



National Technical University of Athens
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Greece after the Gold Rush Impact Analysis and Sustainability of the 2004 Olympic Infrastructure

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Benefits of hosting the Olympic Games

- “Event-led development” has been under consideration since the nineteenth century – it offers the possibility of a “hurried up” urban regeneration, improved infrastructure and transportation, environmental protection projects, tourism and convention promotion
- Economic stimulus: The Games create experience which can stimulate economic growth
- They increase the global recognition and prestige of the country

The Games have significant long term economic impact on the host city and the whole host nation

(Preparations start 10 years in advance and may entail considerable investment expenditures)

Brief Impact Review on Land Development on host cities (I)

Since its birth in 776BC the Games were always an instrument of promoting physical, intellectual, cultural & economic recognition.

Until 1956: new infrastructure meant substantial sport facilities, many of them of great architecture (1st communal establishment for athletes in Los Angeles 1932, urban infrastructure in Berlin, 1936 due to Reich propaganda purposes)

Rome 1960: new era of sports facilities & urban improvements, e.g. roads, municipal water supply system, new airport, public transportation, illumination of monuments, decorative improvements

Tokyo 1964: construction of main highway network, underground railway, water supply, waste management, public health improvement, cleaning streets, rivers, food hygiene controls, etc

Brief Impact Review on Land Development on host cities (II)

Munich 1972: urban regeneration of the 208 ha venue, restoration of the historic part of the city, underground parking facilities, expressways of 145km length, Olympic Village for 1000athletes. New issue: **security problems**

Montreal 1976: Olympic stadium, 19-store buildings of 980 apartm, Olympic Park, general infrastructure. New issue: **economic risk** (political opposition & technical problems by using new materials & techniques)

Seoul 1988: largest program: US\$14billion for regenerating Chamsil area, transport, environmental protection, beautification projects

Barcelona 1992: urban development in two main locations, 130 ha Olympic Village, new marina, networks, regeneration of 5,2km seafont

Brief Impact Review on Land Development on host cities(III)

Atlanta 1996: sport facilities, inner city regeneration, Centennial Park. Security problems. Commercialization.

Sydney 2000: “Green Olympics” Issue: **emphasis on environmentally friendly infrastructure & sustainable development** (Olympic Village – landmark in solar power usage, transformation of a swamp into residential community)

Athens 2004: invested on modern, high tech sport facilities, improvement of general infrastructure, regeneration of the seafont of Athens, and increased quality of value-added services to improve Athens metropolitan role in the south-eastern part of Europe. Cultural Olympiad. Issue: **increased security & emphasis on cultural features**

Impact of the 2004 Olympic Games Redevelopment Strategy on the Potential Role for the Athens Metropolitan Area

- Athletic Infrastructure (competition, non-competition)
- General Infrastructure
- Other projects: Security of the Games, illumination of monuments, solid waste management, renovation of building facades, upgrading of archaeological sites, renovation of ancient theatres and museums to serve theatrical productions of the Cultural Olympiad, construction of new museums, several research projects contributed by NTUA

Olympic Infrastructure

Category	Project Name	Location	Area / Capacity
Athletic Venues	Athens Stadium	Athens	70,000 seats
	Marousi Stadium	Marousi	65,000 seats
	Thessaloniki Stadium	Thessaloniki	55,000 seats
	Patras Stadium	Patras	35,000 seats
	Heraklion Stadium	Heraklion	35,000 seats
	Chania Stadium	Chania	35,000 seats
	Rethymno Stadium	Rethymno	35,000 seats
	Ierapetra Stadium	Ierapetra	35,000 seats
	Agios Poulos Stadium	Agios Poulos	35,000 seats
	Nea Filadelfeia Stadium	Nea Filadelfeia	35,000 seats
General Infrastructure	Attika Suburban Railway	Attika	100 km
	Metro Extension	Athens	10 km
	Tram Line	Athens	10 km
	Express Bus Lines	Athens	10 km
	Highway Ring Road	Athens	10 km
	New Fixed Rail Systems	Athens	10 km
	Metro Stations	Athens	10
	Tram Stations	Athens	10
	Express Bus Stations	Athens	10
	Highway Interchanges	Athens	10

- Competition & non-competition Venues (57 basic works & numerous other of smaller scale)**
- 24 construction works for comp. venues
 - 2 telecommunication centers (of 55,000 & 52,000 m²)
 - 14 major road section and intersection improvements (5 of them are connections with athletic facilities)
 - 3 major public fixed rail transportation projects (Attika Suburban Railway Network, Metro extensions, Tram Line)
 - Construction of the Traffic Management Center
 - Construction of the Olympic Village
 - 7 Press Villages
 - 5 projects of the Public Power Corporation

Major General Infrastructure Improvements



Tram line

Metro line

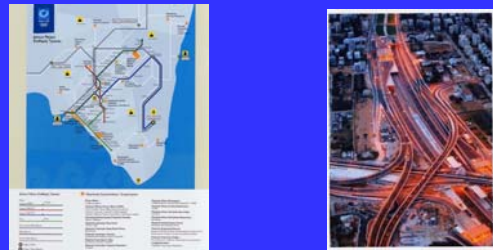
ATTIKI ODOS Road Network

Athens Airport El Venizelos



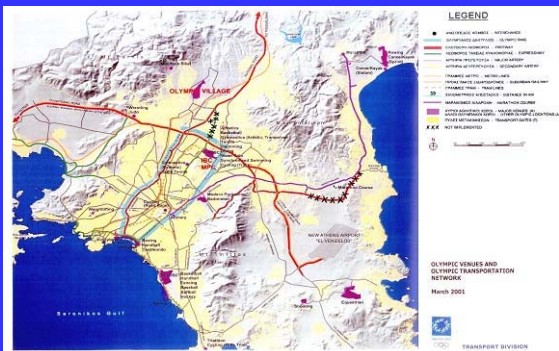
Rion-Antirion Bridge

Transportation Projects



The Olympic Transport Strategic Plan was designed to reduce congestion, smog and noise pollution. Projects included: traffic improvements, modernization of signal system, new express bus lines, new highway ring road, 2 new fixed rail systems, metro extension, new tram line, renovation of stations, etc.

Olympic Venues and Olympic Transportation Network



Olympic Stadium-aesthetic upgrading of the OAKA

- Great architectural and technical interest (Santiago Calatrava)



Olympic Cycle Race Course



Olympic Stadium roof, steel, 18,000t



Examples of major advancement in the history of structural engineering



Acropolis of Athens

Examples of the upgrading of OAKA area



Sub-Structure of Stadium Pool to Serve Opening Ceremony



The Completed Structure



The Olympic Rowing Center in Schinias (123ha)



Close to Marathon, included an environmental project & restoration of the wetland biotope
 Fresh- water Makaria spring, (brackish water due to osmosis)
 Post-Olympic use?: competition events & practicing, or environmental activities, bird watching, recreational purposes combined with the sea and pine forest

The Olympic Complex in Goudi (4,500,000 m²) modern Pentathlon venue (shooting, fencing, swimming, horse riding, cross country racing) and the Badminton Indoor Gymnastic Hall



Equestrian Center and new Race Track in Markopoulo (above) (2,11ha) site of the ancient city of Myrinounda and the Temple of Aphrodite (archaeological excavations in progress during the construction).



Sports Hall for Table Tennis & Rhythmic Gymnastics



Nikaia Weightlifting Hall



Peristeri Boxing Hall

Construction & refurbishment of 5 stadiums - 4 in Olympic cities (+ 1 in Piraeus)



Regeneration of Faliron Bay and the Seafront of Athens (Kifissos & Ilissos River delta area)

Impact of 1960s highway construction on 77ha, 2.5 km length seacoast (noise, pollution, floods)

Planning Objectives:

1. Connect urban fabric with the coast – Esplanada Road
2. Create urban seafront & new marinas & enhance the environment
3. Protect from flooding – construction of canal system
4. Remedy of traffic impact, create tram line & upgrade housing
5. Establish metropolitan focus: by providing athletic, recreational & cultural activity infrastructure

Sports complex: beach volley, handball, tae kwon do stadiums, athletic marina, pools, sailing enter, reception building, etc

Hellinicon Olympic Facilities at former airport, 210 ha

- Baseball Centre (2 fields of 12,000 & 7,000 capacity)
- Softball Centre (5,000 capacity)
- Hockey Centre (2 fields of 15,000 & 5,000 capacity)
- Basketball/Handball Centre (15,000 capacity)
- Fencing Centre (2 areas of 3,500 & 5,000 capacity)
- Canoe Slalom Centre (5,000 capacity)

Canoe Slalom Centre

The Olympic Village

- A prototype settlement
- Housing for 18,000 athletes
- Post-Olympic use: permanent residential community for 10,000 residents
- 20-years site selection process, but a
- 7-month land expropriation process

Urban Regeneration Projects for Athens Area

Regenerated Historical/Cultural Route in the centre of Athens (left)

Regenerated Marathon Route Zone (right)

Major targets:

- Integration & regeneration of the historic and archaeological sites of Athens
- Integration of the Olympic Infrastructure into the city's structure, regeneration of the surrounding areas
- Upgrading of main road arteries and public transportation stations
- Upgrading and creation of new public squares
- Creation of historical-cultural routes within Athens, routes for cyclists, the Marathon Route zone, etc

Question to:planners, architects, land surveyors, attorneys, economists, appraisers, land policy makers...

- Are the billions of Euros, necessary for the organization of such events, well spent?
- How can the improvements have a positive lasting impact on the urban fabric of the host cities after the final gold medals are awarded?

Economic Assessment (I)

The Games have been increasing in scale especially after the technical advances in telecommunications and TV in the '60s.
1896: 311 athletes, 13 countries
2004: 11,099 athletes, 202 countries

1. Economic stimulus? Budget in balance?

Munich 1972, Montreal 1976 negative results for tax payers
Organizers became more conservative in making expenses on general infrastructure

Los Angeles 1984 , US\$215M surplus due to commercialization

Atlanta 1996, Sydney 2000 created no debt

While Seoul 1988 Barcelona 1992

improved infrastructure + managed financially viable Games

Athens outcome ? - huge investment both in general infrastructure & sports facilities

Economic Assessment (II)

Quantifying the full economic impact arising from other factors (i.e. tourism, side business, macroeconomic effect caused by improved infrastructure) is a complicated model; it includes uncertainties and is spread over time.

Pre-Games: bid costs, investment expense, delay and preparatory costs; tourism income, construction activity and reduction in unemployment

Games: operational & security costs; tourism income, jobs, revenue from the Games TV, tickets, sponsorships

Post-Games: maintenance of infrastructure; tourism income, post-Olympic use, urban regeneration, international reputation

Tourism is an uncertain source of income

Economic Assessment (III)

Sydney 2000 Games earned US\$2 billion income by global publicity

Barcelona 1992 experienced a 21% annual increase in international convention for next 5 years

Hellenic tourism:

2000-2002: increase

2003-2004: setback due to the Iraq war, SARS outbreak in 2003, bad publicity, uncertainty and construction delays, increasing cost, inflated hotel rates, fear of terrorism, unfair predictions about the inability of Greeks to complete facilities on time.

2004 during the Games: increase due to

- improvements in specific infrastructure (renovation of the 90% of the 70,000 hotel rooms),
- improvement on service levels (plethora of direct Easy Jet flights during the games)
- Cultural Olympiad, cultural events (eco- tourism, conference- tourism)

Economic Assessment (IV)

Future economic success? GDP growth? Post-Olympic slowdown?

Sydney 2000: slowdown effected the overall GDP growth

Spain 1992: more abrupt slowdown (especially in Catalonia)

Bank of Greece data: Greece's annual rate of GDP growth 1997-2004: 3,7% (2nd highest in Europe)

2005: estimated to be 3,5% (largely because of high oil prices)

- On-going investment in infrastructure in the periphery, e.g. Egnatia highway & other links with northern and eastern neighboring countries
- Increasing metropolitan & regional role of Thessaloniki & Athens as the main providers of high added value, improved services in the Balkan and Middle East areas e.g. health, education, sports, entertainment sectors,

Economic Assessment (V)

• Tourism increase due to the new look of Athens & to additional motives, e.g. 30% reduction of hotel rates, all week/full day operation of shops in tourist areas, better administration and extension of operating hours of the archaeological sites and museums

• Increase in Hellenic exports

• The expansion of shipping & the increasing role of the Aegean ports in trans-European networks

• The expected business investment banking system, legal stability

Smart, flexible & quick decision-making in Land Management / Land Administration by applying entrepreneurial policy is necessary to face a possible slowdown.

Challenge: to find proper LA policies for making the specialized infrastructure create new capital either by a return visit of the Games, or organization of other major sport events, or by modifying its use, e.g. international training venues

Experience Gained in Land Administration Policies (I)

Major delays in the preparation of the infrastructure leading up to 2001 period due to

1. Time consuming traditional procedures and legal framework for acquisition of privately owned land
2. public opposition in use of state-owned land
3. restrictive land use regulations
4. lack of experience in the public sector to work under pressure
5. lack of coordination of public and private agencies
6. demand for additional archaeological documentation
7. lack of an advanced Land Administration System- Hellenic Cadastre Project under construction

Experience Gained in Land Administration Policies (II)

Lessons Learned

- Coordination & precise determination of responsibilities among public agencies, the Hellenic private sector and the academic community
- Improved legal structure for Land Expropriation and land use controls (e.g. Olympic Village)
- Creation of Public Private Partnerships (e.g. Eleftherios Venizelos Airport, Rion-Antirion Bridge, Attiki Odos highway network, Karaiskaki football stadium, Faliron Marina, Press Village, underground parking stations)

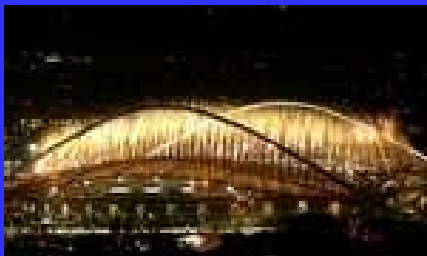
Conclusions

1. Olympic Games accelerate the pace of change and leave behind substantial urban legacy
2. Urban regeneration, Olympic Village, general infrastructure improvements, sports facilities with great architectural value, environmental improvements and long term tourism promotion are the top legacies of the 2004 Olympic Games
3. Without modifications to legal regulations and decision-making processes several decades would have been required to complete the infrastructure for the 2004 Games
4. Lessons learned should be also applied for the post-Olympic era to achieve the sustainability of the infrastructure and to facilitate the creation of a favorable business environment by providing investment opportunities

5. Lessons learned can be applied to other Land Administration and Land Management projects in Greece and other countries, e.g. coordination between involved agencies, increased role of private sector, or legal system improvements for land use control, etc.
6. The degree to which cities are able to achieve long term benefits depends upon:
 - an on-going promotional campaign
 - the level of infrastructure and related measures to further improve tourism
 - competitiveness in the business environment and entrepreneurial approach
 - intelligent thinking in Land Administration issues (make the necessary land-use changes, establish PPPs, adopt systematic technical decision-making systems, provide motives to attract investments)
 - the ability to re-use the sports facilities

Proposal for a sustainable post-Olympic use of the sports infrastructure

An NTUA project is under consideration to apply a Spatial Data Infrastructure analysis of the 2004 Olympic Games sports infrastructure for development of systematic decision-making for sustainable post-Olympic use, including classification of facilities, land uses, land use controls, facility management, ownership options, etc.



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