Olympic transport and sustainability

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Think tank warnings

A) Global and Olympic Transport and their relations with City development and the environment are the main themes of this presentation.

B) However important in Games organization, transport is only one of the 34 Olympic Games functions.

C) However important Olympic transport projects can be, they remain minimal (even in Beijing) in relation to the whole Host City transport system.

D) There is a lack of reliable and affordable quantitative methods to measure impacts of localized projects on a whole metropolitan system. “Quantitative” sustainability assessment remains elusive.
Olympic transport sustainability

1. IOC and sustainability -- Copenhagen 2009
2. Olympic growth
3. Event growth impact on transport
4. Sarajevo 1984 and Lillehammer 1994
5. Sydney 2000 transport policies
6. Beijing 2008 transport developments
7. London 2012 rail priorities
8. Rio 2016 legacy promotion
9. Summer // Winter Games sustainability
10. What contribution to sustainability?
1. Olympic sustainability Copenhagen 2009

XIIIth Olympic Congress recommendation N° 19

“"The Olympic Movement fully embraces the importance of embedding the key values of environmental protection, development and sustainability within the Olympic ideals”

“As part of this commitment…. the IOC should accelerate the integration of sustainability principles in the hosting of the Olympic Games…. to safeguard their status as a premier event”
Both Summer and Winter Games grew tremendously in the last 25 years in all key areas: participating countries, female share, sport disciplines, athletes and team officials, technical officials, logistical requirements, new communication and medias, higher levels of services for ever more numerous client-groups.

Key parameters presented for:

• **Winter Olympic Games** long term (since 1924) and medium term (Sarajevo 1984 to Sochi 2014)

• **Summer Olympic Games** long term (since 1896) and medium term (Los Angeles 1984 to Beijing 2008)
## Chamonix 1924 to Sochi 2014 Winter Olympic Games key statistics

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<td>2500</td>
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<td>86</td>
<td>2700</td>
<td>40</td>
<td>9800</td>
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<td>≥86</td>
<td>2700</td>
<td>≥40</td>
<td>9800</td>
<td>23000</td>
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1. NOC/nations / 2. Competition/events / 3. Competitors/athletes (±50) / 4. Percentage female athletes / 5. Accredited medias (±100) / 6. Volunteers (±500) / 7. Total tickets sold (± 0.05 million)

*Vancouver 2010 and **Sochi 2014 preliminary estimates

By / November 20th 2009
### Athens 1896 to Beijing 2008 Olympic Summer Games key numbers

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<td>302</td>
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<td>43</td>
<td>24600</td>
<td>70000</td>
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**1984/2008 growth (%)**
- 46 to 204, 6 Games, 24 year growth in percent (%)
- **2000/2008 growth (%)**
- 2 to 3, 2 Games, 8 year growth in percent (%)

1. NOC – nations
2. competition events
3. athletes (±50)
4. Percentage female athletes
5. Accredited medias, press and broadcasters (±100)
6. Volunteers (±500)
7. Spectator tickets sold (±0.1 million)
8. World TV viewers (±0.1 billion)
9. Total TV rights (±5 mio US$)

* By 04.02.2009
3. Event growth impact on transport

Mega-event growth has considerable impacts on transport, travel demands, logistical organization and operational costs of the Games.

Increased travel and mobility demands resulting from Olympic growth are related to:

- longer Olympic travel distances (larger Olympic perimeter)
- larger client numbers and user groups
- more numerous venues of larger capacities
- higher levels of services in terms of quantity, quality and security
- increased Games complexity and extended travel demands (24h/24h services)
Transport impacts

Olympic Summer Games are the largest world sport mega-event (Olympic Winter Games might be fourth)

The Olympic Games are also the largest temporary two-week traffic generator:
• about 1.2 to 1.8 million additional journeys per day during Summer Olympic Games
• about 0.3 to 0.5 million additional journeys per day during Winter Olympic Games

These massive traffic overloads cannot be accommodated on most often heavily congested City transport networks
Transport impacts

As shown by all Games since Sydney 2000, Olympic and global mobility cannot succeed other than being more than 95% by public transport.

In other words: logistical transport requirements of world mega-events on Cities are such ... that only Cities with very strong high performance public transport systems can succeed in hosting mega-events such as the Olympics.

After a successful bid, winning Host Cities have (only) 7 years to deliver the extended and upgraded transport system.
4. Sarajevo 1984 and Lillehammer 1994

For Sarajevo 1984, promotion of Olympic transport was an essential (survival) development tool -- not much concern for environment and sustainability in 1984 -- but great concern for legacy!

Lillehammer 1994 widely embraced environmental objectives in Games promotion, planning, construction and delivery. Last Winter Games in a small town of 25’000 about 185km North of Oslo, capital of Norway. All venues were rather close to Lillehammer (c.f J.L. Chappelet Winter Games environmental analysis, 2008)
Sydney 2000
5. Sydney 2000 transport policies

After Atlanta 1996 embarrassing transport logistical difficulties, Sydney 2000 marked a new “era” for Olympic transport

• 100% spectators, workforce and volunteers by public transport
  No parking within 1km of Olympic venues

• 24 hour free public transport is part of the event for ticketed spectators + all Olympic officials, staff, workforce, volunteers and other accredited

• Sydney Olympic Park = 77 % access by rail, 15% by express bus, 3% walking/biking and only 5% by car

• New mega-event travel behavior induced during Sydney Games
Sydney 2000 sustainability

Sydney 2000 could deliver excellent Olympic transport and traffic experience based essentially on innovative transport resource management.

Greenpeace-Australia assessed these Games as environmentally sound from the transport standpoint.

Other than, a little used Olympic rail connection to former Olympic Park, Sydney 2000 Olympic Games did not induce much long term transport and mobility sustainability.
After Sydney–Athens Olympic lanes

_Athens 2004, first Olympic Games ever to have its own Olympic traffic lane full continuous network_

• 160km **network of Olympic priority lanes** for all Olympic accredited vehicles + express bus lines

• Average Games bus speeds increased from usual 12 to 20 km/h to 55 km/h at everybody surprise!

• Road congestion--one of the biggest worry in Athens-- was replaced by the **fastest road+bus traffic system ever during the Games**

• These were all temporary measure, without real sustainability
In Athens many sport permanent infrastructures built for the Games are “sport white elephants”, with little or no use, expensive maintenance and high dismantling costs.

Athens considerable new metropolitan transport infrastructure has not produced any “transport white elephant”

All 1999-2004 Athens region transport projects are long term legacy for roadway, airway and rail public transport systems.

*Athens 2004 much improved transport systems, particularly rail systems, are a contribution to better long term mobility sustainability in Attika Region*
6. Beijing 2008 transport developments

Beijing 2008 invested > 20 billion USD$ to cleanup the metropolitan environment + major vehicle fleet environmental upgrade + even higher transport infrastructure investments

- **Tripling Beijing Capital airport capacity** with a new vast terminal (largest in the world--1 million sqm)

- **Tripling public transport system capacity** in seven years of Games preparation, mostly Beijing subway + Airport rail link

- **Considerable motorway and expressway extensions**, Fifth Ring (108km) and part of Sixth ring (208km) and new expressways to airport + around and below Olympic Green
Beijing Olympic lane network

Adapting Athens experience, Beijing implemented the largest Olympic lane (O-lane) system ever on all Olympic inter-venue connections + Centre City - Airport

• More than 85% of the 300km O-lane system was located in the median of urban motorways

• O-lanes marked with specific Olympic logo

• O-lane operations tested on 10km one-year before Games

• O-lanes very well enforced and respected, speeds > 50km/h

• Like Athens, O-Lanes system to be a temporary measure only
Beijing massive traffic reduction

• Beijing had witnessed growth of 1000 cars per day during 7 years // tremendous congestion in 2007 and worries for 2008

• Very severe August (hot + very humid month) air pollution cumulated with heavy construction dust

• 4 day test in August 2007 (1 year prior) with 40% car traffic reduction

• O-lane system would be ineffective without massive vehicular traffic reduction

• 2008 Games, reduction of 45-55% of all registered motor vehicles allowed every day / odd-even license plates during 60 days (2 million cars out of use every day out of total of 3.4 millions)
Beijing transport sustainability

• Beijing considerable 2002-2008 transport development program (worth more than 20 billion USD) was delivered on time for the Games

• All projects were on Beijing Municipal Master Development Plan, but were accelerated or anticipated of 5 to 10 years

• Transport and mobility needs were so big: no transport white elephant in Beijing

The Beijing Games were a major catalyst for better transport sustainability in a context of very fast growth and of major efforts to decrease air pollution
7. London 2012 rail priorities

London 2012 Olympic Park: biggest urban industrial waste land rehabilitation program in Europe

London 2012 major public transport/mostly rail improvements with concentration in East London location of 2012 new Olympic Park

London 2012 to be the most rail public transport oriented Games

The 250km ORN, Olympic Route Network (with about 35% of Olympic lanes) not expected to work properly unless a 25% traffic reduction is obtained—quite a challenging task to deliver!
8. Rio 2016 legacy promotion

RIO 2016 strategic option N°1 is the build-up of a full high performance RIO public transport ring interconnecting all four City quadrants

• The concept of “interlinked four Olympic zones” is materialized by a mixed program of public transport projects with suburban rail rehabilitation, metro capacity upgrade, metro extension and 75km of high capacity BRT-Bus Rapid corridors

• This “boldest public transport development in Rio history” shall be fully delivered in six years

• The High Performance PT Ring will help connect areas of very diverse socio-economic and urban characteristics
9. Summer/Winter Games sustainability

Much bigger than Winter Games, Summer Games are easier to understand, analyze and assess in terms of logistics+transport because they take place in one City//one metropolitan area//one more homogeneous governance system

Summer Games are highly centralized, only one Olympic Village, one MPC/IBC, one TCCCC- Traffic Control, command and Communication Centre

Summer Games transport sustainability issues can be more coherently pursued because of a single metropolitan entity
Winter Games sustainability

Contrary to centralized mono-Host City Summer Games, Winter Games are at least bipolar mega-events: traffic split of about 60% City // 40% region

Bipolar:
• ICE Games in a large low to medium elevation Olympic City
• SNOW Games at highest possible elevation / multiple valleys / rather small towns, villages or resorts / insufficient accommodation

And dual Winter Games transport:
• high capacity diversified urban systems in Host City
• low capacity, weather sensitive, non-diversified transport systems in Mountains
Winter Games sustainability

Winter Games smaller size do not warrant much new City transport infrastructure // Well managed City traffic is often sufficient (Turin 2006 Games). In general no main transport sustainability issue in Host City triggered by Winter Games

For Winter Games, mountain transport systems are most often only minimally improved (slightly larger access roads + additional cable transport). Generally difficult to identify significant sustainability benefits in mountain transport
Winter Games sustainability

A counter example -- Sochi 2014

• More than 85% of sport venues, transport and Olympic support infrastructures shall be built for 2014 + new Winter Olympic Park
• A powerful means of transport, Rail, will be developed (double tracking) along the 100km Sochi Coastal Riviera and extended by 60km to access mountain resorts
• With this brand new “City to mountain rail system”, Sochi mountain transport long term sustainability will be enhanced (but at what cost?)

Another Winter Games sustainability issue: weather and climate warming. Might mostly affect transport operations and contingency plans // event delays--event simple or multiple rescheduling
10. What contribution to sustainability?

Suggested conclusions:

1. World fierce competition between Cities to get the Olympic Games triggers a “race” for best possible Games transport systems and traffic management concepts.

2. Massive Olympic use of public transport systems, improved and expanded during the 7 year Games preparation period, becomes an indispensable landmark of successful Summer Olympic Games organized in Cities of more than 4 million population.

3. Olympic transport projects are most often part of the Host City Master Plan Agenda and can be considered as Games accelerated transport projects.
What sustainability assessment?

4. Most recent Olympic experience shows that Host Cities investing in high performance public transport systems in support of the Games are investing in long term more "sustainable" transport and mobility patterns.

5. Summer Games transport long term contributions to sustainability appear tangible.

6. Winter Games transport sustainability remains open to question. It depends largely on the structural and institutional City-Region setup and technical characteristics of the City-mountain transport system.
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“Olympic and mega-event transport bibliography 1997-2010”
to be downloaded from www.mobility-bovy.ch

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