the water constantly and treating the water with chemicals and UV. This maintains the water to meet the European bathing water quality standards. This treatment allows the centre to offer open water swimming as an additional activity. The water treatment maintained cost is 150.000 € per year.

- The long tradition of paddling in Great Britain (150 years) was a key factor of the exploding success of the Lee Valley Whitewater course.



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1.7



VIENNA WATERSPORTS ARENA

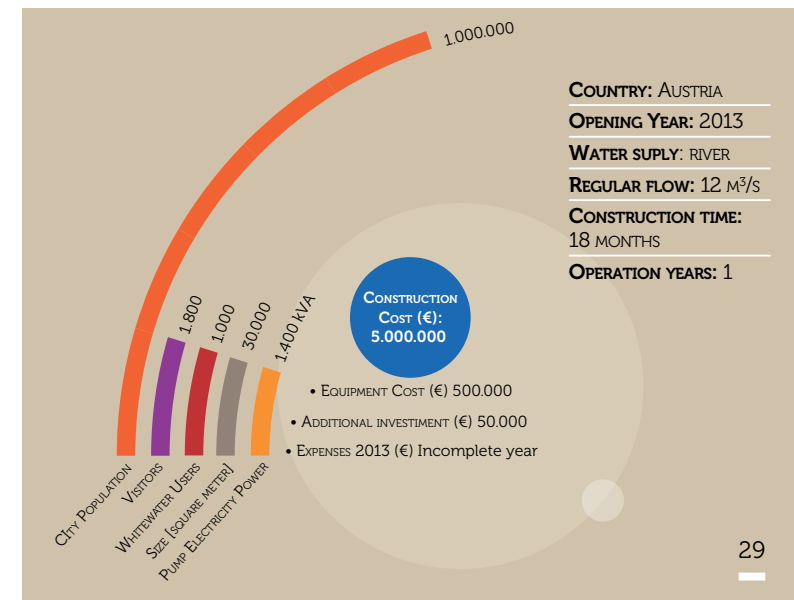
www.viennawatersportsarena.at

To prevent floods in the city of Vienna, the government of Austria has constructed a big alternative canal alongside the Danube (New Danube) creating an island in between, dedicated to environmental park (not driving). Promoted by Austrian Canoe Federation and Sport Ministry has been constructed a very compact whitewater venue.

- There are 300 m from the completely renovated National Rowing Center located in the Danube riverside. Because the distance, some facilities as toilettes, changing rooms and showers are impractical to share. There are some plans to provide these services in a new building located in the vicinity, helping an easy circulation of customers.
- Parking car is outside the island, at 500 m walking distance.
- The park is operated by Vienna City Wildwasser Institute.
- The management is separated, for National Canoe Team (Austrian Canoe Federation) and for commercial whitewater recreation (a concession). Up to now there are not yet synergy actions and each operator has an exclusive part time.
- The ICF Wild water sprint World Championships are scheduled for 2015.



> ROBERT SOMMER



2.0

Guidelines for new whitewater centers

The initiative and promotion of a whitewater venue has usually come from a reduced number of persons associated to a public institution (municipality, sport government, canoe federation).

In relevant cases the center has been associated to the Olympic Games.

The location of a new facility should take into consideration the water supply and population catchment area. The vicinity of a city would facilitate the transport for potential users.

In October 2014, following a survey on the six significant precedent centers, was conducted in Frankfurt a workshop with their managers. From their experience, it has been assembled these guidelines and recommendations, to help a closer understanding of a canoe whitewater center.

2.1

A MASTER PLAN CAN PREPARE THE APPROPRIATE DESIGN FOR THAT PARTICULAR SITE.

According to experiences it will be necessary to provide:

- A land, with surface in between 30.000 m² and 100.000m² ;
- Proper Environment;
- Investment Capital, in between 5 M€ (6,5 million USD) and 20 M€ (25 million USD);
- A flow of whitewater, in between 8 m³/s and 14 m³/s.

If not affordable diverted from the river, it will need a pumping system;

- In a pump version that will need electricity power, in between 2.000 kVA and 4.000 kVA;
- Water on bathing quality: National regulations, UE regulations, USA regulations.

2.2

A CONCEPT DESIGN, TO ESTABLISH THE OVERLAY THAT FIT IN THE SITE :

The Concept Design should consider all basic elements,

- Access, especially for vehicles,
- Parking area,
- Feeding water or water reservoir pond, depending on water supply,
- Whitewater Course(s) layout,
- Facility building(s), with the programme of architecture,
- Technical building(s), for electricity and water treatment plant.

The circulations of users and staff should be carefully examined.

The accessibility of vehicles for maintenance and operation should be considered. The water circulation will be defining the circulation of the users of water. The levels of the courses have not flexibility, and all other circulation paths should be accommodated in cross passages (normally bridges). At least one pass along the courses is necessary, one or two pedestrian bridges should cross though course.

The whitewater course:

- The length in between 250m and 500m;
- The mean gradient between 1 per cent and 2 per cent;
- The water drop, according to the length and gradient, between 3,75m and 7m;
- Movable obstacles, to permit change the whitewater configuration and renovate.

Features

- A practical support for slalom gates, helping their use in training sessions.

For Olympic venues, ICF provide the competition requirements.

In addition of a competition course an intermediate course is very useful for sport development and rescue teams training.

The pump house:

Submergible pumps prevent environment noise, but can transmit vibration to the building. Normally there are a group of standard units to deliver different flows.

Archimedean screw pumps have not been experienced yet in canoe whitewater venues. Could be an option for low drop to pump.

2.3

VENUE SUPPORT FOR CANOEING

A primary issue should be the actions to support paddle spots, mainly Slalom and Freestyle. To make money through the sport is very difficult, and should not be the priority for the ICF and national federations.

Areas of consideration for the venue operation:

- High Performance in the sport,
- Training facility,
- Competition venue,
- Canoeing development,
- Encourage Sport for all.

The social benefit of the Sport has to be taken in consideration.

The previous preliminary agreement to ensure sport in the whitewater center management is very important to secure the sport legacy incorporated to the center.

2.4

IN ADDITION OF CANOEING SPORT, THE VENUE SHOULD BE COMMERCIALY ORIENTED:

- Activities related to sport: athletes training, regional and international Competitions, paddling development;
- Activities related to recreation in water: rafting, flatwater canoeing, open kayak, inflatable kayak and river boarding;
- Activities related to land: biking, hiking, climbing, canopy, zip cabling;
- Other activities.

Food and drinks: in addition of activities in sport and recreation a center should provide services as restaurant, cafe, vending machines. These services can help the income of the center in a rate of 15 to 20 per cent. Most of the centers have a shop to sell equipment or sport material, tee shirts, merchandising, food and drinks. Normally the whitewater parks are closed with a fence, to have some control.

2.5

THE PROJECT

The project should be designed to accommodate the selected activities in good balance, according with the capacity of users in each activity. Temporary events with a greater attendance should be contemplated. It is recommended to incorporate the management staff in the design team, to produce a sustainable venue. In Olympic games venues, the priority design should be the legacy operation, and then to accommodate the Olympic requirements for a two weeks exceptional competition.

2.6

EMPLOYMENT

The participation of operation management during design, project and construction is recommended. At least one management person should be employed at the first stages of the construction.

Normally due to seasonal climate changes and labor vacation periods, whitewater venues have seasonal attendance. Some venues close at wintertime. Most of them have big peaks attendance offer at vacation time. Consequently the staff is composed by a few fix employees (from 5 to 45) and temporary employees (from 40 to 800). Jobs directly generated are increased by indirect business (because the side economy) and jobs induced by multiplier economy.

3.0

Management of economic sustainable centers

Carl De Smedt

When the construction was finished, the whitewater examined venues have been operated in a mix compromise between sport and commercially oriented activities. Staff wages stay for 50 per cent of total expenses, electricity can be 20 per cent and maintenance add some additional expenses Rafting and other commercial activities have provided the income necessary to pay the expenses, and also in some cases to return a share of initial capital investment. All centers have started the operation with an additional capital investment in equipment for the activities; and the more veteran centers have generated capital to improve the center with additional investment. All centers have a seasonal operation, with a lower activity in winter cold season.

The management has been organized in different ways in each center, according specific administration and regulations. There are 5 administrations through a public company, and a single commercial concession as management of the center in Vienna. The compromise between sport and recreation was initially settled by an agreement between the sport (federation, sport council) and the owner of the center.

3.1 Key factors for a sustainable center

The workshop of Frankfurt has collected the expert managers advice.

- Select the best place affordable,
- A good project, dedicated to sport but also commercially orientated,
- Prepared for the day after the Olympic Games,
- Operation management should work together the design team,
- Realistic project budget,
- A good agreement of operation between partners: sport, public agencies, communities, venue management,
- A good financial plan, including investment cost and equipment cost,
- A Business Plan adapted if environment changes,
- A good Manager, enthusiastic and motivated staff,
- Development programs, well structured to attract kids,
- Development in ease water (grade 1), for younger kids and schools,
- Appropriate water level, according to users,
- Quality of water, with respect of the standards baths in open waters,
- Care with costumers secondary spent, than can provide side business,
- Offer the best quality, creating a sense of unique experience in outdoor nature.

3.2 Business plan

Taking as a reference the over 20 years of experience in managing the "Parc Olímpic del Segre" en la Seu d'Urgell (Spain), we have developed a showcase for a generic white water center.

The final conclusion is that under reasonable assumptions of objective criteria with respect to number of visitors, location, capacity, pricing and various other factors, which we will explore in more detail, a white water center can be a sustainable, profitable, as well as a cash generating business.

Due to major variations from site to site in areas as varied as location, population, climate, acquisition power and others, the model we have developed is based on the minimum conditions required to have a viable operation that breaks even on an annual basis and generates sufficient cash for periodic renovation of the installations and materials, and for innovation and eventually expansion.

Under this caption of the paper we focus on the financial aspects of running a viable white water center. Other aspects, as important as well, like in any other business, are the quality, experience and motivation of management and staff, and the policies and actions in the field of marketing and communication, amongst others.

We exclude from this financial exercise the initial capital investment to construct the center and the impact of its depreciation charge. We take as an assumption that this investment is beared by public and/or private institutions, resulting the nomination of a site as organizer of a major competition, or for strategic reasons to promote a particular region. If part or all of this initial investment can be recovered will depend primarily on the number of customers the site can attract, thus on its location and area of influence.

3.3 Financials – Profit & Loss Statement

GENERIC PROFIT & LOSS STATEMENT FOR WHITE WATER VENUE					
K€ (1.000 €)	HIGH SEASON may>aug	MID SEASON mar/apr, sep/oct	LOW SEASON nov>feb	FULL YEAR	% of total revenue
REVENUE	934	242	24	1.200	100,0%
SPORT ACTIVITIES	295	118	5	418	34,8%
RECREATION ACTIVITIES	387	74	9	470	39,2%
OTHER COMMERCIAL ACTIVITIES	252	50	10	312	26,0%
OPERATIONAL EXPENSES	451	237	273	961	80,1%
PURCHASES	58	19	6	83	6,9%
PERSONNEL COSTS	259	151	145	556	46,3%
UTILITIES	12	11	41	64	5,3%
MAINTENANCE & REPAIR	18	12	13	43	3,6%
MARKETING & COMMUNICATION	4	1	0	5	0,4%
PROFESSIONAL SERVICES	2	2	3	7	0,6%
INSURANCE	6	5	5	16	1,3%
RENTAL	11	0	3	14	1,2%
OTHER	81	36	57	173	14,4%
EBITDA	483	6	-249	239	19,9%
FIXED ASSETS & EQUIPMENT DEPRECIATION	64	64	64	192	16,0%
EBIT	419	-58	-313	47	3,9%
FINANCIAL EXPENSES	7	7	8	22	1,8%
EBT	412	-65	-321	25	2,1%

KEY ASSUMPTIONS (BASED ON EMPIRICAL DATA)

- Three seasons to run activities : high - mid - low, each 4 months
- Number of athletes. 15.000
- Number of customers
 - canoe: 24.000
 - rafting: 14.000
 - other (hydrospeed , open kayak, BTT): 4.000
 - total: 42.000

Pricing of key recreation activities :

- canoe: average list price 12,5 € - average selling price 6,1 €
- rafting: average list price 36,0 € - average selling price 17,1 €

Average annual auto-financed investment: 100.000 €

Capacity limit to offer quality service: 100 pax/hour – 600 pax/day

Staff : 23 pax

Impact of corporate taxes excluded (analysis up to EBT)

3.4 Marketing

The Olympic Games competitions are an excellent launching platform for whitewater activities. The Olympic images and the Olympic iconic atmosphere remain long time as an active marketing asset.

As a similar effect, Continental and World canoeing competitions, if properly associated to the centers and their activities, can spread a very positive message of the center.

Marketing actions addressed to target areas are essential to promote and sell the products offered at the venues.

Canoeing development actions, mainly addressed to younger generations are a long term investment. Together with schools can help social synergies between education and sport.

3.5 Multiplier impact on the region

Last but not least, it is important to refer to the multiplier impact of white water centers.

Visitors are not only spending money on site, but their presence also create wealth, induce the rise of collateral businesses and create employment opportunities in the region.

The average daily spending by tourists is 107€ per head, according to a study performed in Spain. If we apply this rate to our specific case, with 42.000 visitors, we are talking of a global annual spending of 4,5 million euros.

4.0

Conclusions and recommendations

CONCLUSIONS:

- Canoe sport can be subsidized by commercial orientated activities;
- Canoe sport should be preserved in the previous management agreements;
- A **Master Plan** should be the preliminary document to prepare the project;
- The **Concept Design** must be related to the environment;
- The project should combine sport requirements and management operations;
- Employment will be temporary, according with seasonal activities;
- There are key factors for a sustainable economy;
- A **Business Plan** to operate the venue generates a positive cash flow available for investment in renovation, innovation and expansion;
- A White water center can be run profitably and at least break-even;
- The investment capital construction cost is difficult to recover totally through operation;
- Experiences in different sites of the world prove sustainable business;
- As a consequence of this seasonalization of the business, cash management is critical and should be addressed on a monthly basis to manage efficiently the peaks in the cash balance;
- It is obvious that the picture described will change in function of the location and its climate conditions;
- The economic and social impact to the region is significant.

Whitewater canoeing centers are facilities to share sport and recreation; regularly can host competition events; economically sustainable, balancing the expenses and income; the sport and commercial activities generate jobs; the indirect jobs and induced multiplier effect have a positive impact to the region.

RECOMMENDATIONS:

- Competition course with a maximum 12 m³/s flow.
- Limit the investment to 10 million euros;
- The design can be functional, with austerity;
- The Canoe sport programmes should be respectful with operation costs;
- In the Financial Plan consider all the actual costs, including operational equipment costs.
- When planning a second whitewater course for canoeing development, using the same pumping station would permit to build a longer intermediate level course.

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Ramon Ganyet

Ramon Ganyet is a civil engineer with an economy degree. Designer of Parc Olímpic del Segre for 1992 Barcelona Olympic Games, has a broad experience in national and international canoe whitewater projects. As a mountain engineer has conducted several projects on ski resorts in the Pyrenees.

IAKS 1995 award for integration of sport and environment in Parc del Segre. IAKS 2010 award for persons with disability ski plan and projects in La Molina. The concept design of combination canoe sport with commercial oriented recreation activities has been developed in 25 years operation in La Seu d'Urgell.

As competition venue manager, Ramon Ganyet has conducted Olympic and ICF canoe slalom competitions over 35 years.

From 1988 to 2000 has been member of ICF slalom and whitewater committee. Eventually has contributed to the evolution of slalom discipline and analysed the progress of the design of new whitewater venues.

Carl De Smedt

Carl is currently combining his activities as financial consultant with part-time CFO positions in two Spanish start-up companies. He is also an angel investor, board member and mentor in various other start-ups.

The industries he is specialized in are leisure & sport, entertainment, technology and healthcare.

During 7 years he occupied the position of CFO and Director of Corporate Services of the Andorra based company SAETDE, major shareholder of the Grandvalira ski-resort. He led during this period also the international expansion, via the subsidiary Pas Grau International, in Argentina, Spain and France, amongst other countries.

Before that he has occupied senior management positions as CFO in major multinational companies : for 14 years with Novartis, both at the Swiss Headquarters and at its Spanish affiliates, Black & Decker in Spain, Kodak and Arthur Andersen in Belgium.

Carl is Belgian, with an international background and experience in different cultures as he has been living and working also in Switzerland, Spain, Andorra and Argentina, and exercised responsibilities over country operations in Latin America and Asia Pacific.

As educational background, he has an MBA from the University of Leuven, Belgium, with postgraduates from Harvard (USA) and Insead (France).

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