

**THE CHANGING INFRASTRUCTURAL IMPLICATIONS OF THE WINTER
OLYMPICS, 1924-2002**

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ABSTRACT

The Olympic Games are much more than a sporting event: they have evolved into a tool of urban renewal and a catalyst of substantial urban transformation. In contrast to the large volume of research into the infrastructural implications of the Summer Olympics, much less attention, apart from studies of individual Games, has been given to the Winter event. There has been virtually no effort within academic circles to develop a comprehensive body of knowledge concerning the impact of the Winter Olympics. The aim of this paper is, therefore, to review the role of the Winter Olympics in changing and modernising the built and natural environments of its hosts and its role as a tool of urban and rural regeneration. Four phases in the development of the event are apparent which provide insights into the changing infrastructural implications of the event on host cities, 1924-2002.

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INTRODUCTION

The Olympic Games have evolved into an event that has substantial infrastructural implications for the host cities. Increasing participation, global interest and sponsorship/television revenue have made the Olympics perhaps the most visible and spectacular public cultural event in modern society (Roche, 2000, p.3). There is tremendous pressure on host cities to make their Games ‘the best ever’ (to use the words of the traditional statement delivered by the President of the International Olympic Committee at the closing ceremony). The construction of new, or substantially refurbished, sports facilities are obviously required to stage the Games for the athletes. Wider investment in tourism, transport and telecommunications infrastructure (including public services), hotel accommodation and environmental improvement is now also necessary to ensure the smooth running and success of the Games.

These wider investments are important for creating the global image that the host city wishes to project to the world and for the long-term benefits it hopes to accrue in terms of inward investment and prestige. Indeed, the scale of the event has become so great that host cities can often only justify the cost and expenditure as part of a major programme of urban renewal and regeneration, although the precise effectiveness of this form of urban planning policy is contested and difficult to measure. The Olympic Games are much more than a sporting event: they have evolved into a tool of urban renewal and a catalyst of substantial urban transformation. This role reflects wider changes in the urban economy, in which deindustrialisation and globalisation have forced urban planners to discard former policies of development based on production. Instead, new strategies to encourage consumption-based activities, such as service industries and tourism, which are highly geographically mobile,

have been introduced through 'place-marketing' and 'mega-events' (Harvey, 1989; Paddison, 1993, Ward, 1998; Hiller, 2000).

The infrastructural implications of the Summer Games have been the focus of much research. Within a historical context, four phases in the increasing impact of the Summer Games on the host cities' facilities, environment and infrastructure have been identified (Chalkley and Essex, 1999; Essex and Chalkley, 2002). The early Games (1896-1904) were small-scale, poorly organised and had minimal urban impact. The event became larger in scale, better organised and usually involved the construction of new purpose-built sports facilities in the second phase (1908 – 1932). During the third phase (1936 – 1956), the sports facilities emerged as 'flag-ship' symbols of the host society and consequently began to attract much more attention, although (by today's standards) their wider urban impacts remained generally rather modest. Since 1960, which represents the fourth phase, the Games have often been used to galvanise urban programmes and policies and consequently had a much more substantial impact on the landscape and urban environment of their host cities.

The most significant Games in the fourth phase were the Los Angeles Games of 1984, which showed that the Olympics could be a financial success rather than a burden, and the Barcelona Games of 1992, which illustrated what could be achieved through large-scale urban transformations led by the Olympics. The increased inter-urban competition to stage the event after 1992 is conspicuous evidence of the perceived benefits of staging the Olympics (Essex and Chalkley, 1999). Individual Games have, of course, deviated from these generalised phases, usually reflecting the needs and circumstances of specific hosts and economic and political influences, such as the prevailing national and local attitudes to public expenditure and the role of the state. The two most recent Summer Olympics held in the United States of America have brought little change to the infrastructure of the host city, largely because they were dependent on private-sector funding with relatively little public-sector planning and infrastructural investment.

In contrast to the large volume of research into the infrastructural implications of the Summer Olympics, much less attention, apart from studies of individual Games, has been given to the Winter event. There has been virtually no effort within academic circles to develop a comprehensive body of knowledge concerning the impact of the Winter Olympics (Brent Ritchie and Aitken, 1983, p.17). The aim of this paper is, therefore, to review the role of the Winter Olympics in changing and modernising the built and natural environments of its hosts and its role as a tool of urban and rural regeneration. The paper is divided into three sections. First, the origins of the Winter Games are outlined together with an account of the growing interest from potential candidates in staging the event. Second, the changing infrastructural implications of staging the Winter Olympics are evaluated. Third, the broader policy implications from this study are considered.

The material for this review is drawn principally from the archives of the Olympic Studies Centre of the International Olympic Committee in Lausanne, Switzerland. In particular, the official reports produced by the host organising committees were utilised as a factual record of the main physical developments associated with the Games. These reports are required by the International Olympic Committee (IOC), first, as a full and complete printed report within two years of the close of the Games and, second, as a guide for future organisers (Lake Placid Olympic Organising Committee, 1980, p.6). The documents are, of course, written from the viewpoint of the organisers, but can be placed in context by other more independent published accounts and commentaries about the Games.

THE ORIGINS OF THE WINTER OLYMPIC GAMES

The establishment, in 1924, of a separate Winter Olympic Games did not materialise until nearly thirty years after the first Summer Games. There were objections to the inclusion of winter sports in the Olympics because of the possible detrimental effects on the traditional sports festivals of the Scandinavian countries, such as the Nordic Games and Holmenkollen

Week. Nevertheless, some of the early Summer Games included figure skating (London, 1908; Antwerp, 1920) and ice hockey (Antwerp, 1920) in their programmes. It was not until the Paris Summer Games of 1924 that a separate winter sports week held at Chamonix was staged six months before the main event. With the success of this winter sports week, the IOC amended its Charter in 1925 to establish the Winter Olympics and Chamonix was designated retrospectively as the first Winter Games. Until 1948, the country hosting the Summer Games was given the opportunity to also stage the Winter Games. From that point on, the selection of the host for the Winter Games was subject to a separate competition decided by a vote of IOC members, but the event was staged in the same year as the Summer Games. From 1992, the Summer and Winter Games were held alternately every two years in order to maximise the profile of the Olympics and its television revenue (Borja, 1992).

INTER-URBAN COMPETITION TO STAGE THE WINTER OLYMPICS

In recent years, as previous hosts have realised the associated economic and development effects of staging the Winter Olympics, the inter-urban competition to stage the event has intensified (see Figure 1). The hosts of the first four Winter Games were not subject to an international competition as the hosts of the Summer Games determined their selection. There were seven bids from within the United States of America for the Winter Games of 1932. From 1948, after a decision by the IOC to widen the choice of venues for the event, the venues for the Summer and Winter Games were selected separately. With the growing interest in winter sports and winter tourism during the 1950s and 1960s, there was a steady rise in the number of bids as resorts saw the potential of the event as a means of developing new or improved infrastructure and as a means of raising their international profile for winter sports and tourism. As with the Summer Olympics, the increased interest in staging the Winter Games appears to have developed as a response to the financial success of the Los Angeles Summer Games of 1984, and then as a realisation of the urban renewal effects of the Barcelona Summer Games of 1992. Prior to 1992, the total number of potential bids for the Winter Games was never more than nine. Although the number of serious bids has not

increased above that figure, the number of locations expressing an interest in staging the Games has increased by very substantially. A total of 31 locations expressed an interest in hosting the Winter Games of 2002, and there are already (well ahead of schedule) 23 potential bids for the Games of 2010 and eight bids for the 2014 event.

The remarkable growth in the number of candidates is the clearest possible evidence that potential hosts now perceive major benefits to be derived from staging the Winter Olympics. Indeed, it seems that some places are willing to go to any length, including unethical behaviour and discarding fair play, to secure the event. Candidate cities have, in recent years, spent millions of dollars on entertainment and gifts to impress IOC members. These practices culminated in the serious bribery allegations over the decision to locate the Winter Games in Salt Lake City in December, 1999. The Salt Lake Bid Committee, making their second bid and determined to secure the event, allegedly made payments to IOC members for holidays, medical treatment and members' children while at university or working in America, in return for support (Booth, 1999; Toohey and Veal, 2000, p.232; Lenskyj, 2000). This controversy has led to reforms in the selection process as well as in the composition of the IOC.

THE URBAN IMPACT OF THE WINTER OLYMPIC GAMES, 1924-2002

On the basis of key criteria, such as the number of athletes, sports and spectators, the scale of the Winter Olympics steadily increased throughout the twentieth century (see Figure 2). Four phases in the development of the event are apparent. Although covering slightly different periods from those identified for the Summer Games, they bear similarities and provide insights into the changing infrastructural implications of the event on host cities. The construction and/or refurbishment of sports facilities have been a constant requirement on hosts throughout all these phases. The sports facilities required usually include an Olympic Stadium, an Indoor Ice Arena, a ski-jump, cross-country ski-trails and a bob-sled/luge run. The scale of provision of other types of infrastructure, such as Olympic Village(s), Media Centre, hotels and transport, has clearly increased, sometimes out of proportion to the

demands of the event itself. In these circumstances, the Winter Olympics have been used as a catalyst of urban renewal and modernisation, often with substantial public sector support.

First phase, 1924-1932: minimal infrastructural transformations

During the first phase (1924-1932), the low level of interest and participation in winter sports produced small-scale events that could be easily staged in communities with relatively low populations. Only 250 to 500 athletes competed in each of the Games in this phase. The combined resident population of the first three hosts was only 9,400. The event was taken as an opportunity to develop the potential of local winter resorts. The consolidation of St. Moritz as an international tourist mecca was assisted greatly by staging the Olympics in 1928 (and again in 1948).

For the first four Winter Olympics, investment in major infrastructural projects, such as transport, accommodation and even sports facilities, was not necessary or financially feasible. The construction of a skeleton run for the St. Moritz Games of 1928 proved to be an expensive and unviable legacy. Less than 30 people used the facility after the Games. As a result, the organisers of the subsequent Games at Lake Placid (1932) questioned whether the US\$25,000 required to build another skeleton run in Lake Placid could be justified (Olympic Studies Centre, Lake Placid General file 1928-1991). The event was subsequently eliminated from the programme at Lake Placid in light of the expected high costs and low post-use (Olympic Studies Centre, Lake Placid General file 1930-31). It was not re-introduced until Salt Lake City in 2002.

The construction of Olympic Villages or new hotels was certainly not justified in this phase because of fears of over-provision. Instead, existing accommodation within a wide geographical catchment area was used and/or 'winterised'. Hotel and cottage owners in the vicinity of Lake Placid were urged to 'winterise' their summer accommodations by the organisers of the Games of 1932 to house the expected 10,000 visitors. Eventually

accommodation in Montreal, which was three and a half hours from Lake Placid, had to be utilised to cater for the demand (III Olympic Winter Games Committee, 1932, p.112).

Even though Olympic-related development proposed for the early Winter Games was small-scale, it was not always acceptable on environmental grounds. In March, 1930, a local action group (the Association for the Protection of the Adirondacks) successfully brought legal action against the construction of an Olympic bobsled run for the Lake Placid Games of 1932 on environmental grounds and that building on state land was unconstitutional. A less sensitive site was found at South Meadows Mountain, later renamed Mount Van Hoevenberg (III Olympic Winter Games Committee, 1932, p.47; Ortloff and Ortloff, 1976, p.58). This case represents an early indication of the obvious environmental impact of Olympic-related infrastructure.

Second phase, 1936-1960: emerging infrastructural demands

Substantial increases in the number of participating countries and athletes heralded the second phase (1936-1960). As a result, some of the hosts during this phase were substantially larger (e.g. Garmish-Partenkirchen, 1936: 12,600 and Oslo, 1952: 447,100), and had the capacity to develop related infrastructure. New infrastructural requirements were sometimes created as a function of the increased size of the hosts. For example, larger urban centres were often at some distance from competition sites and therefore required the transport of athletes and spectators. Large numbers of athletes and spectators had to be moved considerable distances to isolated locations in difficult terrains and within limited timeframes, sometimes compounded by adverse weather conditions. Investment in transport infrastructure, such as new roads, bridges and ski-lifts, became essential to the operation of the Oslo Games of 1952 and subsequent events. In the period before 1960, Oslo was also the only host to have built an Olympic Village, albeit it was dispersed in various locations around the city with planned post-Olympic uses such as student halls of residence, hospital and an old people's home (Organisasjonskomiteen, 1952, p. 23 and p.42). The extent of infrastructural investment for

the Oslo Games was controversial at the time. It was seen by some as an extravagant use of scarce resources at a time when much of Europe was still emerging from a period of severe austerity following the Second World War.

However, two hosts in this phase had relatively small populations of less than 5,000. These circumstances constrained investment in Olympic-related infrastructure by the same factors of long-term viability as in the first phase, but with the pressures of raised expectations created by the larger hosts. Initial plans for an Olympic Village in Cortina d'Ampezzo for the Winter Games of 1956 were abandoned after opposition from local hoteliers who feared the effect of an increase in the town's accommodation capacity on their businesses (Comitato Olimpico Nazionale Italiano, 1956, p.267). The development of the Olympic Village for the Squaw Valley Games of 1960 were out of scale with the small local community, but was considered necessary because of the number of athletes now requiring accommodation and that local hotel capacity was required for officials and journalists (Chappelet, 1997, p.83). These developments gave an indication of the infrastructural implications that were to become the norm with the increasing scale of the event in later phases.

Third Phase, 1964-1980: tool of regional development

The third phase (1964-1980) brought more significant implications for hosts as the number of athletes and events continued to rise. Four of the five hosts during this period had populations of more than 100,000, with one host having more than one million. Only one host (Lake Placid, 1980) had a level of population similar to those of previous phases. Hosts with larger local populations had greater capacity to accommodate the growing demands of the event, while hosts with smaller populations began to face problems in justifying major infrastructural investment. It was also during this phase that the role of television revenue emerged as an important source of income (see Figure 3). While television income contributed \$597,000 to the Innsbruck Games of 1964, the Lake Placid Games of 1980 were able to command \$15.5 million.

With the larger local resident populations of host centres, the post-Games viability of purpose-built Olympic Villages became more assured, especially after 1960. In most host centres, the Olympic Village has subsequently become a residential area of the host settlement or a student hall of residence for a local university or college. For example, the Olympic Village at Grenoble was built in a Priority Urbanisation Zone and subsequently was used as an 800 room university hall, a 300 room hostel for young workers and a tower block with 52 apartments (Comité D'Organisation des Xemes Jeux Olympiques D'hiver, 1968, p.71). In Innsbruck, which staged the Games of 1964 and 1976, the organisers were forced to build an Olympic Village for each event. The Olympic Village built for the Winter Games of 1964 was not available for the Games of 1976 as it had become occupied as a residential suburb of the town in the interim. The new Olympic Village was built on an adjacent site. The organisers of the Innsbruck Games of 1976 later reported that the requirement to build an Olympic Village was perhaps rather extravagant, as not all athletes wished to stay in the facilities, some preferring to be closer to their event sites. In retrospect, the organisers felt that the accommodation of athletes in hotels might have been preferable from cost, security and transport perspectives (Herausgegeben vom Organisationskomitee, 1976, p.400).

Partly as a response to the growing scale of the event, the Winter Olympics became recognised as a tool of regional development after 1964. The award of the Olympic Games of 1960 to Squaw Valley, according to the organisers, had transformed a remote mountain valley into a “throbbing city” (California Olympic Commission, 1960, p.27). The Innsbruck Winter Games of 1964 was used as a showcase for Austrian businesses, especially those related to ski equipment (Espy, 1979, p.90). The Grenoble Games of 1968 was used to accelerate the modernisation of the Isere Department (Borja, 1992) and as a means of remodelling its planning system after a period of rapid growth (1946-1968) (Comité D'Organisation des Xemes Jeux Olympiques D'hiver, 1968, p.46). The Japanese government viewed the Sapporo Games of 1972 as a unique economic opportunity to invigorate the North island of Hokkaido

(Borja, 1992). Less than five per cent of capital improvements for these Games were expended on sports facilities: most of the spending was on investment in the urban infrastructure (Hall, 1992, p.69).

Olympic-related investment in transport infrastructure was often central to the regional development objectives. Road construction associated with the Grenoble Games of 1968 accounted for 20 per cent of the total investment in the Games (Comité D'Organisation des Xemes Jeux Olympiques D'hiver, 1968, p.46). The network was designed to decentralise the region and facilitate economic growth. The investment included a motorway link from Grenoble to Geneva, which acted as a catalyst for the regional economy and transformed the host town into a major conference and university centre (Chappelet, 2002, p.11). The city's old airport at Grenoble-Eybens was closed to make way for the Olympic Village and was replaced by two new airports at Saint-Etienne-de-Saint-Geoirs and Versoud (Comité D'Organisation des Xemes Jeux Olympiques D'hiver, 1968, p.290). For the Sapporo Winter Olympics in 1972, transport investments included extensions to two airports, improvements to the main railway station, 41 new or improved roads (213 km) and the construction of a rapid transit system (45 km). This last project had already been started by the City of Sapporo, but was completed for the Winter Games using government funding.

With the increasing scale of the Winter Olympics, often out of all proportion to the capacity of the local population, the risks associated with hosting the Winter Games were increasing. First, the changing scale of the event affected the character and operation of the Games. One of the consequences of the Winter Olympics being staged in larger cities and across whole regions was that the focus and impact of the event became dissipated. For the Grenoble Games of 1968, sports venues were distributed across the region, with seven separate Olympic Villages. Critics claimed that the dispersed geography of the Games had detracted from the camaraderie of the event and increased problems of transport.

Second, warnings about the long-term limitations of the event as a tool of regional development began with the debt accumulated by the organisers of the Grenoble Games, together with the abandonment or demolition of some of its venues. It was also during this third phase that the award of the Winter Olympics of 1976 to Denver had to be reassigned, which is the only time in Olympic history that this circumstance has occurred (Olson, 1974). The reason was local concern about the rising cost of the event and about how the organisers, led by business interests, were ignoring environmental considerations. An action group, 'Citizens for Colorado's Future' was successful in placing the issue on the State and City ballots in November, 1972. The citizens then had a vote on whether the Games should be staged using state funding. The turnout was high (93.8 per cent) and 60 per cent voted against the Olympics, which meant that both state and federal funding for the event would not be forthcoming. Denver was therefore forced to withdraw its candidacy for the Winter Games of 1976, which were staged in Innsbruck at short notice.

Fourth Phase, 1984-2002: Large-scale transformations

The fourth phase (1984-present) is signified by the most significant increase in participation in the Winter Games. About 2,400 athletes participated in the Salt Lake City Games of 2002. The accommodation of a large number of media personnel was also becoming a substantial infrastructural challenge. After 1988, two or more Olympic Villages have become necessary to accommodate athletes closer to their event venues. Separate villages for the media were also necessary. Television revenue had become an important source of income after 1960, although the most substantial increases occurred after 1980. Television income rose from US\$ 91.5 million in 1984 to US\$ 545m in 2002 (see Figure 3). These higher revenues contributed partly to the costs of urban transformation on a much larger scale.

These circumstances were beginning to favour centres with larger populations. Since 1984, the Winter Games have been staged in centres with an average population of about 370,000, although two of the seven hosts have been substantially larger and two smaller. The role of

the Winter Games as a means of securing major urban infrastructural change and modernisation has intensified. The Games staged in Sarajevo in 1984 were taken as an opportunity to modernise the city by the government. The motivation for both the Calgary Games of 1988 and the Lillehammer Games of 1994 was to act as a stimulus to revive the local economy (XV Olympic Winter Games Committee/Calgary Olympic Development Association, 1988, p.5).

Given these changing circumstances, smaller hosts in this phase faced problems in justifying investment in permanent purpose-built Olympic Villages. Albertville (1992), which had a population of only 20,000 at the time, renovated a small spa at Brides-les-Bains as the Olympic Village rather than constructing a purpose-built facility. However, the village proved to be too distant from the sports facilities, so seven smaller Olympic Villages were established in existing hotel accommodation closer to the event sites. After this experience, the IOC stated that it favoured the use of a single Olympic Village in future Games in order to promote contact between athletes from different countries (Charmetant, 1997, p.115). In Lillehammer (1994), which had a population of 23,000, a temporary Olympic Village consisting of 200 wooden chalets, was constructed. These examples were significant departures from the trajectory of large-scale infrastructural investment.

The increasing scale of the event has also necessitated more formal recognition of environmental issues in the planning and development of related infrastructure (May, 1995). The intrusion of built structures into fragile environments, as well as the use of chemicals to create the appropriate conditions, has become a major issue in the preparations for the Winter Olympics. Most notably, the preparations for the Lillehammer Games of 1994 incorporated, for the first time, the principles of sustainable development. The proposed location of one of the main indoor arenas was moved to protect a bird sanctuary, while its heat circulation operated from excess heat from its refrigeration unit. Contracts with suppliers and contractors included environmental clauses. The approach influenced the IOC to add an environmental

commitment to its Charter and inspired Sydney, the host of the Summer Games of 2000, to incorporate sustainable development as a core theme in its preparations. The candidates for the Winter Games of 2002 were the first to be required to describe their environmental plans in their bid documents (IOC, 1999, p.5). These attempts to incorporate environmental sustainability into the planning of Olympic events have, however, received criticism from some quarters as essentially shallow public-relation exercises (Lenskyj, 2000).

DISCUSSION AND CONCLUSIONS

The infrastructural implications of the Winter Games and Summer Games are different in terms of the scale of the event, but similar in that the impacts are relative to the size of the host population. The Summer Games involve roughly five times as many athletes and command almost double the television revenue of the Winter Games. Proportionally, however, there is less difference between the infrastructural demands of the two events on host centres. Both require new or refurbished sports facilities, investment in transport and accommodation and other expenditure to facilitate the smooth running of the event. Whereas the Summer Games are usually staged in cities with large populations, the location of the Winter Games is constrained to alpine environments and, as an inevitable consequence, to generally smaller and more remote settlements. The Winter Games have been hosted by centres with populations ranging from 2,700 (Chamonix, 1924 and St. Moritz, 1928) to 1,010,100 (Sapporo, 1972) (average: 236,042), whereas the Summer Games have been hosted by cities with populations of 107,700 (Athens, 1896) to 10.1 million (Seoul, 1988) (average: 2,840,004).

Nevertheless, there is evidence to suggest that the cost of the Winter Olympics per capita of host population is considerably greater than the Summer Games (Press, 2002). Financial evaluations of this kind are fraught with doubts over the accuracy, completeness, reliability and comparability of data. Over time, the final reports of the organising committees have presented the final financial accounts of the Games in different ways. Often 'non-Olympic'

related expenditure funded by the public sector, such as transport infrastructure, is excluded from the accounts. On the basis of data compiled by Press (2002), the cost of the Summer Games since 1984 has always outstripped that of the Winter Games, although every Winter Games since 1992 has proved to be more expensive on a per capita basis (see Table 1). The legacy of such investment can be especially problematic for the hosts of the Winter Games which, based in smaller communities, do not necessarily have the capacity to fund, digest and absorb major new developments or transport networks. Nor do they always have the level of demand to make the new investments profitable in the longer term. Although the exact model of funding adopted by the organisers of the Games varies, and reliable comparative data are difficult to trace, public-sector investment is often substantial, especially in the Winter Games. Thus, the French Government treated the Grenoble Winter Games of 1968 as an 'affaire nationale' and met 80 per cent of the basic sports installation costs and provided a subsidy of 20 million Fr for operational expenses (Comité D'Organisation des Xemes Jeux Olympiques D'hiver, 1968, p.39). Indeed, only the Calgary Winter Games of 1988 has come close to replicating the private-sector model of the Los Angeles Summer Games of 1984 (XV Olympic Winter Games Committee/Calgary Olympic Development Association, 1988, p.79). Clearly, therefore spending on facilities for the Winter Games has tended to fall more heavily on the public purse than the Summer Games.

The question that arises from these issues is whether such Olympic-related investment fulfils the intended outcomes of the organisers and creates viable and worthwhile legacies for the host populations. The Winter Olympic Games can stimulate the construction or refurbishment of sports stadia and facilities, the provision of housing and/or hotel accommodation, the development of a modernised transport infrastructure, and the creation of a new global image for the host centre. These advances may be at tremendous cost, and may not consider the long-term legacy or viability of facilities once the Games are over. Some specialised facilities built for the Winter Games, such as ski jumps and bobsleigh runs, have limited local or tourist use. These facilities are only suitable for international competitions, which are difficult to

attract and depend on voluntary labour. The ski jump for the Grenoble Games of 1968 now lies derelict because it was poorly sited and too expensive to operate. The initial design of facilities therefore has to consider long-term utilisation as well as the feasibility of multiple-use. The grandstands at the ski jumps in Oslo (1952) and Innsbruck (1964) were designed to serve as an open-air theatre and terrace for a swimming pool during the summer (Wimmer, 1976, p.44). The provision of accommodation for the Winter Olympics can prove unviable in the long-term. Early Winter Games usually utilised existing or 'winterised' accommodation to avoid these problems. Even more recent Games have used existing hotel properties (Albertville, 1992) or temporary constructions (Lillehammer, 1994) for the accommodation of athletes, so balking the trend for purpose-built Olympic Villages.

The economic benefits of staging the Winter Games can also be less than expected. Spilling's work on the economic impacts of the Lillehammer Winter Games of 1994 described the effects as 'intermezzo' – that is, a short dramatic interlude – and as yielding a poor return on investment (Spilling, 2002). The large-scale investment required to stage the Winter Olympics of 1992 in Albertville appears to have compounded the problems of attracting finance for the restructuring of other resorts in the northern French Alps (Tuppen, 2000 p.330). These examples illustrate that the Olympics have 'opportunity costs' which can postpone or eliminate other forms of investment.

The increasing infrastructural demands of the Olympic Games have created geographical inequalities by favouring potential hosts in the developed world, which have the financial resources required to stage the event and possess an established tourism industry easily capable of being extended or enhanced to cope with the demands of hosting such an event. The geography of hosts, and indeed the majority of candidate cities, for both the Summer and Winter Olympics is concentrated almost exclusively in Europe, North America and Oceania (see Figure 4). Although this distribution reflects the global distribution of the ski industry, increasing Olympic gigantism might increase doubts as to whether urban centres in other

parts of the world (such as Chile, Argentina, Australia and New Zealand) would be able to stage an event on the required scale. Thus, the accumulation of capital from around the world, in terms of television revenue and sponsorship, is being concentrated on further improving already prosperous 'western' cities. Arguably, from an urban policy perspective, the benefits of the Olympic resourcing might be better focused on poorer areas more in need of large-scale investment and environmental improvement (Essex and Chalkley, 1998). In addition, within the developed world, only urban areas with larger population sizes can afford the scale of investment required to stage the Games and have the population thresholds to support the viability of facilities in the longer-term once the Games are over. Even the Winter Games have begun to be hosted by larger cities or wider regions rather than the small resorts that staged the event in the 1920s and 1930s. Olympic legacies are, therefore, extremely selective partly because of the scale of the event.

Issues about increasing Olympic gigantism are, of course, not new and indeed have been debated by the IOC and its presidents for nearly a century (initially for the Summer Games). In relation to the Winter Olympics, preparations for the Oslo Winter Games in 1952 included consideration of a proposal to reduce the number of events. It was feared that the increasing size of each Winter Games would detrimentally affect their character and make it impossible for any town to undertake the necessary arrangements (Olympic Studies Centre, *Jeux Olympiques de 1952 Oslo Correspondence COJO, 1947-1953*). Brundage (IOC President, 1952-1972) criticised the huge expenditures at the Grenoble Games of 1968. He wrote: "... the French spent \$240m in connection with these Grenoble Games and when you consider that this was for ten days of amateur sport, it seems to be somewhat out of proportion. With that kind of money involved there is bound to be commercialisation of one kind or another" (Espy, 1979,p.136). As a result of related controversies, Brundage hoped that the whole Winter Olympics would receive a 'decent burial' at Denver, the original host of the Winter Games of 1976 (Espy, 1979, p.135).

Irrespective of these long-term considerations, no host can expect to gain positive legacies for itself simply by securing the right to stage the Olympics. Hosts can only ensure beneficial long-term legacies through carefully integrated strategies for the urban environment. The most successful Games, from an infrastructural perspective, have been those that have followed a long-term development plan for the major programme of investment and renewal which has not depended exclusively on the Olympics for its implementation. This principle can also be applied to individual developments, such as sports facilities, accommodation and transport. Investment in all facilities must be viable in the long-term and incorporate appropriate multiple-use where possible. The 'Olympic effect' can be maximised if the main venues are concentrated in one part of the urban area. This strategy has the effect of spatially focusing the impact of renewal, reducing transportation problems and assisting security. However, these benefits are less easily achieved by smaller centres, especially for the Winter Olympics, where a wider area has to be incorporated to provide a range of suitable environments capable of staging the various competitions, to create financial viability and to produce the desired stimulus to regional development. The opportunity for public involvement and participation in all stages of the Olympic preparations should always be taken to mobilise local support for the event and to ensure appropriate local usage of the infrastructure in the long-term.

A key challenge for Olympic hosts is to provide an attractive and exciting festival of sport, while also ensuring beneficial long-term legacies from the event. The growing research on the Olympic legacy might be usefully drawn together so that future hosts are better informed of the implications of staging the Olympic Games and to underline the importance of planning facilities and related infrastructure for the event beyond the duration of the Games themselves. Beyond the broad academic overview provided in the present paper, planning for the Winter Olympics would be assisted by a more detailed and practically-based guide helping to ensure that past experience is used to inform future policy.

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Table 1. Comparison of the costs of staging the Summer and Winter Olympic Games, 1984-2002

Olympiad	Winter Games	Cost US\$m	Cost per citizen of host city	Summer Games	Cost US\$m	Cost per citizen of host city
XIV	Sarajevo, 1984	179	400	Los Angeles, 1984	412	121
XV	Calgary, 1988	628	981	Seoul, 1988	3,297	326
XVI	Albertville, 1992	767	38,350	Barcelona, 1992	9,165	5,578
XVII	Lillehammer, 1994	1,511	65,695	Atlanta, 1996	2,021	5,129
XVIII	Nagano, 1998	3,412*	9,451	Sydney, 2000	3,438	929
XIV	Salt Lake City, 2002	1,330	7,628	Athens, 2004	-	-

* excludes speed train (Shinkansen) and highway network (US\$ 8,408m).

SOURCE: Preuss (2002, p.40).