



The results section is twofold. First, we will look at all Games levels, providing information for each of the 10 investigated Olympic Games. In a second results section, we will look across the various Games, which enables us to suggest interpretations by cost (revenue) groupings or categories. Finally, we present our overall findings.

It should be noted that OCOGs sometimes changed categories in their accounting systems from one year to another. This explains the sudden ups and downs between categories we defined.

4.1 Sydney 2000

In September 1993, the IOC awarded Sydney the right to host the Olympic Games in the year 2000. The Olympic Games were held between 15 September and 1 October 2000, and the Paralympic Games between 18 and 29 October. In order to secure the Olympic Games for Sydney, the New South Wales (NSW) Government was required to give an unqualified guarantee that the State would underwrite the Olympic budget. The Government had a responsibility, therefore, to maintain close oversight of the planning for the Olympic Games and implementation of those plans to ensure that essential Olympic facilities were provided on time and within reasonable costs and that the Sydney 2000 Olympic Games were successful.

All capital investments were made by the NSW Government. Three support and coordination authorities with power to oversee key aspects were established. One was the Olympic Road and Transport Authority (ORTA), the other the Olympic Coordination Authority (OCA), which was in charge of all construction, and lastly another one was the Olympic Security Demand Centre (OSCC). The OCA had the responsibility of coordinating the operational planning and management for those areas in Sydney which fell outside specific Olympic venues, areas collectively known as the Urban Domain.

At the time the Sydney Organising Committee for the Olympic Games (SOCOG) was established, four government ministers and five separate agencies were taking on the NSW Government's Olympic responsibilities. In 1995, action was taken to simplify the management structures. At the end of June 1994, the OCA was formed. The main tasks of the OCA were to deliver venues for the Olympic and Paralympic Games and to coordinate all government involvement regarding Olympic services and programmes needed (OCA 2002, 29). The complexity of this project can be seen in the territories to be coordinated. The OCA was responsible for implementing the planning, redevelopment and management strategies of the 760-hectare Homebush Bay area. It was also responsible for the delivery of new sporting and recreation facilities and venues at Homebush Bay, Penrith Lakes, Blacktown, Bankstown, Horsley Park, Ryde and Cecil Park, which were used during the staging of the Olympic and Paralympic Games (NSW 2000, 8). Following the successful implementation by the OCA, in 2001 a new agency was developed, the Sydney Olympic Park Authority, which is dedicated to running the Olympic Park to this day (NSW, n. d.).

This new coordination model worked out well and was highly appreciated by the IOC. It had the following key elements: A Games "financially underwritten by the Government of New South Wales, a formal and explicit relationship between the Organising Committee, the NSW Government and the Commonwealth of Australia [...], strong state and Commonwealth government coordination mechanisms, backed as far as possible by legislation" (Girginov & Parry 2005, 237). Both, Athens 2004 and Beijing 2008 involved their governments in the financing and organising of the Games. However, the involvement of the government means using public money and a different ability to control cost overruns.

The starting point of cost estimates is difficult to define for Sydney 2000. The first plans (Tab. 16) found date back to September 1990, three years before the bid. A report to the Premier of NSW shows sometimes higher figures than the official report. This may be due to different planning in the pre-bid phase or it may be a strategically lower announcement of costs in the bid files. This point illustrates the difficulty in determining the best figures for this study.

While the OCA took responsibility for the construction of facilities for the Games, the funding of these facilities was a public and private sector undertaking

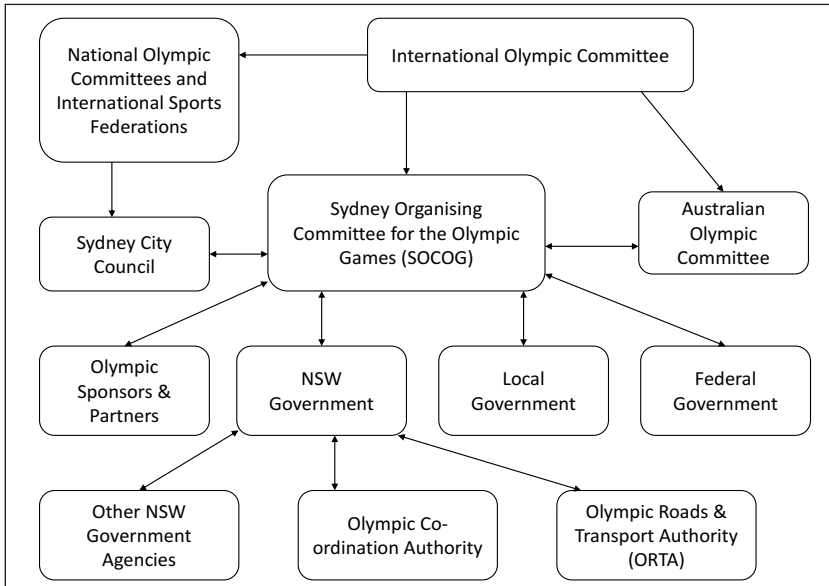


Fig. 10 Organisations involved in the Sydney 2000 Olympic Games

Source: State Chamber of Commerce (2001, 11)

Table 16 Comparison of cost estimates for Sydney 2000 pre-bidding

	Sept. 1990 Review Committee	1993 Bid Limited
	million AUD	
Velodrome	32	17.5
Olympic Stadium	113 – 182	190.4
	Warm-up & scoreboard + 22	
Super Dome	63	94

Sources: Sydney Olympic Games Review Committee (1990); Sydney Olympics 2000 Bid Limited (1993)

(PPP). The 110,000-seat Olympic Stadium was finished in February 1999, three months ahead of schedule. The stadium was constructed and funded mainly by the private sector. The project cost was AUD 690m, with a government contribution of AUD 124m to the overall investments (figures are without price index adjustments) (NSW, 2000). As explained above, we consider only the public money share (the

NSW contribution) regarding cost overruns. For example, the Olympic Stadium (ANZ) had a construction price of USD 583m and a capacity of 83,500 spectators. After the Games were staged, the running track was removed from the stadium in Sydney and its capacity to meet local sporting needs and to be able to host as many events as possible was reduced (Alm 2012, 19).

The OCA and NSW Treasury first published estimates two years prior to the Games because then the cost estimates were quite reliable. Both state agencies published the estimated net impact of the Games on the State's budget in June 1998. AUD 1,650.5m according to the OCA (OCA, 1998) and AUD 1,287.5m according to the Treasury in NSW (both 1998 AUD). Both the OCA and Treasury updated their estimates each year, but unfortunately these updates were not available for the present study. The important fact here is that the estimate by the Treasury in NSW was AUD 363m less than that presented by the OCA, being the net cost of constructing the Sydney Showground at Homebush Bay. The NSW Treasury did not treat this expenditure as a cost of the Games. Although the OCA's 1998 estimate included this cost, its current report excludes it. The exclusion is consistent with the Audit Office's treatment of these costs in the report entitled *Sydney Olympics 2000: Review of Estimates* (tabled in Parliament in November 1994). What we learn here is the inconsistency and definition of what must be considered as Olympic-related or not.

Another interesting fact to be mentioned here is that the government did not release the true costs expected, even though it knew at least that costs were higher than announced, which is a typical index of the winner's curse during the bidding process, as the backing of the population is important. While according to the neo-institutionalist *PRINCIPAL-AGENT* theory, this situation is called "adverse selection". The bidders (the government and the OCA), which are the *AGENTS*, have an incentive not to provide full information (playing with information asymmetry) to the *PRINCIPAL* (taxpayers) in order to increase their probability of winning the bid (opportunistic behaviour of the *AGENT*). For further information, see the neo-institutionalism theory in the theoretical explanations part.

4.1.1 SOCOG Revenue

SOCOG was constituted under the Sydney Organising Committee for the Olympic Games Act 1993 in November 1993 and was to be wound up on or before 31 March 2002. In this time, it had the responsibility for the 2000 Olympic Games of:

1. organising accommodation and transport for competitors, team officials and personnel, and media personnel;

2. organising the sports programme, including preparing and operating all venues and facilities for the Games;
3. organising the cultural programme;
4. establishing a marketing programme, in consultation with the International Olympic Committee and the Australian Olympic Committee;
5. arranging and making available a host broadcaster and television and radio facilities and other information services.

SOCOG earned revenues mainly from sponsorship, ticketing, television rights and government funding, over its period of operation.

Table 17 SOCOG revenue evolution of estimates and final

Categories	Candidature File (t-7) (000 AUD)	t-6	t-5	t-4	t-3	t-2	t-1	final (000 AUD)
IOC Contribution	0% (802,570)	-8%			24%	32%	32%	41% (1,132,000)
Sponsorship	0% (488,450)	-8%			77%	84%	76%	40% (685,600)
Ticket Sales	0% (228,601)	-8%			122%	170%	173%	166% (607,100)
Licensing	0% (83,875)	-8%			-24%	-20%	-23%	-14% (72,100)
Lotteries								
Donations								
Disposal of Assets							0% ¹¹	137% (7,300)
Subsidies								0% (30,800)
Other						0%	-80%	744% (217,100)
Total	0% (1,603,496)	-8%			52%	67%	63%	72% (2,752,000)

Sources: OCA (2002); Sydney Olympics 2000 Bid Limited (1993); SOCOG (1994, 2001, 2002)

11 Explanation: The disposal of assets was mentioned for the first time explicitly only in t-1. So that is why it is 0%, as that is the starting value for this category and we measure the revenue overrun from this point onwards. This method is used in many other Olympic Games categories.

The SOGOC revenues show a 72% rate of revenue overrun. There was no funding through a lottery and no donations were registered in favour of the OCOG. In almost all revenue categories more money was generated than originally stated in the Candidature File. The only exception is the licensing and merchandise category. In the ticket sales, disposal of assets and other categories, revenues reach up to more than twice the amount that was actually planned. High revenues from ticket sales is due to the fact that only a small proportion of tickets on free sale were available through a ticket lottery. Many tickets were held for various corporate customers, who paid high ticket prices (Nichols 1999). The drop in some categories from t-1 to final can be explained by the fact that the categories of disposal of assets, subsidies and others rose sharply at the final time or were calculated for the first time only one year before the Games. Where appropriate, these categories were not separated for the first time until the t-2 projection, or these sources of revenue were generated only at a later date, as it became clear that less revenue was expected in some categories (e.g. sponsorship).

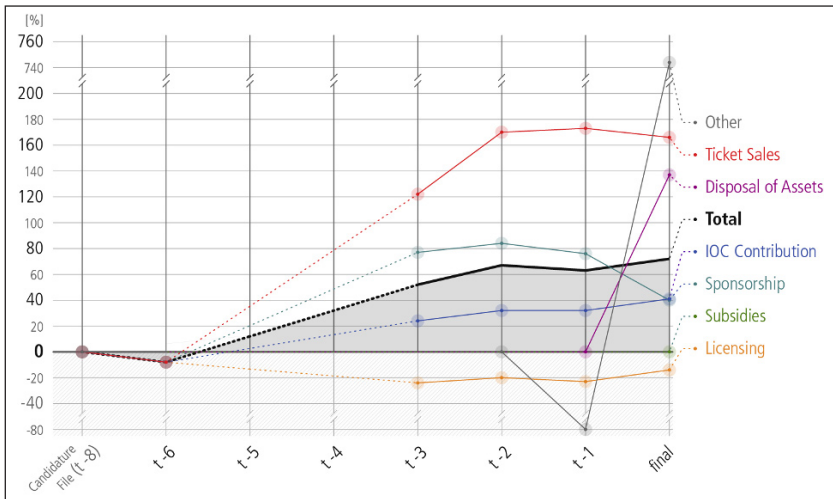


Fig. 11 SOCOG revenue evolution of estimates and final

4.1.2 SOCOG Expenditure

SOCOG already calculated a surplus in its Candidature File, so the budget was never balanced. Nevertheless, the revenues were always higher than the expenditures, even though the percentage information of the revenues seem to be lower than the expenditures at time t-3.

Table 18 SOCOG expenditure evolution of estimates and final

Categories	Candida- ture File (t-7) (000 AUD)	t-6	t-5	t-4	t-3	t-2	t-1	final (000 AUD)
Venues	0% (208,866)	-8%			89%	181%	163%	203% (632,200)
Workforce	0% (78,941)	-8%			-10%	-37%	-3%	-9% (71,500)
Technology					0%	25%	27%	28% (406,300)
Services	0% (151,304)	-8%			240%	301%	305%	103% (307,700)
Marketing & Events	0% (848,620)	-8%			-48%	-55%	-59%	-46% (455,400)
Administration & Coordination	0% (23,025)	-8%			343%	294%	253%	481% (133,800)
Other	0% (268,072)	-8%			107%	92%	87%	38% (371,200)
Total	0% (1,578,827)	-8%			53%	66%	63%	51% (2,378,100)

Sources: OCA (2002); Sydney Olympics 2000 Bid Limited (1993); SOCOG (1994, 2001, 2002)

In the venues, technology, services, administration & coordination and other categories, a cost overrun in the SOCOG budget was recorded, while less was spent than originally planned for workforce and marketing & events. The changes between the categories may well result from using different subcategories and belonging to different categories. In summary, there was a 51% total cost overrun of the SOCOG expenditures.

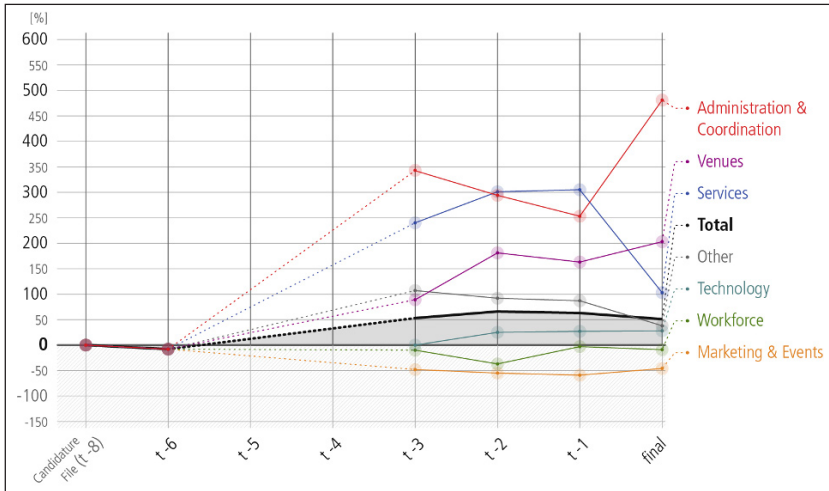


Fig. 12 SOCOG expenditure evolution of estimates and final

4.1.3 Sydney 2000 Non-OCOG Costs

SOCOG planned in its Candidature File renovations and new construction of the Olympic Stadium, the multipurpose hall, the velodrome and the Olympic Village. The table above shows only the government's public expenditure. The total cost overruns are calculated on the basis of absolute figures. This means that the velodrome, which has high cost overruns, counts less when looking at all costs of venues in our sample. After all, weighted by the costs of each venue, the government had total cost overruns of 56% relatively to the promises in the Candidature File.

The costs of the swimming pool were estimated quite well as, in the end, they were 6% below the estimates. However, as explained above, the costs for the swimming pool were not declared until two years before the Games were staged. To remind the reader of our method: the table above shows for the swimming pool 0% at t-2, because it was first mentioned then. For the calculation of the overall 56% cost overrun in Sydney between t-7 and final, the nominal costs of the swimming pool were considered (final) and AUD 0 were put into t-7. Thus the overall percentage reflects the cost overruns in the full amount of the swimming pool.

Table 19 Sydney 2000 non-OCOG costs evolution of estimates and final from public resources

Categories	Candidature File (t-7) (000 AUD)	t-6	t-5	t-4	t-3	t-2	t-1	final (000 AUD)
Olympic Stadium	0% (340,826)					-60%	-62%	-61% (131,600)
Swimming Pool						0%		-6% (218,800)
Multipurpose Hall	0% (81,275)					106%	81%	75% (142,400)
Velodrome	0% (6,631)					563%	539%	535% (42,100)
Olympic Village	0% (81,275)					127%		157% (209,200)
IBC/MPC								
Total	0% (510,008)					43%	-26%	56% (797,785)

Sources: NSW (2002); OCA (1999, 2002); Sydney Olympics 2000 Bid Limited (1993); The Audit Office of NSW (1999, 2002)

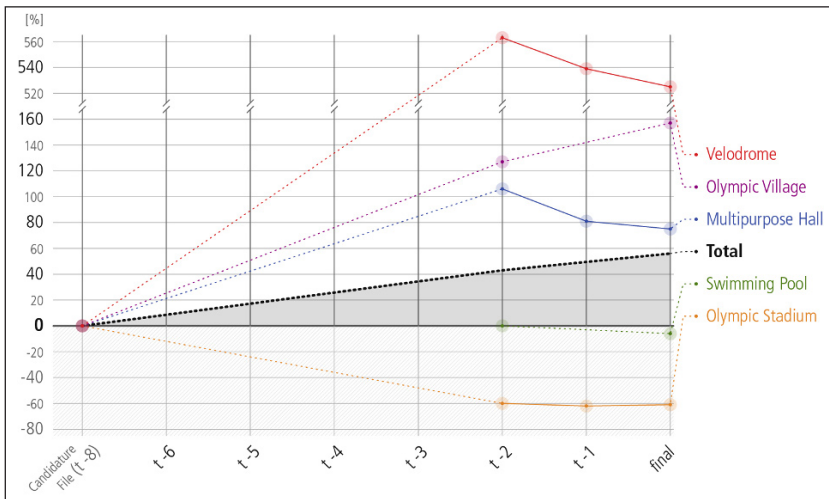


Fig. 13 Sydney 2000 non-OCOG cost evolution of estimates and final from public resources

The reasons for the increase in costs from the Australian government were (The Audit Office of NSW 1998, 12):

1. the bid was primarily concerned with a successful bid outcome rather than with detailed planning for the delivery of the Games. In this sense, the assumptions within the bid estimates, when measured against current understanding and knowledge, were superficial,
2. improved understanding of the task. Agencies concerned with planning for the Games acquired a greater appreciation of the complexity and extent of the task,
3. estimates took on several changes in their assumptions. The substantial increase in the transport estimate, starting from that included in the bid estimates for example, came about as a result of changed circumstances and assumptions which expanded the role and costs to the government,
4. the number of contests and venues increased,
5. the requirements and configuration of venues changed,
6. the experience of the Atlanta Games resulted in the establishment of new organisations, such as the Olympic Roads and Traffic Authority to coordinate and plan the delivery of transport.

4.2 Salt Lake City 2002

All of the Olympic Games in the United States of America have not heavily relied on the support of public money. The highest public support reported was for Lake Placid in 1980, with a share of 50% of the direct costs. Salt Lake City 2002 was estimated to be 30% of the total direct costs. Finances were shared by Utah state agencies (8%) and the Salt Lake City local government (4%) and 18% from the federal government (Government Accountability Office (GAO) 2001, 11). However, this money was not all spent on capital investments, but also on transport and security. Only 8% of the governmental money was spent on infrastructure, namely USD 27m on constructing roads to the venues.

Salt Lake City created an “Olympic Opportunities Planning” office. Even though the US Olympic Games should not be financed by public money, the US federal government played a critical role in the staging of the Games. The Congress approved more than USD 240m between 1998 and 2001 for direct Olympic and Paralympic activities. In 2002, President Bush added an additional USD 116m (SLOC 2002b, 9). Fig. 14 shows how the money (projected 2001) was spent. The chart clearly shows that venue building and construction was mostly not paid by

public money. However, according to Department of Transportation officials, the “construction of the Snowbasin and Winter Sports Park access roads, which are to provide access to the downhill skiing, ski jump, bobsled, and luge venues for the 2002 Olympic Winter Games, would not have been possible, nor would they have been built, without the approximately USD 15m specifically designated by Congress” (GAO 2000, 49).

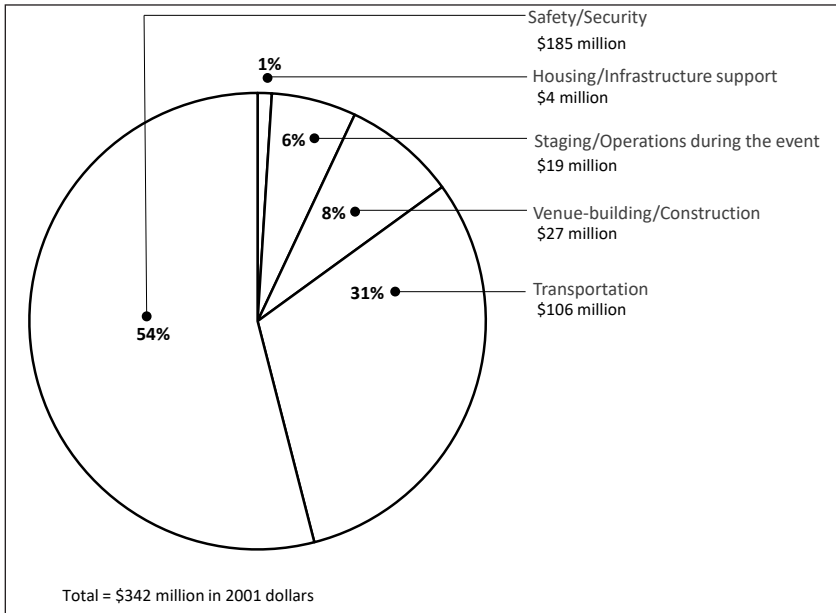


Fig. 14 Total direct cost for projects and activities related to planning and staging the 2002 Olympic and Paralympic Winter Games in Salt Lake City

Source: GAO (2001, 13); Hopkins (2002, 54)

As of two years before the Games, the federal government planned to provide about USD 1bn in federal funding and support to prepare Salt Lake City for the 2002 Olympic Winter Games. Most of this was provided primarily to develop, build and complete major highway and transit improvement projects (GAO 2000, 40). It is debatable whether these projects were really needed for the Olympic Games or if free riding or opportunism helped to get additional funding for the city and state (see our reflections at the end of this study).

4.2.1 SLOC Revenue

According to the IOC's Host City Contract for the 2002 Olympic Winter Games, Salt Lake City and the United States Olympic Committee (USOC), not the federal government, were responsible for organising the Games. The contract states, in part, that Salt Lake City, the Salt Lake Organising Committee (SLOC) and USOC would be jointly responsible for all commitments concerning the organisation and staging of the Games, with the exception of financing the Games. Financing the Games was the responsibility of both Salt Lake City and the Salt Lake Organising Committee (SLOC). In addition, organisers stated that they were dedicated to hosting the Games with revenue from private sources (GAO 2000, 44).

SLOC's revenue statement shows that it was able to achieve revenue overruns in almost all categories. The exception here is the licensing and merchandise category. In addition, no revenue was generated by an Olympic lottery as one was never created. Overall, Salt Lake City was able to achieve its revenue in all areas. In ticket sales, proceeds from donations, the disposal of assets, subsidies from the government, and the category "other" revenues more than doubled. The percentage for donations and subsidies was so high because only a very small amount was set out in the Candidature File for conservative reasons. The high changes in the estimates in t-4 and t-3 are due to a different categorisation. Overall, the organisation's commission increased its total revenue by 119%.

Table 20 SLOC revenue evolution of estimates and final

Categories	Candidature File (t-8) (000 USD)	t-6	t-5	t-4	t-3	t-2	t-1	final (000 USD)
IOC Contribution	0% (360,970)	34%		36%	28%			23% (443,340)
Sponsorship	0% (358,031)	95%		94%	57%			89% (614,771)
Ticket Sales	0% (95,659)	44%		18%	100%			112% (202,568)
Licensing	0% (46,095)	8%		15%	-41%			-28% (33,200)
Lotteries								
Donations	0% (2,305)			3643%				2072% (50,070)
Disposal of Assets	0% (5,788)							315% (24,004)

Categories	Candidature File (t-8) (000 USD)	t-6	t-5	t-4	t-3	t-2	t-1	final (000 USD)
Subsidies	0% (34,576)			0%				1540% (567,000)
Other	0% (16,110)	45%		2776%	3380%			382% (77,603)
Total	0% (919,534)	51%		110%	96%			119% (2,012,556)

Sources: Salt Lake City Bid Committee (1994); SLOC (n. d., 2002a)

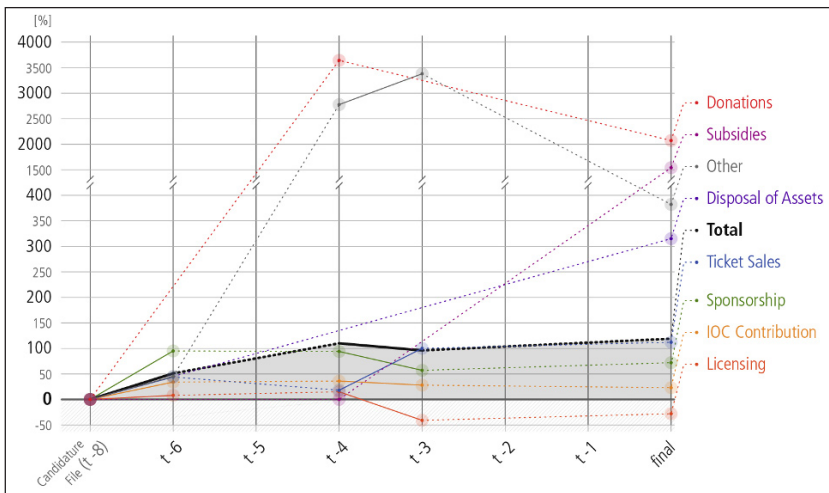


Fig. 15 SLOC revenue evolution of estimates and final

4.2.2 SLOC Expenditure

The costs for venues, workforce and technology were decentralised in the Salt Lake City Candidature File in the other categories. These categories were first recorded in its second budget in 1998. Also, four years before the Olympic Winter Games, a small amount of workforce cost was stated, which was probably part of the administration category, which led to such a high cost overrun in the workforce category. SLOC had to pay an early rent for the sports facilities, which becomes apparent in the total costs. In general, many categories had a cost underrun, which is nevertheless overshadowed by the cost overrun of the workforce and services

categories, which is why the SLOC ultimately had a cost overrun of 114%. The services category had such a high cost overrun because “sustainability” was accounted for the first time and was only placed in this category for the final budget. Security costs, also accounted in the services category, dramatically increased due to higher safety standards after 9/11.

Table 21 SLOC expenditure evolution of estimates and final

Categories	Candidature File (t-8) (000 USD)	t-6	t-5	t-4	t-3	t-2	t-1	final (000 USD)
Venues				0%				-41% (211,796)
Workforce				0%				702% (259,060)
Technology				0%				-22% (247,379)
Services	0% (107,000)			-17%				712% (869,124)
Marketing & Events	0% (213,202)			19%				-23% (163,982)
Administration & Coordination	0% (187,979)			-9%				-51% (92,039)
Other	0% (411,353)			-16%				-69% (126,532)
Total	0% (919,534)			70%				114% (1,969,912)

Sources: Salt Lake City Bid Committee (1994); SLOC (1998, 2002a)

A potential reason for cost overruns according to Mitt Romney (CEO of SLOC) was IT, which increased a lot for the Olympic Games. Not only in terms of measuring 1000/s, but providing results instantaneously around the world. In order to reduce the costs, the SLOC downsized many associated programmes around the Games and thus managed to stay within the projected budget (GAO 2001, 54).

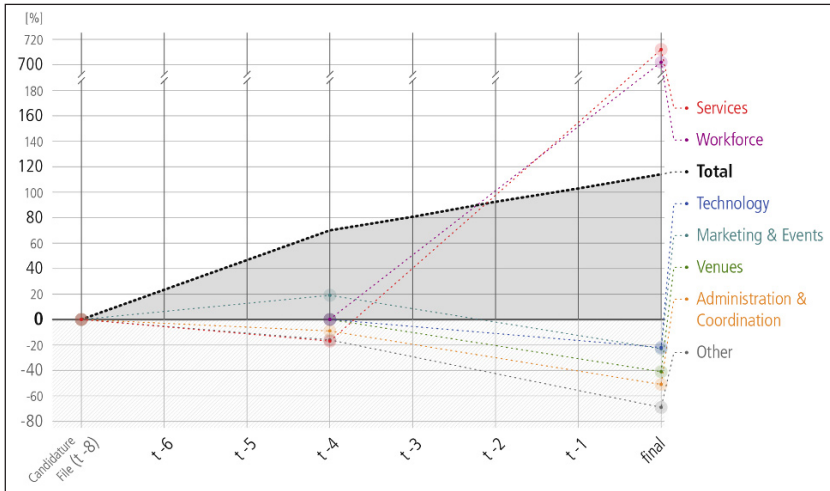


Fig. 16 SLOC expenditure evolution of estimates and final

4.2.3 Salt Lake City 2002 Non-OCOG Costs

The analysis of costs is difficult in this case, because Salt Lake City applied for the Olympic Winter Games 1998. Thus, many capital investments were started during the bidding process for the first bid (1989-1991), and venues were completed in 1995, which is the year when Salt Lake City was awarded the 2002 Games. Therefore, the bid book we took as our base does not mention venues such as the Main Media Centre or the Delta Centre (Ice Arena) because they were already completed. Almost 50% of the capital investments for venues needed to stage the 2002 Winter Games were therefore spent for the first bid to get the Games in 1998 (Salt Lake City Bid Committee 1994).

Another difficulty was the collection of the overall costs of the Games for all involved agencies. There were representatives from about 27 federal agencies involved in preparing Salt Lake City to stage the Games (GAO 2000, 45).

In Salt Lake City, cost overruns are also based on changes of the master plan during the preparations. For example, the SLOC anticipated 9,000 media for the Games. Salt Lake County had an existing venue, but began an expansion of the Main Media Centre (MMC) in 1999 (SLOC 1999, 36).

Our attempt to breakdown each venue that is in our “basket” was highly supported by Fay (2018) (Professor SUNY Cortland, USA) and COO of SLOC Fraser

Bullock). We found that all venues are still being used in 2018 and virtually all were in place well before the Games in 2002. Some were repurposed for the 2002 Olympic and Paralympic Winter Games and then put back in original use (e.g. Rice Eccles Stadium at the University of Utah used for Opening and Closing Ceremonies and the Salt Palace Convention Centre used for the IBC/MPC for the Games in downtown Salt Lake City). The Rice Eccles Stadium (Olympic Stadium) was expanded in 1998 to 56,000 seats, and it has been reduced back to 46,178 seats today. The costs for that stadium were only USD 67m (Alm 2012, 105).

Other venues that were built for the Games all remain in use still today and are managed by the Utah Olympic Legacy Foundation (e.g. the ski jumps and bob sled/luge/skeleton run at Utah Olympic Park; the Olympic Oval (speed skating); and Soldier Hollow Cross Country & Biathlon Centre). The Olympic and Paralympic Village at historic Ft. Douglas is now used as residence halls for the University of Utah. What is unique to Salt Lake is its vision in 1989 to fund these venues regardless of whether or not the city was ultimately awarded an Olympic bid (Fay 2018). And this is what happened, as Salt Lake did not get the Games for 1998. This means that the venue costs and their displayed cost overruns cannot be counted as Olympic costs, or at least it is difficult to calculate cost overruns for the 2002 Games when venues already existed during the bid.

Due to few public investments, little data were available on the Salt Lake City venues in our “basket” for this study. Therefore, we also used some less trustworthy sources, such as newspapers, to triangulate the figures we obtained. Fay (2018) conducted comprehensive research from public sources such as newspapers (Salt Lake City Tribune and the Deseret News) and some other articles. These sources were double-checked whenever possible by using several newspapers and then compared to the data we gathered from the Organising Committee.

SLOC used a public-private partnership model that involved a combination of state (public), non-profit (University of Utah) and private funding in order to build out the Games and then to manage many of these venues afterwards. For example, the Utah Olympic Park is currently undergoing a major upgrade and expansion.

The table 22 considers the Ice Sheet Ogden (curling) as an “Ice Stadium” because it incurred higher construction costs than the Olympic Oval and it was considered in the bid book, thus we had a starting point. COO Fraser Bullock stressed that the Delta Centre (Ice Stadium for figure skating) was built for an NBA basketball team, the Utah Jazz. It was not built for the Olympic Games, and only USD 2 million was paid by SLOC for rent. Overall, this research found that much of the construction in Utah would have happened without the Games and should not be counted as Olympic costs.

Table 22 Salt Lake City 2002 non-OCOG cost evolution of estimates and final from public resources

Categories	Candidature File (t-8) (000 USD)	t-6	t-5	t-4	t-3	t-2	t-1	final (000 USD)
Olympic Stadium	0% (9,141)							250% (32,000)
Sliding Centre	0% (26,771)							-20% (21,493)
Ice Stadium	0% (3,918)							53% (6,000)
Olympic Village	0% (54,848)							86% (102,000)
IBC/MPC	0% (104,473)							-11% (93,000)
Total	0% (199,151)							28% (254,493)

Sources: Fay (2018); Roche (1994); Salt Lake City Bid Committee (1994); SLOC (2001)

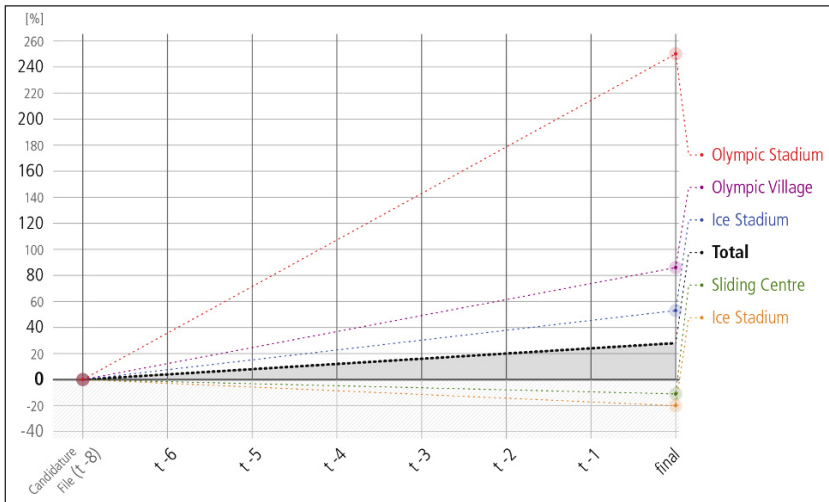


Fig. 17 Salt Lake City 2002 non-OCOG cost evolution of estimates and final from public resources

4.3 Athens 2004

Athens was selected by the IOC to host the Olympic Games on 5 September 1997 in Lausanne, where the Host City Contract between the IOC and the City of Athens was signed. Regarding planning and cost estimates, it is important to note that Athens had unsuccessfully bid for the Olympic Games of 1996, which coincided with the 100th anniversary of the modern Olympic Games. Thus, the bidding and planning started nine years beforehand. However, the true preparation effort intensified from 2000 onwards with great time pressure.

Apart from Athens, another four Olympic cities – Thessaloniki, Volos, Patras and Heraklion – hosted football matches. In Athens, two large complexes of athletic venues hosted most of the events of the Olympic Games 2004: the Olympic Athletic Centre of Athens and the Hellinikon Olympic Complex. The Games events were held in 32 venues, of which 18 were newly constructed, 12 were renovated and only 2 were temporary facilities. This put a high investment burden on Athens (Foundation for Economic & Industrial Research (IOBE) 2015, 28).

While the government took the responsibility for the construction of the sports venues for the Games, their funding was a public and private sector undertaking (Kasimati 2015, 169). The financing of the projects for the Athens Olympic Games was finally mainly covered by the State Budget (Public Investment Programme and Ordinary Budget) and by the revenues of the Athens 2004 Organising Committee for the Olympic Games (ATHOC). The construction of the Olympic Village was financed by the Worker's Housing Organisation (OEK). A fourth source of financing, which is, however, very small compared with the other sources, is the private sector, as some Olympic projects were self-financed (IOBE 2015, 43).

The Olympic venues for the Olympic Games in Athens 2004 were financed by several authorities:

1. Ministry of Environment, Physical Planning and Public Works (YPEHODE),
2. General Secretariat for the Olympic Utilisation (Ministry of Culture),
3. General Secretariat of Sports,
4. Special Service for Public Works.

The next figure shows how many ministries were involved.

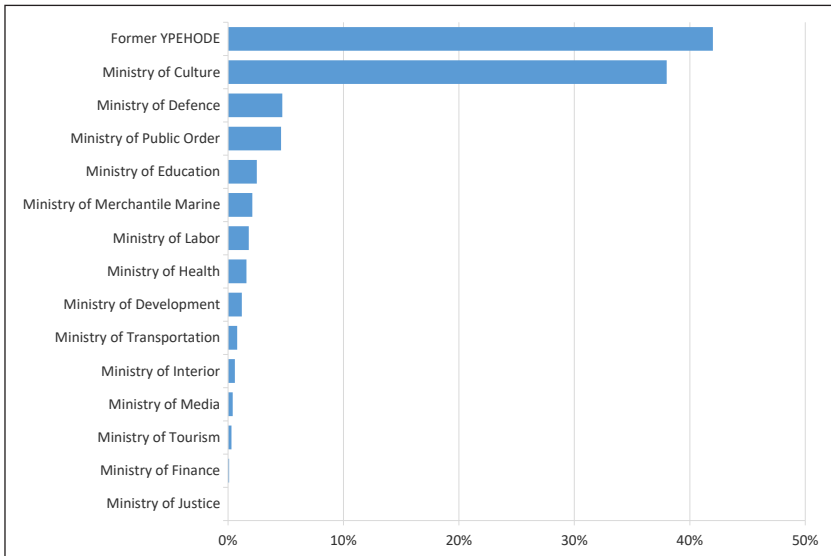


Fig. 18 Expenditure for the preparation of the 2004 Olympic Games by Ministry
Source: Ministry of Finance quoted by IOBE (2015, 48)

Regarding to the allocation of expenditure by Ministry, the cumulative share of the Ministry of Culture and of the former YPEHODE reached almost 80% of the total expenditure. However, Panagiotopoulou (2014, 177) speaks of three ministries involved in the financing of the Olympic works: the YPEHODE, the Ministry of Culture and the Ministry of Transport.

There is controversy about the usefulness of infrastructural development. On the one hand, great infrastructure projects which had developed only slowly for years like the new subway, bypasses and the future major airport received great impetus from the pressing date of the Olympic Games. On the other hand, however, there is the threat of irreversible planning errors due to time pressure or infringements of social principles by special regulations (Lenskyj 2000).

It is important to note that according to the OECD (n. d.):

“Athens is benefiting from investments for the 2004 Olympic Games but it needs clear strategic planning to take advantage of the opportunities that globalisation and eastward expansion of the European Union will bring. Organising the Olympic Games has proved to be a unique challenge not only for Greece’s capital city but for the entire national administration. [...] Preparations for the Olympic Games in August

2004 and financing from EU Community Support Funds have boosted investment in the hotel sector, year-round sports facilities and a modern region-wide transport network. This includes a brand new international airport, urban highways and ring roads to decrease congestion, upgraded rail links, a new metro, a non-polluting bus fleet, and tramway lines which connect the city centre and the suburbs. A programme to enhance architectural heritage and environmental assets has transformed central Athens and the area around the Acropolis. Like Barcelona, Athens now boasts easy access to a landscaped coastal zone at Faliron which offers a wide range of leisure and sports activities.”

4.3.1 ATHOC Revenue

The Athens 2004 Organising Committee for the Olympic Games (ATHOC) – with the distinctive name “Athens 2004 S.A.” – was a private legal entity with the legal form of an anonymous society. The entity was established in March 1998 with Law 2598/98, with the Greek government as the sole shareholder, and was dissolved in May 2005. Thus the Greek government was responsible for supervising Athens 2004 S.A., through an inter-ministerial committee. ATHOC, according to the Host City Contract, was responsible for planning and coordinating the preparation and the management of the Olympic and Paralympic Games. Among its main responsibilities was to ensure that the construction of the facilities associated with the Games complied with the applicable specifications and time schedules, in accordance with the regulations set out by the IOC (IOBE 2015, 31).

Looking at the ATHOC revenue, it is noticeable that almost all categories of revenue were included in the Candidature File. Only subsidies from the government were added the first time in the final budget, thus it shows a 0% change. In almost all categories, ATHOC achieved a revenue overrun. The TOP Sponsorship and other categories more than doubled their revenue. Furthermore, the number of national sponsors was low, but these sponsors contributed with higher contributions. The generation of lottery revenues was problematic. Originally a lottery was to be offset up for the Olympic Games. But this lottery was never set up, yet the Greek state was obliged to pay a share to ATHOC under the contractual arrangements. Similarly, the Greek state had to provide funding for missing revenue at the end of the Games in order to pay all the costs incurred. However, this contribution by the state was paid back by the profit at the end of the Games by ATHOC. In summary, ATHOC generated 51% more revenue than it had forecast. The major element for increasing revenue was the foreign exchange gains as the foreign exchange rate (USD to euro) turned favourably to the OCOG.

Table 23 ATHOC revenue evolution of estimates and final

Categories	Candidature File (t-8) (000 EUR)	t-6	t-5	t-4	t-3	t-2	t-1	final (000 EUR)
IOC Contribution	0% (560,360)			49%	45%	37%	33%	3% (578,700)
Top Sponsor- ship	0% (104,188)			156%	162%	154%	145%	117% (225,800)
National Sponsorship	0% (267,509)			-15%	-1%	0%	-4%	16% (310,900)
Ticket Sales	0% (187,725)			15%	7%	4%	0%	3% (194,000)
Licensing	0% (72,274)			-10%	11%	15%	11%	15% (82,900)
Lotteries	0% (220,577)			21%	17%	14%	10%	28% (282,500)
Donations	0% (18,773)			21%	17%	-43%	-45%	-99% (200)
Disposal of Assets	0% (18,773)				-6%	175%		7% (20,000)
Subsidies								0% (191,400)
Other	0% (58,195)			-2%	127%	117%	320%	574% (392,400)
Total	0% (1,508,374)			30%	43%	39%	34%	51% (2,278,800)

Sources: Athens 2004 Olympic Bid Committee (1996); ATHOC (2003, 2004, 2005a, b)

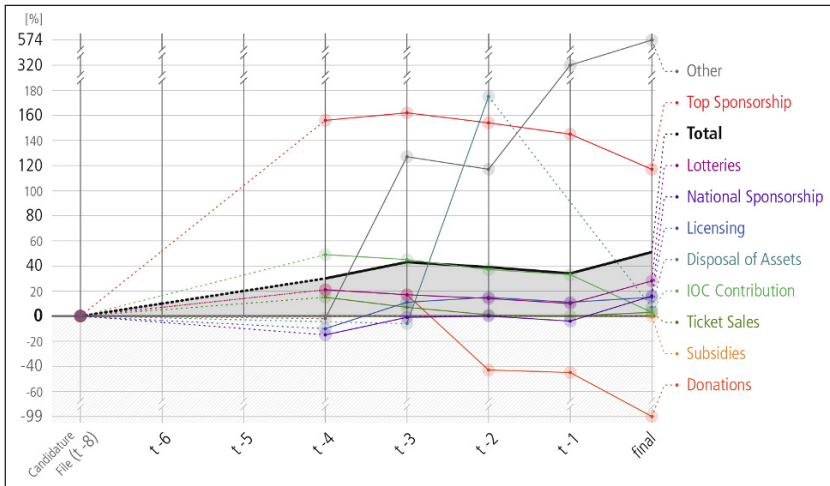


Fig. 19 ATHOC revenue evolution of estimates and final

4.3.2 ATHOC Expenditure

The total expenditure overruns were quite stable from 2000 onwards at 30%. However, a year before the Games, we can observe large changes. Marketing & Events fourfold, but other expenditures were cut down tremendously. The reason might be that the categorisation was not consistent at t-1 in comparison to the other cost estimates.

ATHOC had an overall cost overrun of 30%. The categories workforce and technology weren't included in the candidature file respectively they added them into other categories and decentralised them. Actually the paid staff costs were all the time decentralised. The differences in the budget projection one year prior to the Games occur due to the inconsistency in illustrating the costs. These changes can also be explained by the inconsistent presentation of the budget. One of the reasons the expenditure for marketing and events increased was that ATHOC planned at a late stage to organise a torch relay all around the world in all former Olympic cities, returning back to its origins in Athens.

Table 24 ATHOC expenditure evolution of estimates and final

Categories	Candidature File (t-8) (000 EUR)	t-6	t-5	t-4	t-3	t-2	t-1	final (000 EUR)
Venues	0% (532,108)			-53%	-54%	-64%	-65%	-46% (287,200)
Workforce				0%	200%	82%		179% (55,400)
Technology				0%	4%	-9%	-12%	-21% (309,900)
Services	0% (206,498)			-50%	-8%	-18%		23% (253,900)
Marketing & Events	0% (300,361)			57%	64%	63%	238%	52% (457,400)
Administration & Coordination	0% (170,830)			28%	80%	92%	106%	42% (243,000)
Other	0% (298,577)			70%	55%	74%	-57%	21% (361,000)
Total	0% (1,508,374)			30%	43%	39%	34%	30% (1,967,800)

Sources: Athens 2004 Olympic Bid Committee (1996); ATHOC (2003, 2004, 2005a, b)

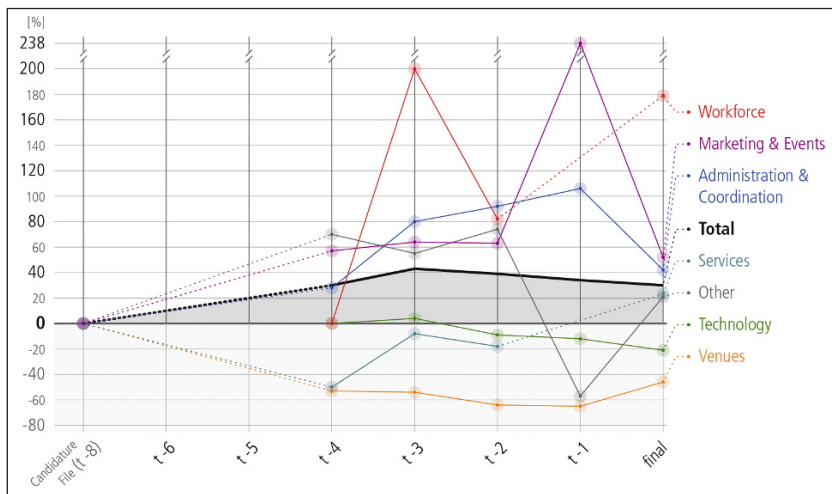


Fig. 20 ATHOC expenditure evolution of estimates and final

ATHOC took over the services and supply of goods for and on behalf of the Greek State for EUR 303.8m and received subsidies of EUR 180.2m. The deficit of EUR 123.6m was covered by ATHOC's profit, which then closed its accounts with a final surplus of EUR 7m (all in 2005 euros, ATHOC 2005a).

4.3.3 Athens 2004 Non-OCOG Costs

The implementation of construction projects was the responsibility of the Greek government. From 2000 onwards, ATHOC signed memoranda of understanding with each ministry separately, aiming to accelerate the execution of projects that had fallen behind schedule (IOBE 2015, 32).

According to the state budget reports, the state financing for the projects classified as Olympic came exclusively from the domestic resources of the Public Investment Programme (PIP), without financing from EU funds. The list of projects financed by the PIP includes the construction of new (and the upgrade of existing) sports facilities for staging sports events, along with auxiliary equipment and infrastructure. The expenditure for the procurement of equipment for the police and other government agencies to ensure security during the Games is also included here. The state financing also includes the construction cost of the transport network (technical studies, land expropriation, road infrastructure) necessary for connecting the sports and other facilities with the main road network of Athens. Public funds were also used to improve access to historical and cultural sites. This study concentrates solely on the sports venues as defined in the "basket". This means that cost overruns in the many other projects are not covered in the figures presented below.

In addition, the PIP includes the contribution of EUR 282.5m from the Greek State to the ATHOC budget for the preparation and staging of the Olympic and Paralympic Games, as per a decision by the inter-ministerial committee, DESOP. The subsidy aimed to cover the gap in the ATHOC budget from the cancellation of plans for an "Olympic lottery", which had stirred acute political controversy (IOBE 2015, 44). These funds are displayed above (ATHOC revenues) in the "Lottery" category and not in "Subsidies".

Additionally, on the occasion of the 2004 Olympic Games, the Greek State financed a substantial number of relatively low-scale projects, compared with the other categories, aiming to upgrade existing infrastructure (e.g. hospitals in Athens, public transport) and perform repair and reconstruction work in many areas of Athens (e.g. creating pedestrian zones, repairing roads and avenues, performing work on public parks, planting trees and restoring buildings). The Greece 2004 programme is also included here, with regional projects (e.g. upgrade of sports

facilities, cultural initiatives). The EU indirectly funded general infrastructure that was useful for the Games, but nothing directly related. A large programme of infrastructure works and industry development projects (a new airport, metro, tram, suburban railway, motorway system and upgraded road network) was implemented in the greater Athens area, and part of this was funded through the Community Support Framework (CSF) of the European Union for the general improvement of the city's infrastructure (Kasimati 2015, 172).

The following table and figure shows the changes of costs from the candidature to the final costs.

Table 25 Athens 2004 non-OCOG cost evolution of estimates and final from public resources¹²

Categories	Candidature File (t-8) (000 EUR)	t-6	t-5	t-4	t-3	t-2	t-1	final (000 EUR)
Olympic Stadium								(398,900)
Swimming Pool								(24,243)
Multipurpose Hall								(35,836)
Velodrome								N/A
IBC/MPC								(200,732)
Olympic Village	0% (395,646)							-27% (287,900)
Shooting Centre	0% (13,188)							328% (56,389)
Equestrian Centre	0% (21,581)							439% (116,246)
Tennis Court	0% (10,790)							418% (55,911)
Football Stadium	0% (28,774)							97% (56,724)
Weightlifting Hall	0% (11,390)							332% (49,240)
Total	0% (481,370)							29% (622,410)

Sources: Athens 2004 Olympic Bid Committee (1996), ATHOC (n. d.); Kasimati (2015), Panagiotopoulou (2014)

¹² Additional venues were considered.

The table includes absolute figures for those venues that had a lack of cost estimates in the candidature file. These absolute figures are intended simply to give an overview of the final costs according to the “basket” that we usually investigate. What is interesting is that the bidding committee did not plan to spend public resources on core Olympic venues. Due to the lack of data for our “basket”, we changed the components of the basket on one occasion, but kept the Olympic Village in it. Although the final costs of the other venues are available, these cannot be included in our calculations, because we have no bid book data about these venues. To present here a percentage for cost overruns, we changed our basket solely for Athens 2004. The basket contains the Olympic Village, the Shooting Centre, the Equestrian Centre, the Tennis Court, the Equestrian Centre, the Tennis Court, one Football Stadium and the Weightlifting Hall. Overall, it was only 29% more costly than planned. Unfortunately, no data could be found showing intermediate cost estimates.

According to other sources addressing cost overruns, both PricewaterhouseCoopers (2004, 22) and Panagiotopoulou (2014, 178) found similar cost overruns as we did, at around 25%. The table above shows different overruns by project. Almost all venues we considered had a cost overrun, with noticeably high cost overruns. Only the cost for the construction of the Olympic Village fell below the original plans. This explains the relatively low 29% overall cost overrun because the Village was so expensive that its weight on the total sum led to a moderate percentage.

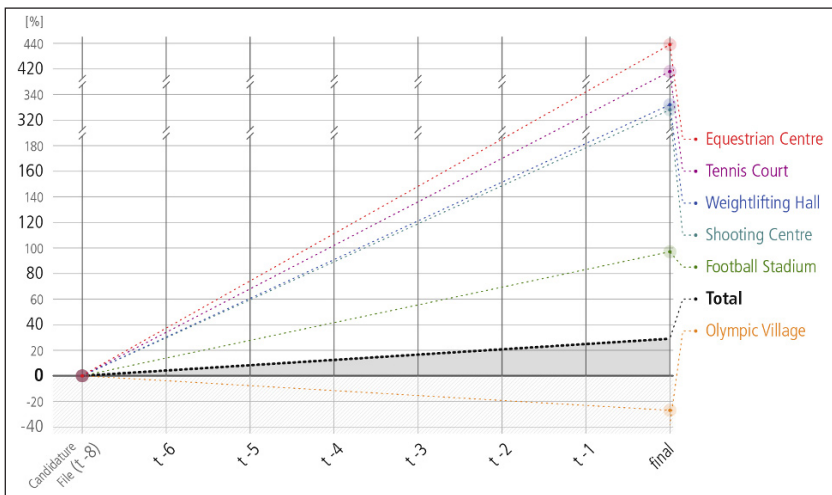


Fig. 21 Athens 2004 non-OCOG cost evolution of estimates and final from public resources

From Athens 2004 we can learn two facts. Firstly, many venues were not considered, or at least the bidding committee thought to use existing facilities or 100% private resources to construct them. Secondly, there are differences and problems in differentiating the costs of the individual sports facilities. For example, the cost of the Olympic Stadium was estimated at EUR 23m, with the additional costs of aesthetic enhancement and functional change of around EUR 361m (Panagiotopoulou, 2014, 178; Pollalis 2006, 9).

When discussing cost overruns in Greece, an important factor is mentioned by Cartalis (2015). He argues that the land ownership pattern is important when areas are picked to serve as Olympic infrastructure. The existence of publicly owned land within the urban area facilitates the integration of Olympic projects (and related capital investments) into the city; on the contrary, the case of Athens 2004 showed a lack of such areas. That limited the potential for extensive urban regeneration projects and increased the financial burden of the public authorities, because the necessary expropriations usually incurred high costs, due to the elevated market demand for available areas. Finally, this caused time constraints because, for a long time, construction could not start.

This explains the second cost driving factor, which is time pressure. The need to accelerate the construction of the projects may have led to higher costs, compared to a hypothetical scenario, in which the allocation of the projects in the preparation period had been more even. In general, we can say that unpredictable and uncertain factors may generate delays in the project achievement – which is often the case in the building and construction industry. Then the project lags behind schedule and must be finished in a rush, which always means with extra costs.

Another reason is the change of plans, mostly for legal reasons. Many of them were related to public-private partnership agreements or to capacity changes to reduce the capacities (ATHOC, 2005b, 147). However, ATHOC President Gianna Angelopoulos-Daskalaki swiftly understood the importance that successful Olympic Games would have on the psyche of the Greek people. Her vision was that the success of the Olympic Games, the most high-profile and costly undertaking in Greece's recent history, would give the country a boost of confidence. This effect had not only a political aspect, but also a psychological parameter that had to reach the hearts and minds of people, both in a mental and a visual way. From the position of President of ATHOC, she understood that this could be achieved by building illustrious and impressive sports venues that would capture the spectator's eye in the short-term and still be there after the Olympic Games to remind the Greek people of the triumphant Athens 2004 Olympic Games. To this end, Angelopoulos-Daskalaki was instrumental in the decision of the Greek state to incorporate design excellence and signature architecture for the renovation of the main stadium (Pollalis 2006,

4). Thus, star architect Calatrava signed the contract in October 2001 for a direct commission for the design of works at the OAKA, so that the Games would have a highly aesthetic dimension and the “signature” of an international architect (Pollalis 2006, 5). All the costs for such undertaking could certainly not have been included in the initial budget. In a press conference, Minister Venizelos revealed that the total cost of the aesthetic unification and functional improvements of the OAKA complex would be EUR 235m, with the aesthetic unification alone being EUR 126m (Pollalis 2006, 9). Alm (2012, 105) puts the costs at USD 373m, which is all around the same dimension.

This is a good example of late planning. The Olympic Stadium roof was planned only in 2001 (t-3), the contract was signed at the end of 2002, and construction carried out from May 2003 to June 2004.

The last, but not least, important factor that caused cost overruns was the change in security in the aftermath of 9/11. It increased from roughly EUR 400m to EUR 1,100m after 9/11 (Cartalis 2015; Panagiotopoulou 2014, 177).

4.4 Turin 2006

According to law, two specific authorities were established with the aim of controlling the programme: the Torino Organising Committee (TOROC), a private foundation that was responsible for organising the Games, and Agenzia Torino 2006, a public body that was in charge of the implementation of the Olympic Programme (Bottero, Sacerdotti & Mauro 2012, 204).

The permanent infrastructure that had to be delivered for the 2006 Olympic Games was managed by Agenzia Torino 2006, which was a public body with the dual function of acting as general contractor for all the planned works and which bore responsibility for their timely completion. The works activities were subdivided into different categories, according to their role in the event and to their financial support. The major aim of these “connected works” was a general redevelopment of the “Olympic territories” that made it possible to use the Games as a unique opportunity for developing and promoting tourism, even long after the mega event. According to this aim, several lines of intervention were identified. They encompassed the development of the winter tourist areas, road infrastructure, sewer systems, aqueducts, sanitary systems, and so forth. The cost of the “connected” public works totalled USD 429m, of which USD 273m was financed by the government under Law 285/00 (Bondonio & Campaniello 2006, 3).

Moreover, the Piedmont Region, in an attempt to extend a positive spin-off from the Games to those greater regional areas not directly involved, adopted the “Regional Programme of Tourist and Sport Infrastructures – Piedmont 2006” (Art. 21 of the Regional Law 166/02). This initiative was called “Accompanying Public Works”, to which USD 388m was allocated. Of that figure, USD 202m was financed by the central government and the remaining USD 186m by the Piedmont Region from its own budget (Bondonio & Campaniello 2006, 3).

Accompanying works were funded by Law No.166/2002 and had the aim of extending the beneficial effects of the Olympic investments to the whole region, to gain advantages for the entire Piedmont system.

Turin understood the opportunity that hosting the Olympic Games could offer the city and region, and the Organising Committee explicitly adopted a model to attract investments by maximising private funding and minimising public money funding (Bondonio & Guala n. d.). The final total costs of investment amounted to USD 2,207m (at 2000 year prices), and according to Bondonio & Guala (n. d., 6):

1. 65% of the total funding was financed by the “Olympic Law” No. 285/00,
2. whilst the remaining 35% was financed by:
 - a. Turin City Council 3.5%,
 - b. the Region of Piedmont 2%,
 - c. the Inter-departmental Committee for Economic Planning (CIPE) 3.5%,
 - d. the National Public Corporation of Roads (ANAS) 5%,
 - e. the Turin-Aosta Valley Highway Corporation (ATIVA) 5%,
 - f. the Italian Corporation for the Frejus Tunnel (SITAF) 7%,
 - g. the Public Regional Agency in charge of Environmental Prevention and Protection (ARPA) 1%,
 - h. private investors 6%, and by
 - i. Agenzia Torino 2006 2%.

Here we see again that the wide spread of financing and involvement of different authorities make a full calculation of cost contributions difficult and, additionally, the various authorities may have had different aims regarding legacy.

According to Bondonio & Guala (n. d., 6) an large amount of construction work, equally distributed between Turin and the Alpine locations, 36% in the city, 64% in the valleys, and the related infrastructure was carried out on time. It should be noted that the sporting facility costs did not exceed more than 30% of the total cost.

4.4.1 TOROC Revenue

The revenues of the Organising Committee were not all provided in the details we needed. However, overall we can state a revenue overrun of 50% was reached one year before the Games.

Table 26 TOROC revenue evolution of estimates

Categories	Candidature File (t-8) (000 EUR)	t-6	t-5	t-4	t-3	t-2	t-1	final
IOC Contribution	0% (337,906)						43%	
Sponsorship	0% (197,112)						103%	
Ticket Sales	0% (42,238)						N/A	
Licensing	0% (32,852)						192%	
Lotteries	0% (65,704)						N/A	
Donations							N/A	
Disposal of Assets	0% (9,386)						920%	
Subsidies	0% (56,318)						N/A	
Other	0% (23,466)						204%	
Total	0% (764,981)						50%	

Sources: Turin Bid Committee (1998); TOROC (2005)

The total of 50% contains all categories, as well as those not displayed here. The N/A data are included in “other” revenues. Based on the presentation TOROC gave to the IOC Executive Board, revenues were reduced to a few categories that were not congruent with those used in the Candidature File. The high amount in the disposal of assets category is due to a low and conservative assessment at the time of the application. As shown, we obtained data only from t-1 and therefore cannot display the final real revenue overrun. In particular, the ticket sales and merchandise profits became visible only after the Games. Similar to Athens 2004, TOROC also benefited from the foreign exchange rate from USD to euro.

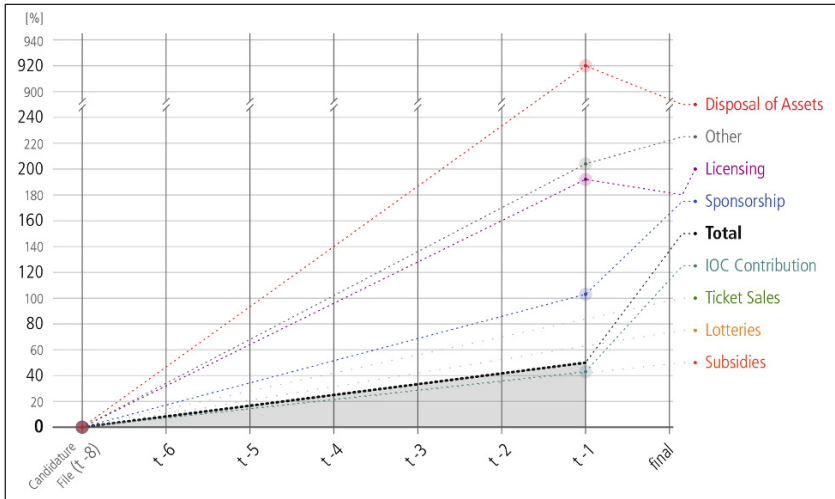


Fig. 22 TOROC revenue evolution of estimates

4.4.2 TOROC Expenditure

As the budget of TOROC was almost balanced at the end, it is no surprise that the expenditures were also higher than planned.

TOROC ended with total cost overrun of 58%. The highest cost overrun of more than 270% was achieved by the technology and other categories. But there were also categories for which savings were made. For example, 81% in the venues area and 21% in the sector of administration & coordination. For the period t-1, the others category was particularly high, as other categories such as services and administration & coordination were assigned there.

Table 27 TOROC expenditure evolution of estimates and final

Categories	Candidature File (t-8) (000 EUR)	t-6	t-5	t-4	t-3	t-2	t-1	final (000 EUR)
Venues	0% (281,588)						-49%	-81% (53,611)
Workforce							0%	10% (223,907)
Technology	0% (103,249)						145%	277% (389,055)
Services	0% (70,397)							53% (107,735)
Marketing & Events	0% (89,170)						55%	79% (159,786)
Administration & Coordination	0% (187,725)							-21% (148,747)
Other	0% (32,852)						1141%	279% (124,640)
Total	0% (764,981)						50%	58% (1,207,481)

Sources: Turin Bid Committee (1998); TOROC (n. d., 2005)

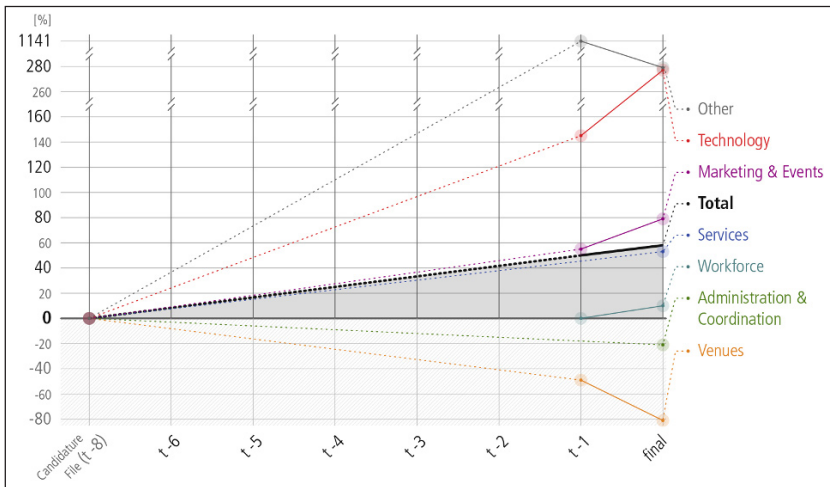


Fig. 23 TOROC expenditure evolution of estimates and final

4.4.3 Turin 2006 Non-OCOG Costs

The cost overruns for our selected venues show a moderate 20%.

Table 28 Turin 2006 non-OCOG cost evolution of estimates and final from public resources

Categories	Candidature File (t-8) (000 EUR)	t-6	t-5	t-4	t-3	t-2	t-1	final (000 EUR)
Olympic Stadium								
Ski Jumping Hill	0% (37,156)							-3% (36,043)
Sliding Centre	0% (51,539)							50% (77,290)
Ice Stadium	0% (94,688)							-26% (70,450)
Olympic Village	0% (91,092)							147% (224,732)
IBC/MPC	0% (176,191)							-25% (131,810)
Total	0% (450,665)							20% (540,325)

Sources: Bottero et al. (2012); Turin Bid Committee (1998)

Turin used an existing stadium to stage the Ceremonies, so there were no extra construction costs. The sliding centre and Olympic Village had cost overruns of 50% and 147% respectively. The remaining venues were built at a lower cost than planned, so the ski jumping hill cost 3% less and the Ice Stadium and IBC/MPC both about 25% less.

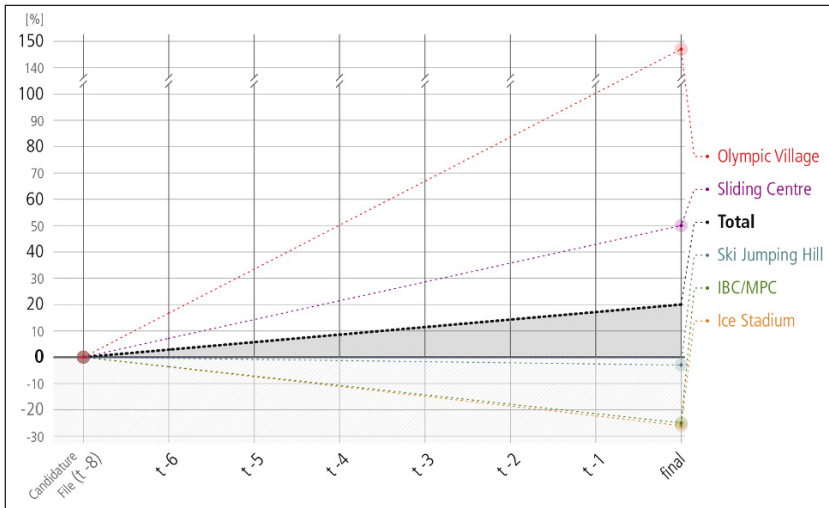


Fig. 24 Turin 2006 non-OCOG cost evolution of estimates and final from public resources

4.5 Beijing 2008

On 13 July 2001 Beijing was chosen to host the 2008 Olympic Games. The Government of the People's Republic of China promoted the Games and invested heavily in new facilities and transport systems. Thirty-seven venues were used to host the events, including 12 constructed specifically for use at the Games.

Overall the financial information for the Beijing Olympic Games is very limited.

4.5.1 BOCOG Revenue

From September 2005 to March 2009, the Audit Office of the Central Government carried out a follow-up audit of the financial revenues and expenditures of the Beijing Organising Committee for the Games of the XXIX Olympiad (BOCOG). The National Audit Report (2009, 1) states that “based on the sum of actual receipts and expenditures as of 15 March 2009, expected subsequent revenues, and expenditure accounts remaining to be settled, the revenues of BOCOG will reach 20.5bn yuan,

an increase of 800m yuan over the budgeted amount, and its expenditures will reach 19.343bn yuan, slightly over budget. The surplus will thus exceed 1bn yuan”.

Table 29 BOCOG revenue evolution of estimates and final

Categories	Candidature File (t-8) (000 CNY)	t-6	t-5	t-4	t-3	t-2	t-1	final (000 CNY)
IOC Contribution	0% (8,300,350)						-15%	-25% (6,196,782)
Top Sponsorship	0% (1,521,926)						85%	64% (2,500,724)
National Sponsorship	0% (1,756,068)						507%	382% ¹³ (8,461,962)
Ticket Sales	0% (1,638,997)						-24%	-22% (1,282,556)
Licensing	0% (819,499)						26%	66% (1,359,217)
Lotteries	0% (2,107,282)							
Donations	0% (234,142)						-85%	-60% (94,269)
Disposal of Assets	0% (936,570)						-88%	-73% (254,252)
Subsidies	0% (1,170,712)							
Other	0% (538,528)						54%	-33% (360,556)
Total	0% (19,024,073)						25%	8% (20,510,317)

Sources: Beijing 2008 Olympic Games Bid Committee (2001); BOCOG (n. d., 2007)

The Olympic Games were very successful in selling merchandise. That can be seen in the immense increase of revenues to BOCOG, with 66% greater revenues than expected during the bidding. The Organising Committee also achieved 382% more income through national sponsorship. The lower income from the IOC contribution

¹³ The final figure of national sponsorships revenues was reduced by the royalties paid to IOC. Therefore, the royalties also do not appear in the OCOG expenditures, which changed the final figure “other”.

can be explained by the fact that, until Beijing 2008, this IOC contribution was a percentage of the total TV revenue made. Many other categories received less than originally planned: ticket sales, donations, disposal of assets and other. In summary, BOCOG experienced 8% revenue overrun.

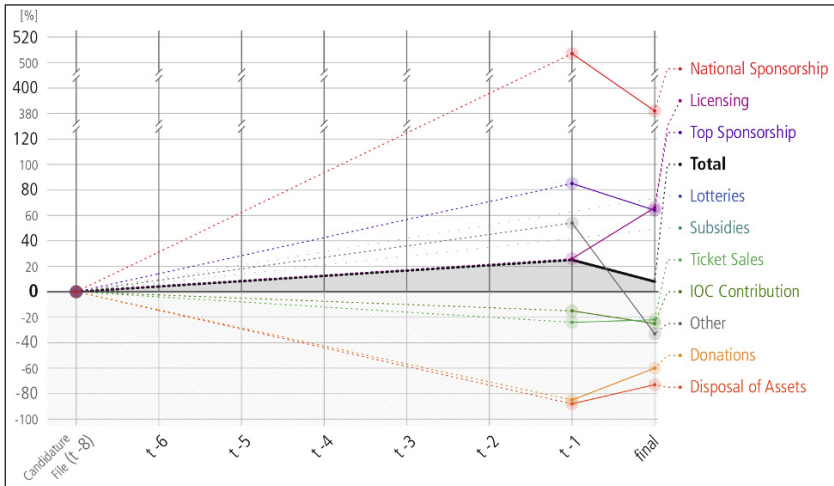


Fig. 25 BOCOG revenue evolution of estimates and final

4.5.2 BOCOG Expenditure

As we have seen before, it seems to be a pattern that, one year before the Games, the expenditures explode and then come back at Games year due to intensive saving.

Overall, the expenditures for BOCOG were managed very well. On the one hand, BOCOG saved between 15% and 54% in many categories, such as venues, workforce, technology and others. But other categories had cost overruns of between 9% and 45%: services, marketing & events, administration & coordination. The high change in the “other” category is due to the royalties that were deducted directly from sponsorship revenues and therefore did no longer needed to be accounted in the final budget (see footnote 13). After all, all expenses resulted in a 4% cost overrun in the BOCOG budget.

Table 30 BOCOG expenditure evolution of estimates and final

Categories	Candidature File (t-8) (000 CNY)	t-6	t-5	t-4	t-3	t-2	t-1	final (000 CNY)
Venues	0% (10,536,410)						-78%	-54% (4,866,966)
Workforce							0%	-37% (1,398,035)
Technology							0%	-15% (3,758,815)
Services	0% (2,353,132)						-14%	9% (2,567,121)
Marketing & Events	0% (2,833,124)						33%	45% (4,101,156)
Administration & Coordination	0% (1,931,675)						25%	19% (2,293,439)
Other	0% (1,182,419)						445%	-50% (585,333)
Total	0% (18,836,760)						25%	4% (19,570,864)

Sources: Beijing 2008 Olympic Games Bid Committee (2001), BOCOG (n. d., 2007)

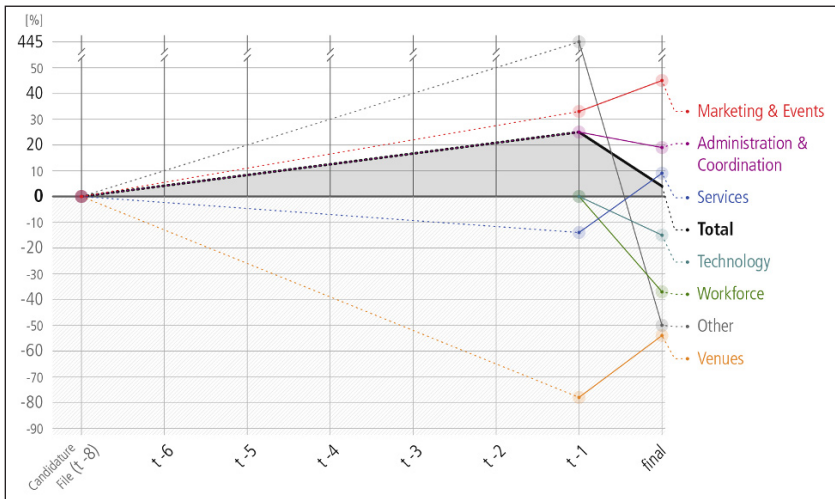


Fig. 26 BOCOG expenditure evolution of estimates and final

4.5.3 Beijing 2008 Non-OCOG Costs

Costs for the venues were not available. Thus we cannot calculate cost overruns for Beijing 2008.

We tried hard to obtain information on Beijing's capital investments. However, we failed; and the Olympic scholars we contacted could not help and did not find any data on the Chinese internet. The only way left was using Western newspapers. Various costs for individual sports facilities, some of which fluctuated greatly, were very problematic, which is why they cannot be described as valid.

However, four years before the Games, the City of Beijing and BOCOG decided to reduce the investments into the Games by EUR 724m (FAZ 7.9.2004, 32). Several venues were shifted. One was to take the horse riding events to Hong Kong. The budget at that time was above USD 3,000m for the 18 new venues.

4.6 Vancouver 2010

The cost of the Games was shared by three levels of government, Olympic and Paralympic sponsors, and the Vancouver Organising Committee for the 2010 Olympic and Paralympic Winter Games (VANOC).

The City of Vancouver and VANOC were responsible for key aspects of the Games that took place in British Columbia (BC). This included the delivery of competition venues (PNE, Hillcrest, Trout Lake, Killarney and Britannia ice rinks), non-competition venues (such as the Olympic and Paralympic Village in South East False Creek, the Protocol Centre at Coal Harbour Community Centre and LiveCity sites), other key infrastructures and a number of 2010 Games programmes which supported Vancouver's role as host city (British Columbia and Paralympic Winter Games Secretariat 2010, 4). The three levels of government involved in the financing were:

1. Government of Canada
 - provided 50% of venue costs to VANOC (approx. CAD 290m)
 - security
2. Province of British Columbia
 - provided 50% of venue costs to VANOC (approx. CAD 290m)
 - contributed to federal security costs
3. City of Vancouver
 - provided some operational support (traffic, live sites, etc.)

Categories	Candidature File (t-8) (000 CAD)	t-6	t-5	t-4	t-3	t-2	t-1	final (000 CAD)
Donations	0% (24,686)							
Disposal of Assets	0% (12,344)							
Subsidies	0% (49,372)							280% (187,796)
Other	0% (69,432)				127%	302%	311%	154% (176,106)
Total	0% (1,860,553)				13%	8%	10%	12% (2,081,477)

Sources: Vancouver 2010 Candidate City (2002); VANOC (2007, 2008, 2009, 2014)

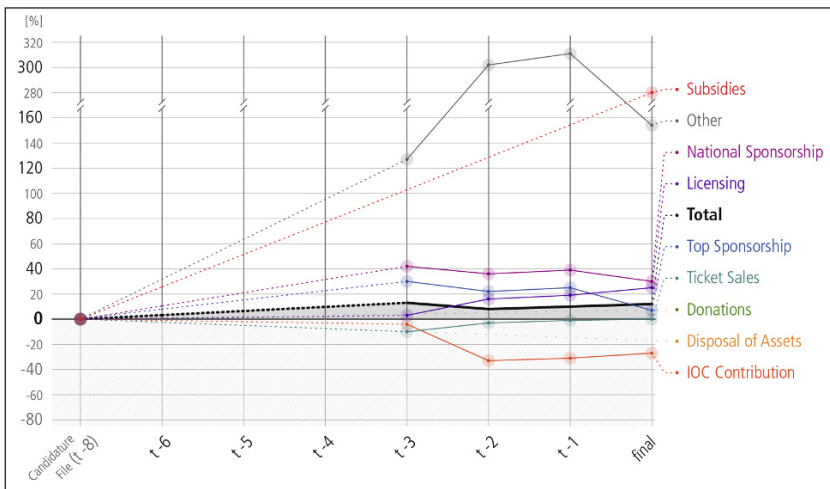


Fig. 27 VANOC revenue evolution of estimates and final

VANOC also had a revenue overrun of 12%. The IOC contribution was 27% less than expected. It dropped dramatically because the exchange rate of the Canadian dollar dropped from bidding to staging the Games by 33%. All other categories managed to receive a revenue overrun. The sale of tickets was well planned, with an increase of only 0.05%. In addition, the TOP sponsorship, national sponsorship and income

through licensing products had a moderate revenue overrun. The subsidies and others categories earned more than twice as much as previously stated. Subsidies of CAD 187.8m were contributed by British Columbia and Canada for the Paralympic Games, opening ceremonies, torch relay and medical services (VANOC 2010a).

4.6.2 VANOC Expenditure

It is typical for Games organising committees for an excess or a deficiency to arise and fluctuate as the timing of the receipt of revenues and the payment of expenses are dependent on specific contracts and do not follow a regular business cycle. On a project-to-date basis, there was, for example, an excess of deferred operating revenues over deferred operating expenses of CAD 198.0m (VANOC 2009, 4).

Comparing the revenues and expenditures from VANOC at the end we found a break-even position where there was no excess or deficiency of operating revenues over operating expenses. This break-even position reflects that some of VANOC's revenues, namely the final portion of the IOC contribution, were recognised and received only as required to cover expenditures (VANOC 2010, 4). VANOC's overall cost projection was not consistent, which is why there were very large fluctuations in different categories, with some categories even having no content at the end, or they were decentralised in other categories. On the basis of this fact, the changes and final figures of VANOC's expenses should be considered with caution. In summary, there was a 12% cost overrun.

Table 32 VANOC expenditure evolution of estimates and final

Categories	Candidature File (t-8) (000 CAD)	t-6	t-5	t-4	t-3	t-2	t-1	final (000 CAD)
Venues	0% (389,450)					-21%		
Workforce	0% (285,467)					-60%		
Technology	0% (341,057)				22%	13%	18%	33% (452,425)
Services	0% (136,502)					117%		
Marketing & Events	0% (221,135)				354%	53%	381%	437% (1,186,514)

Categories	Candidature File (t-8) (000 CAD)	t-6	t-5	t-4	t-3	t-2	t-1	final (000 CAD)
Administration & Coordination	0% (175,130)				-30%	32%	-26%	-34% (115,799)
Other	0% (311,812)				77%	6%	45%	5% (326,789)
Total	0% (1,860,553)				13%	8%	10%	12% (2,081,527)

Sources: Vancouver 2010 Candidate City (2002); VANOC (2007, 2008, 2009, 2014)

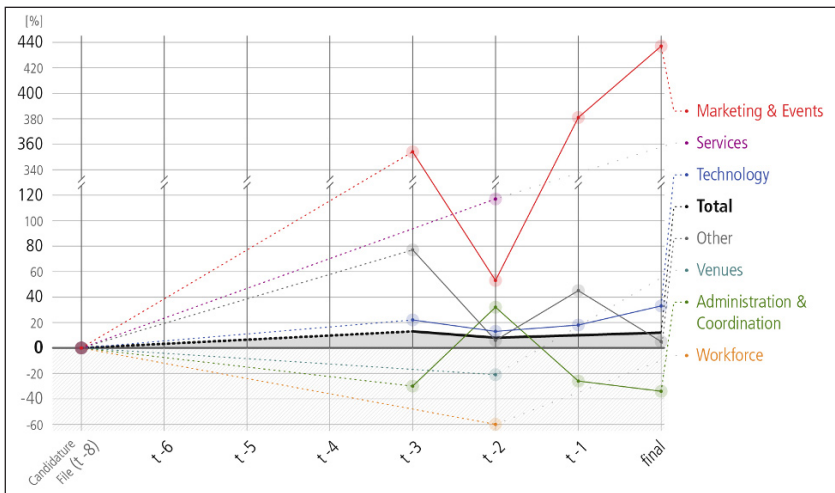


Fig. 28 VANOC expenditure evolution of estimates and final

4.6.3 Vancouver 2010 Non-OCOG Costs

The government of B C made significant contributions to the 2010 Winter Games. The total construction contribution of BC and the government of Canada was around CAD 580m for the venues.

Table 33 Vancouver 2010 non-OCOG cost evolution of estimates and final from public resources

Categories	Candidature File (t-8) (000 CAD)	t-6	t-5	t-4	t-3	t-2	t-1	final (000 CAD)
Olympic Stadium		0%	16%	44%				323% (12,094)
Ski Jumping Hill	0% (124,944)	-7%	-1%	0%	0%			-2% (122,467)
Sliding Centre	0% (67,888)	-7%	31%	59%	62%			55% (104,928)
Ice Stadium	0% (50,404)	-19%	-17%	-19%	-20%			-24% (38,216)
Olympic Village¹⁴	0% (327,468)		14%	13%	12%			12% (367,300)
IBC/MPC	0% (18,514)	-7%		-82%				N/A
Total¹⁵	0% (570,704)	-8%	-11%	-14%	12%			13% (645,005)

Sources: British Columbia Olympic and Paralympic Winter Games Secretariat (2004); Partnerships British Columbia (2007); Vancouver 2010 Candidate City (2002); VANOC (2007, 2010a, b)

Almost all buildings were financed exclusively by British Columbia and Canada. The only exception was the Olympic Village, which was largely funded by the City of Vancouver (VANOC, 2010b). The costs for the renovation of the Olympic Stadium were exceeded by 323%, although it should be noted that no costs were planned for this at the time of the Candidature File, as the stadium already existed. The sliding centre exceeded 55% of its original cost estimate. Furthermore, the Olympic Village was 12% more expensive. In contrast, the construction of the Ski Jumping Hill (-2%) and the Ice Stadium (-24%) was below the estimates. All in all, we get a total cost overrun of 13% for Vancouver.

14 Vancouver Olympic Village and Whistler Olympic and Paralympic Village are accounted for in this category.

15 IBC/MPC is not counted in the total amount since the final costs were not available.

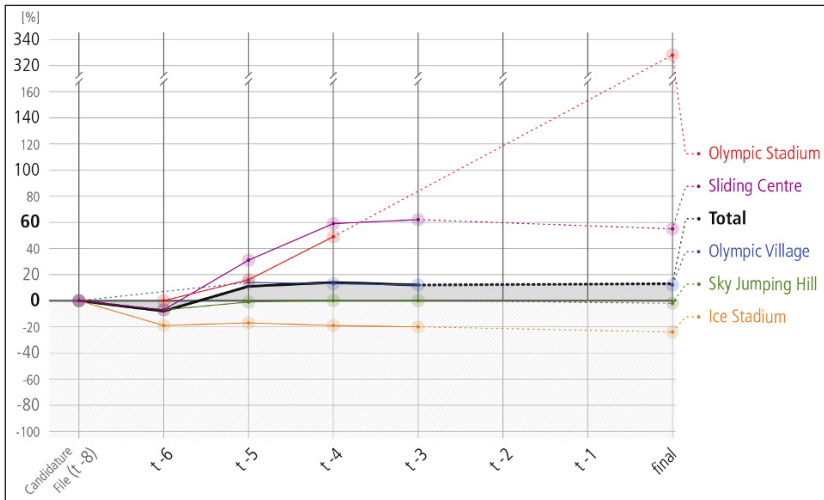


Fig. 29 Vancouver 2010 non-OCOG cost evolution of estimates and final from public resources

4.7 London 2012

Before a bid was decided, in May 2002, Arup (jointly commissioned by the Department for Culture, Media and Sport (DCMS), the Greater London Authority and the British Olympic Association) reported on the costs and benefits of bidding for the Games. Then, in early 2003, PricewaterhouseCoopers (commissioned by DCMS) produced a probability assessment of the risks and uncertainties involved in a bid to host the Games. The government announced in May 2003 its support for a London bid for the 2012 Games, and the government and the Mayor of London agreed a public sector funding package of GBP 2,375m to meet the costs of the Games.

Government funding for the 2012 Olympic and Paralympic programme, excluding security, was held by the DCMS already in June 2003. That was the host department of the London 2012 Olympic and Paralympic Games. The DCMS aimed to improve the quality of life for all through cultural and sporting activities, to support the pursuit of excellence and to champion the tourism, creative and leisure industries. The Government Olympic Executive was set up within the DCMS to ensure the Games were delivered on time and on budget and that they benefited the whole of the UK. This included overseeing the entire London 2012 project, identifying

and solving problems, delivering the public sector effort and being accountable to Parliament and to the public (DCMS 2012a, 23).

The Greater London Authority and the Olympic Lottery Distributor also contributed a lot to the Games. Security funding continued to be provided primarily by the Home Office.

The Olympic Delivery Authority (ODA) was established in April 2006 by the London Olympic and Paralympic Games Act 2006, and was responsible for building the permanent venues and infrastructure needed for the Games (ODA 2015, 1). The ODA was a non-departmental public body whose board was appointed by the Minister for the Olympic and Paralympic Games (in consultation with the Mayor of London) and reported to the Government Olympic Executive. The ODA was the primary recipient of support from the public sector funding package, which comprised funding from the government, the lottery and the Mayor of London (DCMS 2012a, 23).

The following figure shows the various authorities/organisations that were involved in the staging of the Olympic Games.

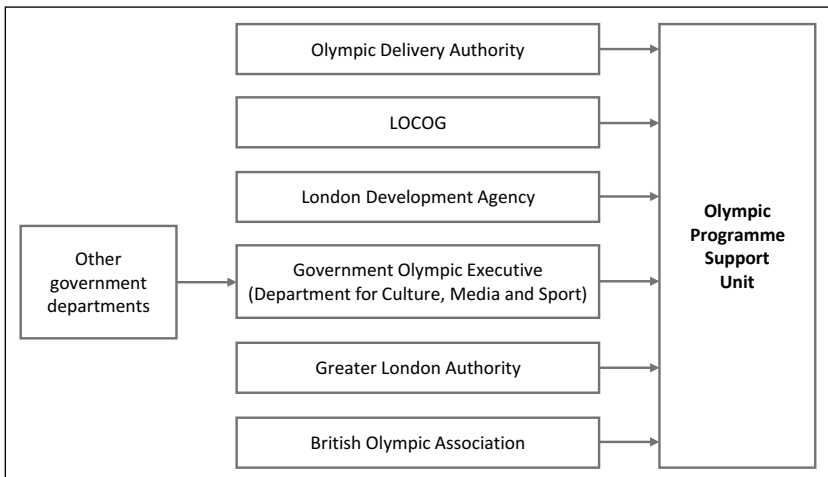


Fig. 30 Authorities/Organisations involved in delivering and controlling the Olympic Games 2012

Source: National Audit Office (2007a, 23)

As a reminder, at the time the bid was submitted, the estimated cost to the public and private sector was around GBP 5bn. The GBP 2,375m public sector funding package was intended to cover the GBP 2,992m core Olympic costs, towards which GBP 738m of private sector funding was also expected. Additionally, there was GBP 1,044m exchequer funding towards the infrastructure on the site of the Olympic Park (National Audit Office 2007b, 28).

Overall the public funding of the Games was GBP 9,298m (National Audit Office 2012, 22), including all work on infrastructure. However, in the post-Games period, the revenues from the sale of land in the Olympic Park or the sale of the Olympic Village reduced this funding severely. It was estimated that more than GBP 1,340m would flow back to the government, the National Lottery and the City of London (DCMS 2012b, 16). In 2012, it was expected that, without further cost pressures emerging, there would be a GBP 377m underspend against the Funding Package (National Audit Office 2012, 22), which meant the total costs were GBP 8,921m. Against this, the anticipated final cost for the ODA programme as at November 2014, including residual liabilities to be discharged by the ODA statutory successor body, DCMS, was GBP 6,739m (ODA 2015, 8). Savings against the original baseline budget derived primarily from value engineering changes, effective risk management, procurement, lower inflation, efficient delivery, prompt commercial close-out and VAT recovery.

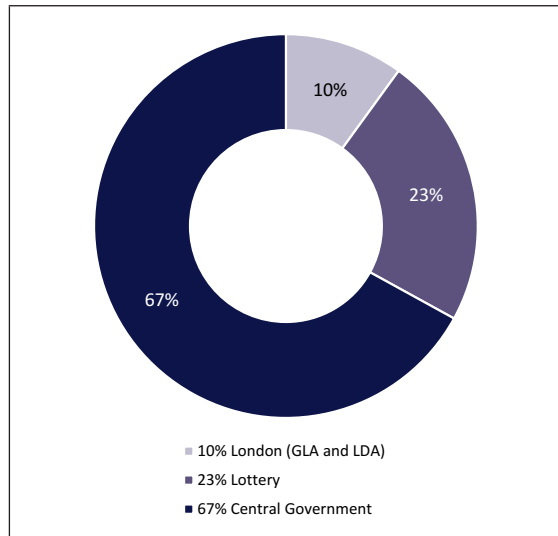


Fig. 31

Funding for the Olympic and Paralympic Games in London 2012

Source: DCMS (2012b, 16)

Working against cost overruns, the ODA was able to save further against the original budget by GBP 1,032m. The latest savings ODA was able to achieve were largely from the efficient delivery of Games-time transport operations (such as ORN and rail services), corporate security services, and venues (DCMS 2012b, 11).

The overall costs shown here include venue security costs of GBP 514m for this Games (National Audit Office 2012, 23). The anticipated final cost (September 2012) of policing and providing security outside the venues was GBP 455m (National Audit Office 2012, 23).

The London Organising Committee of the Olympic Games and Paralympic Games (LOCOG) and the Olympic Delivery Authority wound up in 2013 and 2014 respectively.

4.7.1 LOCOG Revenue

LOCOG was responsible for the overall staging of the 2012 Games. LOCOG raised its own income through a variety of sources, including ticket sales, sponsorship, merchandising and the IOC (broadcasting revenue, TOP sponsorship programme). It also received a small percentage of its income from the government towards the cost of the Paralympic Games. It was a private company limited by guarantee established by a joint venture agreement between three stakeholders:

1. Secretary of State for Culture, Olympics, Media and Sport,
2. Mayor of London,
3. British Olympic Association.

The income generated through these various sources were assigned to staging the Games only. LOCOG did not fund the capital costs of venues or other permanent infrastructures.

Table 34 LOCOG revenue evolution of estimates and final

Categories	Candidature File (t-8) (000 GBP)	t-6	t-5 ¹⁶	t-4 ¹⁶	t-3 ¹⁶	t-2	t-1	final (000 GBP)
IOC Contribution	0% (390,514)		-5%	-6%	-5%		-2%	-2% (381,600)
Top Sponsor- ship	0% (195,257)		-7%	-5%	-5%		8%	19% (232,200)
National Sponsorship	0% (471,871)		36%	46%	47%		49%	55% (731,100)
Ticket Sales	0% (322,825)		15%	14%	27%		91%	104% (657,100)
Licensing	0% (59,879)		11%	18%	19%		60%	35% (80,900)
Lotteries								
Donations								
Disposal of Assets	0% (23,431)		19%	18%	-35%		1%	-55% (10,500)
Subsidies	0% (46,862)		48%	47%	48%		106%	143% (114,100)
Other	0% (91,771)		214%	181%	21%		177%	121% (202,900)
Total	0% (1,602,409)		26%	27%	20%		48%	50% (2,410,400)

Sources: IOC data; LOCOG (2008, 2009, 2012); London 2012 Candidate City (2004)

The IOC contribution to the 2012 Games came from income generated, and from projected income – to be raised by the Olympic Movement – primarily from the sale of television and related broadcast image rights. Here, the minus 2% was caused by inflation rate adjustments. The TOP sponsorship contain included money from the Worldwide Partners' scheme. However, nearly 40% of the sponsorship money came from local and national sponsorship. These revenues came from the sale of marketing rights, and were paid for in return for exclusive marketing communications and advertising rights in relation to the 2012 Games (and within the 'quadrennial period' that included the Vancouver 2010 Winter Games) (UEL 2013, 115).

The table does not show revenues from lotteries and donations. The latter were included in "others". Lottery funding was added to help fund the infrastructure

16 LOCOG had used nominal numbers in its cost and revenue projection, so we downgraded a projected inflation of 2% per year and inflated with the actual GDP-deflator.

and other programmes, such as the support of elite athletes and coaches, but not LOCOG (National Audit Office 2007b, 18).

The partly high revenue overruns can be explained by conservative revenue estimates. Experience with the Millennium Dome, where the income generated fell well short of the amounts forecast, served as a lesson for a number of LOCOG’s planned revenue sources (National Audit Office 2007a, 17). In summary, LOCOG had a cost overrun of 50%.

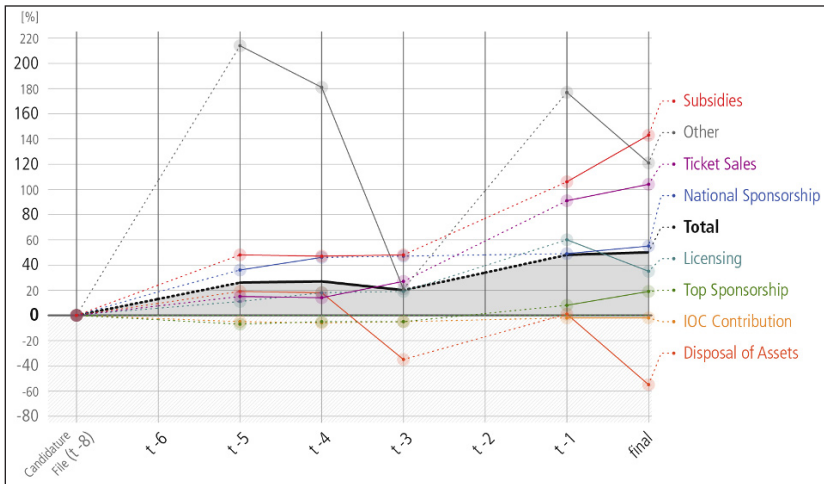


Fig. 32 LOCOG revenue evolution of estimates and final

4.7.2 LOCOG Expenditure

Funding made available to LOCOG had increased by GBP 41m in the period between May and September 2012. Having taken over responsibility for the Olympic Park earlier than originally planned, in January 2012, following the completion of all main venues the previous July 2012, LOCOG was better placed to undertake a range of work, and thus the ODA did less (DCMS 2012b, 11). This explains the expenditure overruns of LOCOG for “venues” (see next table). The increase was also caused by underestimating the overlay costs.

The costs for workforce fluctuated a lot three to five years before the Games. Marketing exploded a year before the Games and finally left a 78% expenditure overrun. The total expenditure overrun of LOCOG was at 48%, which was – as

usual – covered by the revenue overruns as can be seen in the table above. The September 2012 accounts showed an operating loss of GBP 53m, though there were deferred revenues of GBP 75m, which turned out a profit position later. LOCOG was at that time still facing expenditures in closing all its contracts and closing down the organisation (UEL 2013, 116). All in all, the cost overrun of the Organising Committee in London was about 48%.

Table 35 LOCOG expenditure evolution of estimates and final

Categories	Candidature File (t-8) (000 GBP)	t-6	t-5 ¹⁷	t-4 ¹⁷	t-3 ¹⁷	t-2	t-1	final (000 GBP)
Venues	0% (443,233)		22%	26%	7%		45%	58% (701,668)
Workforce	0% (121,710)		154%	-49%	248%		-16%	-14% (104,362)
Technology	0% (291,584)		-5%	30%	57%		60%	72% (501,888)
Services	0% (178,986)		24%	20%	10%		-30%	48% (264,257)
Marketing & Events	0% (213,481)		11%	38%	-6%		209%	78% (380,077)
Administration & Coordination	0% (178,986)		33%	62%	-54%		55%	70% (303,820)
Other	0% (174,430)		11%	37%	10%		-41%	-34% (114,572)
Total	0% (1,602,409)		26%	27%	26%		48%	48% (2,370,644)

Sources: LOCOG (2008, 2009 2012, 2013); London 2012 Candidate City (2004)

Two grants were made available to LOCOG immediately prior to the start of the Games: one for GBP 9.3m to cover the additional costs of venue preparation as a result of the extremely wet weather in the months leading up to the Games; and one for GBP 5m to cover Games-time contingency requirements. LOCOG confirmed that it would not require these grants, as it had planned to be able to cover both the pre-Games expenditure and Games-time contingency expenditures by

17 LOCOG had used nominal numbers in its cost and revenue projection, so we downgraded a projected inflation of 2% per year and inflated with the actual GDP-deflator.

its own budget (DCMS 2012b, 11). Here the weather conditions as a potential cost overrun is mentioned.

LOCOG forecast that its final costs would be covered by its income. LOCOG raised GBP 731m in local and national sponsorship, hitting its upper sponsorship target during difficult economic conditions. Consistent with its guarantee to cover shortfalls in revenue, LOCOG’s income included GBP 27m from the Public Sector Funding Package, which the government provided to enable LOCOG to move forward more confidently (National Audit Office 2012, 8).

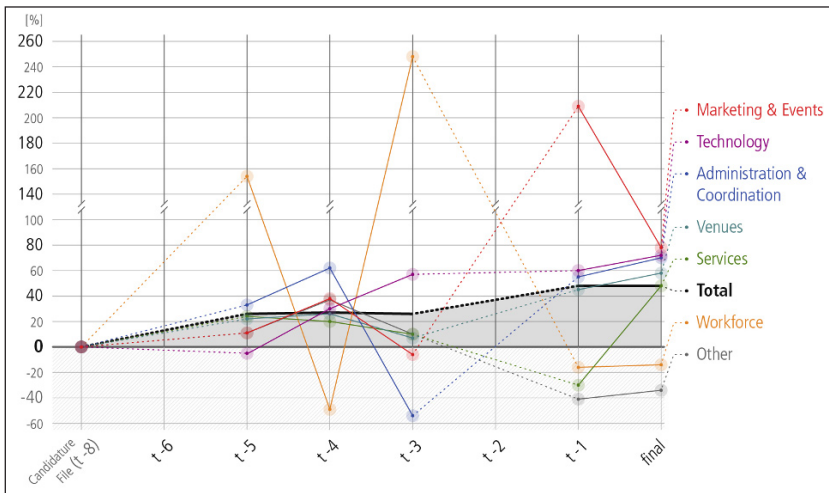


Fig. 33 LOCOG expenditure evolution of estimates and final

4.7.3 London 2012 Non-OCOG Costs

The National Audit Office (2012, 33) stated that, in its first report (February 2007), it highlighted the need for the budget to be clearly determined and effectively managed. After the Games were awarded to London in July 2005, a good deal of work was done to develop the cost estimates, but the ODA had to make decisions about individual projects without certainty of its overall budget and long-term funding. In March 2007, the Department announced a revised Public Sector Funding Package of GBP 9.3bn. This was more or less been stable until the delivery of the Games, even though at the end it was GBP 6,739m (ODA 2015, 8). However, to the public

the immense cost increases became obvious and incited concerns between bidding in 2003 and 2007.

The cost overruns of our selected venues (basket) (Tab. 36) are shown in the next table. When looking at the cost development of the venues in London, it is noticeable that all venues became more expensive than originally planned. The swimming pool was three times as expensive as expected, as was the Velodrome, and the IBC/MPC cost more than twice as much. The construction of the Olympic Village had a rather moderate percentage increase in costs. In summary, the cost increase in the non-OCOG area can be estimated at 43%.

Table 36 London 2012 non-OCOG evolution of estimates and final from public resources

Categories	Candidature File (t-8) (000 GBP)	t-6	t-5	t-4	t-3	t-2	t-1	final (000 GBP)
Olympic Stadium	0% (305,690)	67%				79%		40% (429,000)
Swimming Pool	0% (79,479)	178%				242%		216% (251,000)
Multipurpose Hall	0% (27,172)	120%						47% (40,000)
Velodrome	0% (31,248)	138%				218%		182% (88,000)
Olympic Village	0% (706,484)							6% (748,000)
IBC/MPC	0% (146,052)	55%						103% (297,000)
Total	0% (1,296,126)	85%				120%		43% (1,853,000)

Sources: DCMS (2012a, b); House of Commons (2010); London 2012 Candidate City (2004)

The Olympic Village was partly financed by the private sector. That funding is not considered here and may have been probably lower if we had considered the private funding. In addition, when the deals with the private sector to fund the Olympic Village and Media Centre became problematic in 2007, the government funders enabled the ODA to continue the construction work in parallel with resolving how to fund the two projects (National Audit Office 2012, 30). This was needed to keep the programme on track and required a degree of pragmatism even though the activities did not progress in an ideal sequence.

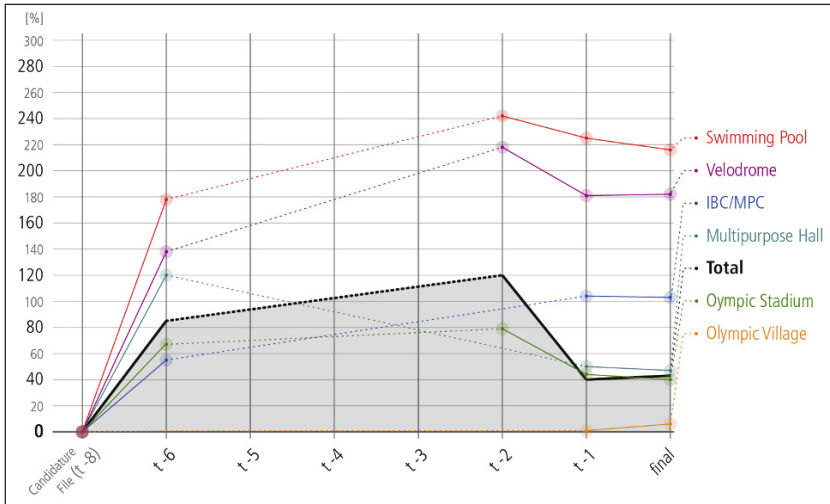


Fig. 34 London 2012 non-OCOG cost evolution of estimates and final from public resources

At the end of December 2006, the National Audit Office (2007a, 16) gave the following reasons for cost overruns and the need to develop new cost plans and budgets.

- Contingency provision: The cost estimates in the Candidature File included a contingency provision to cover unanticipated costs on individual projects. This contingency was too low.
- Tax: Treasury guidance stated that tax costs should be included in cost estimates. At the time of the bid, the tax status of the proposed ODA was undecided and the cost estimates in the Candidature File excluded provision for value added tax.
- Security: The cost estimates at the time of the bid included GBP 190m for security, including the cost of security at the Olympic venues. However, as stated above, the reality was that security was around GBP 514m (National Audit Office 2012, 23).
- Private sector investment: At the time of the bid it was assumed that some Olympic infrastructure and regeneration costs would be met by private sector investment or financing of around GBP

750m, thereby reducing the cost of the Games to the public sector. However, in the light of advice following the bid, the Department concluded there was little prospect of securing significant private sector funding to deliver the Olympic Park in view of the tight timescale for delivering the Park and the lack of an identifiable revenue stream.

When analysing the bid budget of 2004 (non-OCOG and LOCOG) with a first serious budget from 2007, the following areas needed a major cost adjustment (National Audit Office 2007b, 16).

1. Venues (including legacy conversion) (ODA)
2. Transport infrastructure and operating costs (ODA)
3. Infrastructure and regeneration costs (ODA)
4. Support for elite and community sport (public funding)
5. 'Look of London' costs (public funding)
6. Paralympic Games (public funding)

4.8 Sochi 2014

The city of Sochi was officially awarded the right to host the 2014 Olympic Winter Games on 4 July 2007. However, the history of big construction sites and urban image changes had started long before Sochi secured the right to host the Olympic Games and even before summer 2005, when the Sochi 2014 Bid Committee was established. Much of the construction was made in general infrastructure, and basically Sochi was largely changed and the Olympic Games merely played a role in this. After Sochi was awarded the right to host the Olympic Winter Games, a new decree no. 991 was approved on 27 December 2007, considering the detailed IOC requirements, but lacking any specification regarding financial support (Anti-Corruption Foundation n. d., 6).

The number of shareholders involved in the financing of infrastructure was extremely high in Sochi. According to Aumüller (2014, 28), the Games budget included more than 200 projects that were financed by

1. Private investors (Wladimir Potanin, Oleg Deripaska, Viktor Wekselberg who invested in the Olympic University, Rosa Chutor (Alpine, Snowboard/Freestyle Park), but also in the harbour, Airport and Hotel)
2. Private investors (UGMK-Holding (Schajba-Arena); Slawoblast (Curling-Centre))
3. State-controlled companies (Gazprom (Nordic skiing and Biathlon centre); Sberbank (jumping hill))
4. State-owned companies (Olympstroy (ice channel, Bolschoi Ice Palace; Fischt-Stadium); Omega (Adler-Arena Oval))

Two state-owned companies, Olympstroy and Russian Railways (RZD) (USD 7.6bn or some 20 infrastructure projects), received over half of the overall federal budget. Olympstroy spent USD 6.3bn on constructing 11 sports venues (Anti-Corruption Foundation n. d., 7).

The figure illustrates the share of these investors on the overall budget.

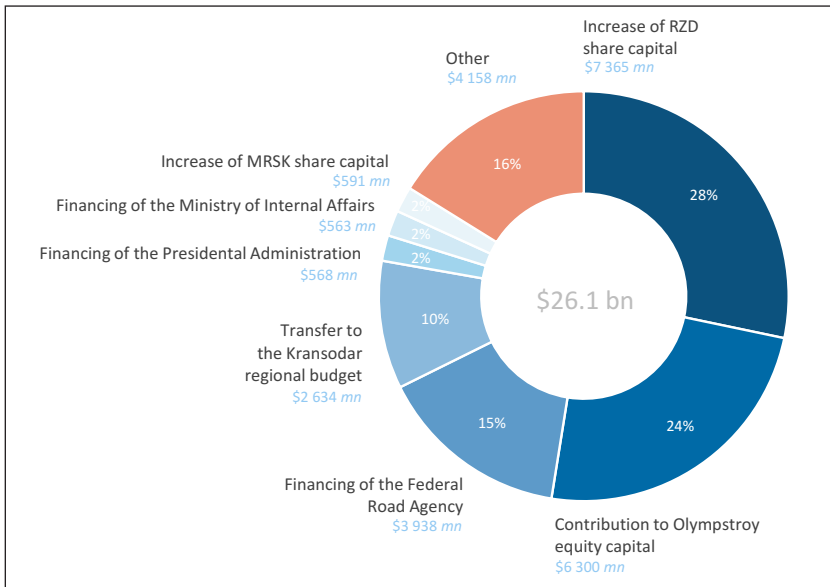


Fig. 35 Financing of the Winter Games Sochi 2014

Sources: Anti-Corruption Foundation (n. d., 7) based on RF Government Decree no. 991, Federal Laws on Budget, Annual reports of Olympstroy and other entities, ACF analyses.

Out of all investments, only 19% was used to construct sports venues (Anti-Corruption Foundation n. d., 14). This mix of different investors makes it very difficult to keep track of financial streams.

4.8.1 SOOC Revenue

The Sochi 2014 Organising Committee (SOOC) had an approximately 75% private share of resources. The figures in the following table show that the revenues, unlike for other Games in this study, did not increase. The main reason for this is that the inflation rate was extremely high during that time. From 2007 (bidding time) to 2014, inflation almost doubled the prices, which means that the revenues were reduced by more than 50% (2007 GDP deflator = 58.9; in 2014 it was 123.6). Despite the high inflation in Russia, the revenues only decreased by 3% compared to the bid plan.

Table 37 SOOC revenue evolution of estimates and final

Categories	Candidature File (t-8) (000 RUB)	t-6	t-5	t-4	t-3	t-2	t-1	final (000 RUB)
IOC Contribution	0% (20,141,427)				-32%	-35%	-38%	-32% (13,647,182)
Top Sponsorship	0% (11,370,161)				-44%	-51%	-54%	-45% (6,235,528)
National Sponsorship	0% (22,740,321)				97%	69%	72%	76% (40,088,582)
Ticket Sales	0% (8,405,667)				-37%		-6%	-15% (7,152,367)
Licensing	0% (2,306,518)				-13%	25%	-27%	-23% (1,768,969)
Lotteries	0% (974,585)				91%	75%		
Donations								
Disposal of Assets	0% (802,149)							
Subsidies	0% (27,164,938)				-59%	-57%	-44%	-42% (15,666,099)
Other	0% (4,693,537)				78%	253%	110%	135% (11,021,602)
Total	0% (98,599,304)				-5%	-9%	-7%	-3% (95,580,329)

Sources: Sochi 2014 Bid Committee (2006); SOOC (2011 2012, 2013, 2014)

The IOC contribution to the staging of the Winter Games increased by more than 50 per cent from 2002. In other words, SOOC did a great job, as nominal figures show a great increase in revenues over the years. Particularly in the area of national sponsorship, it was even able to generate 76% more revenues, as it was denominated in USD, but paid in Russian roubles – thus SOOC benefited from USD revenues. The “other” category listed a 135% revenue overrun. All other categories took less than planned, due to high inflation. As a result, a revenue underrun of -3% overall can be observed.

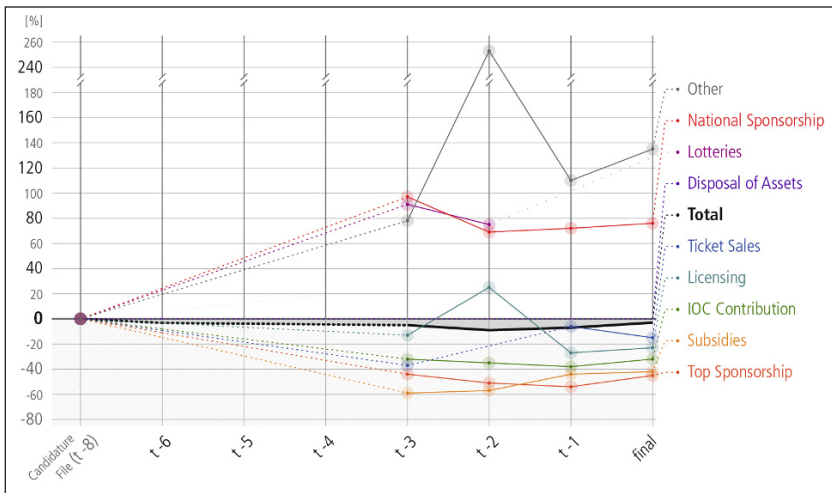


Fig. 36 SOOC revenue evolution of estimates and final

4.8.2 SOOC Expenditure

The interpretation of the expenditure has to be seen in terms of the inflation over the time. Much expenditure must have become more expensive. It was therefore a great achievement that the final expenditures of SOOC were 6% below the estimate in the bid documents.

Table 38 SOOC expenditure evolution of estimates and final

Categories	Candidature File (t-8) (000 RUB)	t-6	t-5	t-4	t-3	t-2	t-1	final (000 RUB)
Venues	0% (12,411,537)				-41%	-46%	-36%	-33% (8,296,734)
Workforce	0% (18,151,389)				17%	7%	6%	1% (18,243,653)
Technology	0% (16,444,501)				-1%	-8%	-5%	-2% (16,169,998)
Services	0% (10,967,397)				-20%	-28%	-19%	-23% (8,427,313)
Marketing & Events	0% (12,059,517)				2%	-13%	9%	10% (13,228,170)
Administration & Coordination	0% (11,804,306)				-13%	-16%	-19%	-10% (10,590,319)
Other	0% (16,760,721)				5%	21%	1%	4% (17,369,193)
Total	0% (98,599,369)				-5%	-9%	-7%	-6% (92,325,380)

Sources: Sochi 2014 Bid Committee (2006); SOOC (2011, 2012, 2013, 2014)

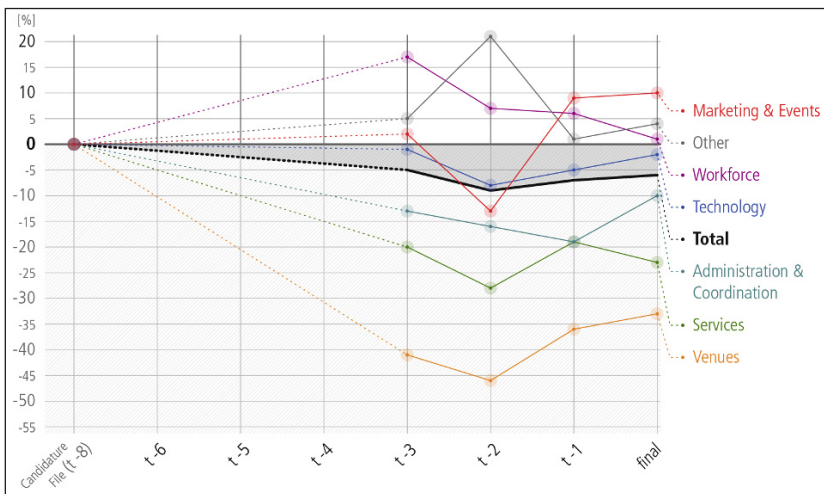


Fig. 37 SOOC expenditure evolution of estimates and final

It seems that BOCOG and the SOOC kept the workforce and administration expenditure under control, but both had relatively high administration costs compared to other OCOGs. The venues, services and administration & coordination categories saw a significant decline in costs. On the other hand, the expenditure on the side of workforce, marketing & events and other was higher than expected. In general, the changes are very moderate, despite the high inflation rate.

4.8.3 Sochi 2014 Non-OCOG Costs

All venues were designed specifically for the Olympic Games and included in the:

- a. Federal Target programme on Olympic facilities construction and Sochi development as an Alpine ski resort (Decree of the Russian Government no. 991 dated 29.12.2007),
- b. Regional Target programme on Olympic facilities construction and Sochi development as an Alpine ski resort (The Decree of the Governor of Krasnodar Krai no. 723 dated 19.08.2009) and
- c. Municipal target programme on Olympic facilities construction and Sochi development as an Alpine ski resort (The Decree of the Head of Sochi Administration no. 14 dated 14.01.2011) (Kasimov 2015, 194)

Overall, according to the Anti-Corruption Foundation (n. d.), the cost overruns for the sports venues were very large. Our data show more moderate cost overruns, because we considered the inflation rate. Inflation in Russia was very high between 2007 and 2014, which reduced the perceived cost increase. However, as shown in the next table, it is on average of our “venue basket” at 178% and the market is the largest of the investigated Olympic Winter Games.

Table 39 Sochi 2014 non-OCOG cost evolution of estimates and final from public resources

Categories	Candidature File (t-8) (000 RUB)	t-6	t-5	t-4	t-3	t-2	t-1	final (000 RUB)
Olympic Stadium	0% (3,635,788)			245%				533% (23,009,190)
Ski Jumping Hill	0% (2,066,835)			37%				286% (7,986,120)
Sliding Centre	0% (8,525,996)			-27%				-7% (7,887,930)
Ice Stadium	0% (11,601,332)			22%				-15% (9,884,460)
Olympic Village	0% (7,855,676)			625%				471% (44,872,830)
IBC/MPC ¹⁸	0% (17,471,194)			-96%				N/A
Total	0% (33,685,628)			175%				178% (93,640,530)

Sources: Anti-Corruption Foundation (n. d.); Aumüller (2014); Müller (2014); Sochi 2014 Bid Committee (2006); SOOC (2010)

Compared to Salt Lake City, we find that Sochi had a totally reverse financing system. While Salt Lake City tried to use almost no public money to finance the sports venues, Sochi was mostly financed by public funds. A large part of the cost of venues was significantly more expensive than actually planned. The highest cost overrun was for the construction of the Olympic Stadium, at 533%. But for the Olympic Village (471%) and the ski jumping hill (286%), the costs also exploded. Nevertheless, money could be saved, which happened during the construction of the sliding centre and the ice stadium. In summary, Sochi had a cost overrun of 178% in the construction of its sports-related infrastructure.

Sochi had significant cost overruns. The final data (when available) show much higher costs than estimated in the budget in the bid book. Some venues were severely underestimated, such as the Biathlon and Cross-Country Complex, the ski jump and the Olympic Stadium. Looking at bidding data, it seems that the projected costs are so low that only temporary venues or renovations were planned. The massive cost overruns are all the more surprising, considering that the bid book stated that “expenses are forecast on the ‘high side,’ recognising that expenses for Olympic Winter Games are

18 IBC/MPC is not counted in the total amount since the final costs were not available.

typically underestimated at this stage” (Sochi 2014 Bidding Committee 2006, 99). As Sochi did not have a sufficient number of venues, it should be asked why no one (and in particular the well informed IOC) put pressure on Sochi to have a more realistic budget. The non-OCOG budget was developed by the Ministry of Development and Trade. However, in our recommendations we will come back to this point.

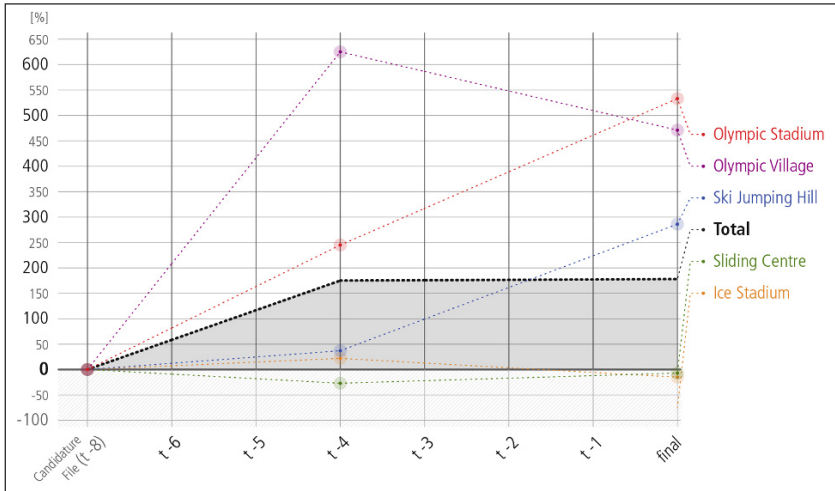


Fig. 38 Sochi 2014 non-OCOG cost evolution of estimates and final from public resources

Müller (2014) explains some reasons for the cost overruns:

Changing Masterplan: The Biathlon and Cross-Country complex had to be relocated and had to have a separate “endurance village” for competing athletes, because of the elevation difference with the Mountain Olympic Village.

Standards: Some venues had to conform to international sustainable building standards, a requirement that was introduced after the bid.

Economic Crises: In 2009, Russia’s GDP lost 7.8% during the financial crisis.

A further burden was the exchange rate and inflation. During the seven years of construction, inflation was very high and almost doubled the prices. But the change

in the exchange rate also had a massive impact, as the US dollar was 30% more expensive, meaning that all imports became more expensive (see methodology section).

4.9 Rio de Janeiro 2016

The bidding for these Games began on 28 July 2006, when the Executive Council of the Brazilian Olympic Committee met to nominate a Brazilian city to host the Games in 2016. Only in October 2007 did Rio officials attend the 2016 Applicant Cities Seminar organised by the IOC in Lausanne, where they learnt more about technical areas that would be analysed throughout the application process. In our recommendations we will come back to this point of needed IOC support. Rio officials participated in the Olympic Games Observer Programme from August during the Beijing 2008 Olympic Games and received further insights into the necessary infrastructure etc. for staging the Olympic Games. On 11 February 2009, the Rio de Janeiro bid committee delivered its Candidature File, and later that year, in October 2009, four new sports entered the programme. Thus, additional planning and increased costs became obvious. It was at the same Session in Copenhagen that Rio was elected as the host city.

The Olympic Games in Rio de Janeiro experienced several changes in their master planning after being awarded the Games. The main changes in relation to the original budget were:

1. the impact of the adjustment based on Brazil's Consumer Price Index (IPCA),
2. the inclusion of four new sports (golf, rugby, paracanoe and paratriathlon),
3. new technologies,
4. Games security,
5. average salary increases above inflation,
6. spending on usage and retrofitting of the Olympic Village.

This list shows a quite typical pattern of cost overruns that previous host cities also had. Inflation and salary changes are changes in the environment and happen irrespective of the Games development. Changes to the master plan can also occur, and adding rugby and golf to the Games schedule meant the need for new venues. The most difficult thing to plan is Games security. In Rio, that was resolved at the last minute by putting the military and police in charge. Security has become an important cost issue at the Olympic Games, as it was in Rio.

The Brazilian Ministry of Defence created the Special Advisory Committee for Major Events, to the Joint Staff of the Armed Forces, which used the Joint Operations Centre as the venue for coordination and monitoring of the action to be taken by Brazil's three armed forces. The Brazilian Intelligence Agency, the entity responsible for planning, implementing, coordinating, supervising and controlling intelligence activities in Brazil, was defined as the centralising entity that had to coordinate the work of all other entities of the Brazilian Intelligence System. It was also responsible for preparing risk assessments, producing knowledge, preventing terrorism and disseminating information, which it did through the National Intelligence Centre and the Regional Intelligence Centres established in the host cities of the Games (Social Communication Secretariat 2016, 4).

All investments made in safety and security for the Games had as a basis premise their subsequent return to society as a legacy for the everyday life of public safety. The Ministry of Justice invested BRL 1,500m in security for the major events (BRL 1,170m already spent on the 2014 FIFA World Cup). The Ministry of Defence's budget for security for the Rio 2016 Olympic and Paralympic Games was BRL 704.4m, BRL 275m of which was invested in 2014 and BRL 183.9m in 2015. An additional BRL 150m was provided for in the Annual Budget Law for 2016. In addition a provisional decree was issued, granting an additional BRL 95.5m to the Ministry of Defence. The funds were meant to finalise equipment purchases and fund activities by the armed forces aimed at ensuring the security of the Rio 2016 Games (Social Communication Secretariat 2016, 4).

4.9.1 COJOPR Revenue

The Rio 2016 Organising Committee for the Olympic Games (COJOPR) was established on 8 April 2010, with its headquarters in Rio de Janeiro. The Organising Committee has not yet wound up, although this usually happens in the same year of the Games. Therefore, for the present calculation of changes in revenues and expenses, only the budget which was published shortly after the Games has been used, rather than a final budget. The COJOPR operates as a private, non-profit civil society of an educational, cultural, artistic and sports nature, and its principal activity was the promotion, organisation and staging of the Olympic and Paralympic Games in Brazil in 2016. On 23 January 2014, the COJOPR publicly disclosed its first revision of the Games budget following the bid, highlighting a balanced budget using only private resources (COJOPR 2015, 11). This was only two-and-a-half years before the Games started.

The original COJOPR budget as set out in the Candidature File was around USD 2,800m, to be funded by three contributors:

1. the IOC,
2. subsidies from federal, state and municipal governments (divided into equal parts),
3. private funds (sponsorships, licencing and ticket sales) (SCU 2014, 191).

A revised budget was disclosed in January 2014, and it had increased to USD 3,000m. The increase was justified by the inclusion of four new sports. It is interesting to note that the previously planned subsidies (see above point 2) for the COJOPR were eliminated in 2014 (SCU 2014, 192). This was a strategic decision by the COJOPR not to receive government subsidies in order to maintain the “private” funded company status. Instead, the COJOPR was trying to push the government to undertake directly some of the costs, such as sports equipment and energy.

Tab. 40 shows the revenue evolution of the COJOPR estimates.

Table 40 COJOPR revenue evolution of estimates

Categories	Candidature File (t-8) (000 BRL)	t-6	t-5	t-4	t-3	t-2	t-1	final
IOC Contribution	0% (2,146,104)			-27%	-15%	-7%	0%	N/A
Top Sponsorship	0% (1,065,104)			-14%	-23%	-11%	-13%	N/A
National Sponsorship	0% (1,891,669)			134%	133%	116%	70%	N/A
Ticket Sales	0% (1,330,514)			76%	-14%	3%	-5%	N/A
Licensing	0% (165,936)			11%	3%	14%	4%	N/A
Lotteries								N/A
Donations	0% (110,624)							N/A
Disposal of Assets	0% (120,888)			-7%			-88%	N/A
Subsidies	0% (2,551,966)			-7%				N/A
Other	0% (997,962)			437%	-67%	-61%	-11%	N/A
Total	0% (10,380,766)			24%	-16%	-14%	-17%	N/A

Sources: COJOPR (2015, 2016a, b); Rio 2016 Candidate City (2008)

In the table above we had difficulty in displaying a percentage of a position that was taken out. However, the total revenue development up to one year before the Games shows that the COJOPR probably had a revenue underrun.

The COJOPR is not yet wound up, so there is no final data available. One year before the Games, it seemed that it had a great income through national sponsors, but almost all other categories took less than first expected.

4.9.2 COJOPR Expenditure

As with the revenue, there are no final figures in the expenditure of the COJOPR. The cost underrun was measured as being 17% a year before the Games. However, this means that a part of the budget is still estimated and only the final figures can show how the COJOPR will wind up. However, it looks like money could be saved in the category of workforce. In addition, the other categories show moderate changes. Even with regard to venues, the COJOPR was able to save a lot. One reason was the cutbacks for the city dressing programme. The expenditures seem to have become more predictable than for the previous Games, so the next host cities will benefit from the knowledge of the past ones.

Table 41 COJOPR expenditure evolution of estimates

Categories	Candidature File (t-8) (000 BRL)	t-6	t-5	t-4	t-3	t-2	t-1	final
Venues	0% (2,525,870)			-29%	-94%	-20%	-36%	N/A
Workforce	0% (1,260,954)			93%	45%	24%	-73%	N/A
Technology	0% (1,800,592)			16%	-17%	-12%	12%	N/A
Services	0% (1,048,440)			63%	-63%	-40%	-23%	N/A
Marketing & Events	0% (1,609,760)			-29%	-39%	-41%	-21%	N/A
Administration & Coordination	0% (789,066)			-58%	16%	45%	34%	N/A
Other	0% (1,346,086)			149%	119%	116%	13%	N/A
Total	0% (10,380,768)			24%	-16%	4%	-17%	N/A

Sources: COJOPR (2015, 2016a, b); Rio 2016 Candidate City (2008)

4.9.3 Rio 2016 Non-OCOG Costs

Kao (2016) states that construction for the Olympic Games Rio 2016 were subjected to even heavier scrutiny than for previous Games. There were protests over costs; while political unrest, a recession and environmental concerns drew attention to the vast construction undertaking, the cost of which made up a large portion of the overall Rio Games budget.

Here, additional reasons for the cost overruns become obvious:

1. political instability and, connected to that, a high level of corruption in Rio,
2. recession, which meant budget pressure on the government and a higher unemployment rate,
3. environmental concerns, which may translate into additional expenditure to clean the water in Guanabara Bay or fight mosquitos (and fight the Zika virus).

As the Games accounts have not yet been completed, no information can be provided on the final cost. The venues we surveyed showed no cost overruns in the non-final figures that were available to us. Nevertheless, we do not want to rule that out in the other areas – infrastructure and transport cost overruns could have occurred, as has repeatedly been communicated in the media.

4.10 PyeongChang 2018

PyeongChang was elected as the host city in Durban on 6 July 2011. Undoubtedly, the train connection from Seoul to PyeongChang was the most expensive project, even though one must question whether this investment is purely Olympic or if the trainline is also useful to connect a recreational area to Seoul.

4.10.1 POCOG Revenue

The total projected income of the PyeongChang Organising Committee for the 2018 Olympic & Paralympic Winter Games (POCOG) is KRW 2.273 trillion (Park 2016, 325). The source of this money is, as for previous Games, IOC subsidies, TOP Partners, domestic sponsors, Olympic Torch Relay, tickets, licensing, food and beverage, accommodation, broadcasting rights fees, interest allowance and government subsidies (see table below).

The income for each year has been found to be (Park 2016, 325):

- KRW 49,600m in 2014,
- KRW 206,400m in 2015, and
- KRW 459,000m in 2016.

Table 42 POCOG revenue evolution of estimates and final total

Categories	Candidature File (t-8) (000 KRW)	t-6	t-5	t-4	t-3	t-2	t-1	t pre Games	final (000 KRW)
IOC Contribution	0% (453,635,532)			-8%	4%	4%		2%	N/A
Top Sponsorship	0% (206,244,726)			-8%	-8%	14%		23%	N/A
National Sponsorship	0% (642,907,500)			36%	39%	36%		33%	N/A
Ticket Sales	0% (311,295,812)			-40%	-44%	-41%		-42%	N/A
Licensing	0% (45,003,525)			-19%	120%	130%		118% ¹⁹	N/A
Lotteries	0% (19,287,225)								N/A
Donations	0% (28,287,930)			627%	156%	155%		664%	N/A
Disposal of Assets	0% (9,000,705)			-8%	-6%	14%		123%	N/A
Subsidies	0% (167,155,950)			93%	97%	146%		194%	N/A
Other	0% (85,763,861)			9%	73%	74%		92%	N/A
Total	0% (1,968,582,765)			19%	21%	27%		39%	27% (2,506,991,500)

Sources: POCOG (2014, 2016, 2018); PyeongChang 2018 Olympic & Paralympic Winter Games Bid Committee (2010)

¹⁹ POCOG had reflected the gross coin revenue (unlike other OCOGs), which meant it had a very high revenue and high costs due to production. This representation was not in the Candidature File.

As the Olympic Games were in progress at the time of the survey, the last budget projection was produced just before the Games, and, like for Rio 2016, there is also no final data available. The changes for POCOG were much bigger than those in Rio. As a result, 664% more revenue was generated by donations. But most other categories were also able to generate more revenues. Only a single category has not taken as much as was planned in the Candidature File. With ticket sales falling short of the pace seen at past Games, POCOG had a big loss here. However, in a way, that was expected as the shortfall had already been predicted four years before. In total, POCOG had an estimated 39% revenue overrun just before the Games than originally planned.

Based on the recent report of POCOG to the IOC Executive Board and according to the preliminary financial information the POCOG budget has a surplus of about US\$55m. Detailed data are not yet known as POCOG is in its final stage of financial reconciliation.

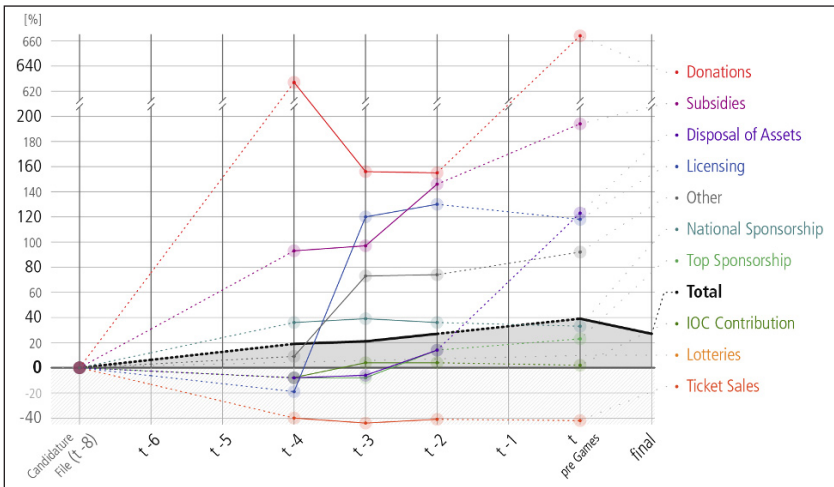


Fig. 39 POCOG revenue evolution of estimates and final total

4.10.2 POCOG Expenditure

The total projected expenditure of POCOG is KRW 2.273 trillion, and will therefore balance off the revenues (Park 2016, 326).

Our latest output figures are also estimated editions shortly before the Games. So the figures presented above are not guaranteed to be the final figures. As for the previous Games, expenditure was highest two years before the Games, which was reduced just before the Games. Compared to the revenue of POCOG, the sway is not that strong. Despite this, all categories were more expensive than planned at the time of the Candidature File. The highest cost increase was experienced in the administration & coordination category (82%), whereas the category technology had only a slight increase (5%). In summary, the projection of POCOG's expenditure just before the Games was 38% more expensive than was assumed in the Candidature File.

Table 43 POCOG expenditure evolution of estimates and final total

Categories	Candidature File (t-8) (000 KRW)	t-6	t-5	t-4	t-3	t-2	t-1	t pre Games	final (000 KRW)
Venues	0% (405,803,214)			-5%	22%	65%		61%	N/A
Workforce	0% (243,404,780)			64%	4%	26%		17%	N/A
Technology	0% (488,866,863)			5%	-7%	6%		5%	N/A
Services	0% (201,744,374)			-11%	-6%	32%		34%	N/A
Marketing & Events	0% (267,063,776)			35%	45%	87%		76%	N/A
Administration & Coordination	0% (152,754,822)			50%	70%	51%		82%	N/A
Other	0% (208,944,938)			26%	64%	105%		21%	N/A
Total	0% (1,968,582,765)			19%	21%	48%		38%	24% (2,445,573,000)

Sources: POCOG (2014, 2016, 2018); PyeongChang 2018 Olympic & Paralympic Winter Games Bid Committee (2010)

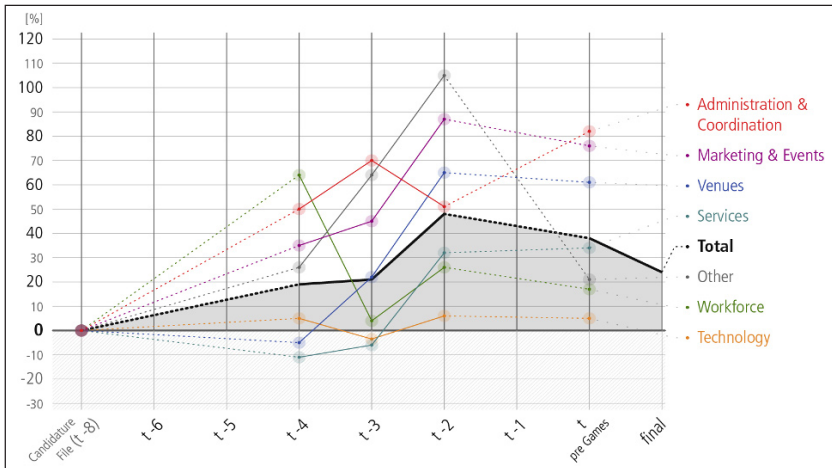


Fig. 40 POCOG expenditure evolution of estimates and final total

4.10.3 PyeongChang 2018 Non-OCOG Costs

Our most recent indication of non-OCOG costs is one year before the Games took place. The non-OCOG costs appear here as having no cost overruns. This is due to a massive saving on the Olympic Village, which was financed privately, which compensates the other cost overruns. Further savings could be made through fewer costs for the construction of the ice stadium. Costs for the Olympic Stadium and the ski jumping hill were not specified in the Candidature File, which is why these additional costs are only reflected in the total sum. In addition, the sliding centre and the IBC/MPC were more expensive than originally stated. All in all, the basket of venues in PyeongChang came to an estimated 26% cost underrun one year before the Games were staged. However, these are not the final figures.

The IOC tried to save costs and started to look at post-Games utilisation. For example, the IOC may have had awarded the Sliding Centre to Japan in order to save on constructing the new venue in PyeongChang. However, the Koreans wanted to have their own track and, above all, avoid co-hosting an event with Japan. If the Host City Contract had bound South Korea to having the Sliding Centre in Japan, it would not have invested in a venue that most probably will have problems being used in future. This problem is specified in the recommendation part.

Table 44 PyeongChang 2018 non-OCOG cost evolution of estimates from public resources

Categories	Candidature File (t-8) (000 KRW)	t-6	t-5	t-4	t-3	t-2	t-1	final
Olympic Stadium							0%	N/A
Ski Jumping Hill							0%	N/A
Sliding Centre	0% (90,392,795)						26%	N/A
Ice Stadium	0% (129,738,734)						-3%	N/A
Olympic Village	0% (912,671,487)						-57%	N/A
IBC/MPC	0% (64,629,590)						71%	N/A
Total	0% (1,197,432,605)						-26%	N/A

Sources: Hong (2017); IOC data; PyeongChang 2018 Olympic & Paralympic Winter Games Bid Committee (2010)

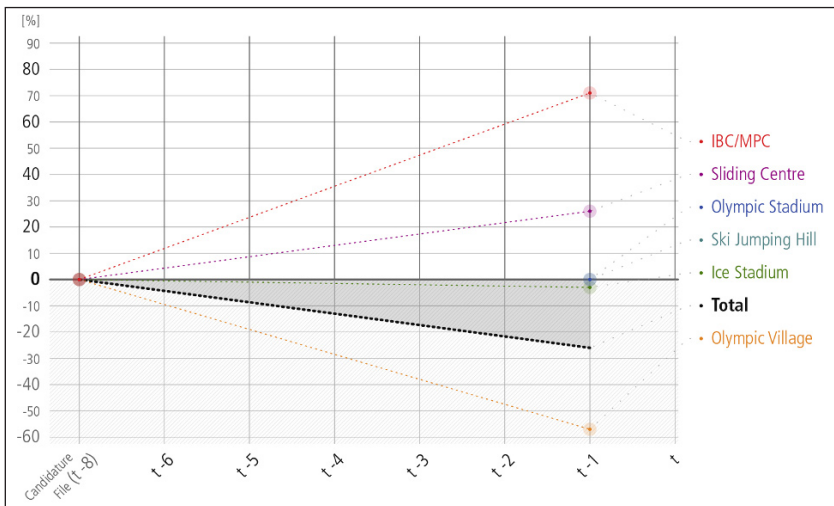


Fig. 41 PyeongChang 2018 non-OCOG cost evolution of estimations from public resources

4.11 Summary of Costs and Revenues of the Olympic Games

All Olympic Games had more revenues and expenses than had been estimated in the candidature file. No OCOGs made any losses. The cost of non-OCOG investments ranged from 29% to 56%.

Table 45 Total cost and revenue overruns/underruns for the Olympic Games

	Sydney 2000	Athens 2004	Beijing 2008	London 2012	Rio 2016
OCOG Revenue	72%	51%	8%	50%	N/A
OCOG Expenditure	51%	30%	4%	48%	N/A
Non-OCOG	56%	29% ²⁰	N/A	43%	N/A

Table 46 Total cost and revenue overruns/underruns for the Olympic Winter Games

	Salt Lake City 2002	Turin 2006	Vancouver 2010	Sochi 2014	Pyeong- Chang 2018
OCOG Revenue	119%	N.A.	12%	-3%	27%
OCOG Expenditure	114%	58%	12%	-6%	24%
Non-OCOG	28%	20%	13%	178%	N/A

For the Olympic Winter Games, all of them except Sochi 2014 had more revenue and expenses than they had estimated in the candidature file. Again, no OCOGs made a loss. The cost for non-OCOG investments ranged from 13% to 178%. These results indicate that the organisation of the Olympic Winter Games is not as easy as for the Olympic Games.

²⁰ Additional venues were considered.

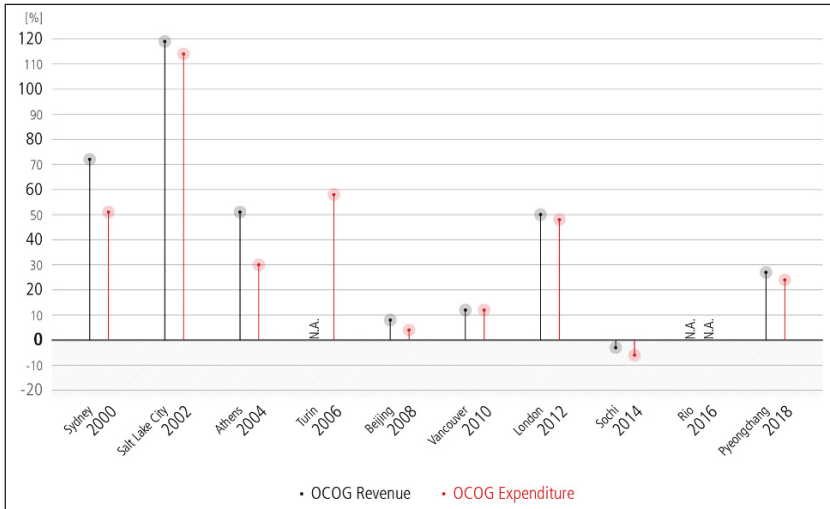


Fig. 42 OCOG revenues and expenditures for the Olympic Games and Olympic Winter Games

We can state that all the organising committees received more revenue than they had expenditures, with the exception of Vancouver 2010 and Rio 2016, which had a balanced budget. That means all other Games made a profit. It also becomes clear that all but Sochi 2014 had more income and expenses than they had assumed in the candidature file. Beijing 2008, Vancouver 2010, Sochi 2014 and Rio 2016 were very close to their estimates, while Sydney 2000, Salt Lake City 2002, Athens 2004, Turin 2006, London 2012 and PyeongChang 2018 deviated by more than 24% to almost 120%.

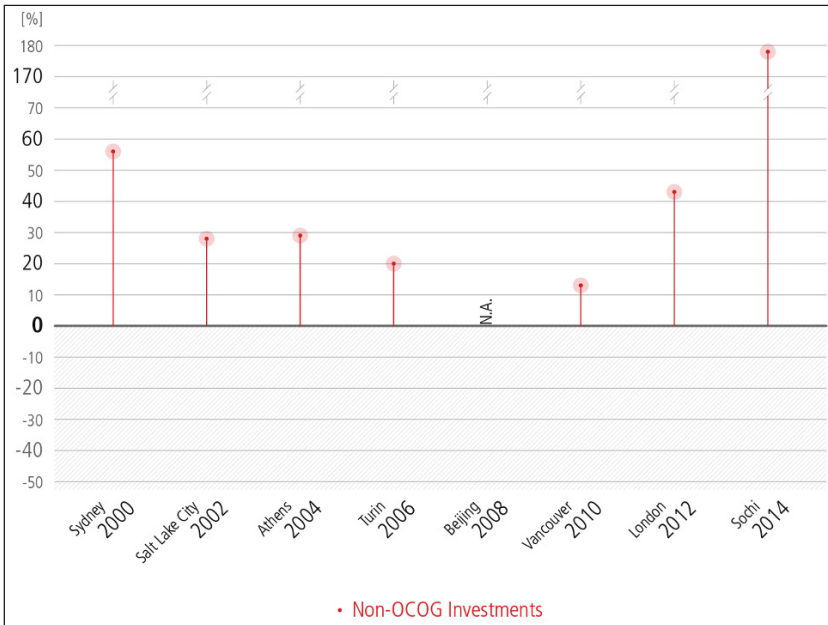


Fig. 43 Non-OCOG investments for the Olympic Games and Olympic Winter Games

From Sydney 2000 to Sochi 2014, the non-OCOG costs were more than estimated in the candidature file. The highest rate was Sochi 2014 with 178%.

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