



# **The Olympic Games: game changers for urban sustainability transitions?**

**June 2018**

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## Introduction

It is important to look at the Olympic Games in the context of urban sustainability transitions for several reasons. First, the Games have substantial sustainability impacts. Second, the Games are global mega-events *par excellence*, and connect the global with the local in a unique way. Third, the Games are an important showcase for new technologies and practices that can improve sustainability in cities beyond the host city.

The starting point for this article is transition governance, which involves the deliberate adjustment of governance practices and societal institutions in order to maximise the opportunities for continued human progress along a sustainable trajectory. (Meadowcroft et al., 2005) The literature review on transition governance is quite extensive as this article is mainly written for an audience that is not familiar with this concept. The case study that I will apply transition insights to is the Olympic Games and their role as a driver of urban sustainability transitions. My hypothesis is that the Olympic Games can cause significant and even systemic socio-technical transitions at the urban (and national) level. This means that organizing the Olympic Games can drive system reconfiguration across production and consumption. There are numerous examples where Olympic Games were organized at a critical juncture in not only one city's but a whole nation's development, with the Games in Tokyo in 1964, Seoul in 1988, and Beijing in 2008 as prominent examples. Those games were on the one hand a result of rapid economic transitions in Japan, Korea, and China and also further boosted these trends.

Besides literature review, this article is based on a series of semi-structured interviews with experts involved in the sustainability aspects of previous Olympic Games and on a series of workshops on the Olympic Games and sustainable development organized jointly by the University of Geneva and Keio University.

# 1. Background on (urban) sustainability transitions

## 1.1 Literature review of transition theory

In order to understand structural change an interdisciplinary<sup>1</sup> field of studies has emerged that focuses on ‘transitions’, most commonly defined as long-term, non-linear processes of social change in which a societal system is structurally transformed. (Grin et al. 2010, de Haan and Rotmans, 2011)

Frantzeskaki (2011) identifies three types of transitions: institutional transitions, social-ecological transitions and socio-technological transitions. Transitions can take place at several levels: while households and individuals can transition to sustainability, some speak of a “Great Transition”, and envision “the advent of a new development paradigm redirecting the global trajectory toward a socially equitable, culturally enriched, and ecologically resilient planetary civilization.” (Tellus Institute, 2015)

Whereas a system innovation refers to transformations within specific subsystems, any transition transcends individual systems and comprises various system innovations at different scale-levels and over a long period of time. (Loorbach and Rotmans, 2010) This means that existing systems of structures, institutions, culture and practices are broken down and replaced by new ones.

A *sustainability* transition generally refers to a “radical transformation towards a sustainable society as a response to a number of persistent problems confronting contemporary modern societies” (Grin et al. 2010: 1). Such a transformation process is “long-term, multi-dimensional, and fundamental” (Markard et al., 2012), paradoxically comprises radical change in incremental steps (Loorbach and Rotmans, 2010), and shifts established socio-technical systems to more sustainable modes of consumption and production. The term "transition" is

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<sup>1</sup> Interdisciplinary studies involve two or more academic disciplines with the same or different research paradigms, approaches, and methods which cross subject boundaries and integrate their knowledge in ways that result in new insights, knowledge, theories and methods, and solve common research questions. Interdisciplinary research might involve differing qualitative and quantitative methods and different analytical and interpretative approaches. (Evely et al., 2010) According to Davidson and Frickel (2004: 485), “the future work of scholars interested in environmental governance (...) will benefit from respecting the interdisciplinary and cumulative nature of conceptual developments in environmental governance, rather than abiding by theoretical or disciplinary boundaries”.

already widely accepted in the area that this book looks into in more detail: sustainable energy and climate change. The UNFCCC secretariat (2014) for example speaks of the transition to low-emission development paths.

The field of transition studies applies theories and methods from various disciplines to study the history, dynamics and governance of socio-technical transitions and ‘system innovations’ (Rotmans et al., 2001; Loorbach, 2007). ‘Transition theory’ embraces concepts such as co-evolution, self-organization<sup>2</sup> and emergence and is intellectually rooted in three strands of science: complex systems theory<sup>3</sup> (e.g., Kauffman, 1995), governance literature (Rotmans et al., 2001 and Smith et al., 2005), and innovation studies (Geels, 2005). While originally the focus was on transitions in socio-technical systems (e.g. mobility, energy, agriculture), recent developments have broadened the focus towards societal systems more generally (e.g. cities, regions, sectors). Transition studies call for inter- and transdisciplinarity, acceptance of uncertainty, adaptive governance and attention to up- and downscaling between different levels in time and space, as well as aggregation in specific cases and issues. The understanding of transition dynamics in social systems requires a holistic view on the interaction between human and non-human aspects (not only social, cultural, institutional, and political<sup>4</sup>, but also economic, ecological, and technological).<sup>5</sup> Guidance and governance are essential for sustainability transitions. (Smith et al., 2005)

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<sup>2</sup> Technically, self-organization means that subsystems maintain themselves by capturing energy from the larger system and by dissipating some of that energy back into their environment to sustain themselves through time (Prigogine and Stengers, 1984).

<sup>3</sup> Complex systems are systems in which the components exhibit dependencies such that the system as a whole has properties that “emerge” and cannot be explained as the sum of the constituent parts. (Holland, 1998) Complex systems *theory* focuses on the interactions among components of a system (including socio-ecological and socio-technical). It tends to highlight the potential for relatively small scale adjustments to a component or an interaction of components to create a ripple effect that can ultimately lead to large scale changes of the system as a whole. (Long, 2014)

<sup>4</sup> A sustainable transition is a normative and inherently political project. (Smith et al., 2005, Smith et al., 2010; Meadowcroft 2011)

<sup>5</sup> This distinguishes the field from other forms of transition research found in political science that focus predominantly on processes of change in and around governments and nation-states (e.g. power transition theory as found in international relations).

## 1.2 Transition management

Transition governance involves the deliberate adjustment of governance practices and societal institutions in order to maximise the opportunities for continued human progress along a sustainable trajectory. (Meadowcroft et al., 2005) Transition governance upgrades sustainability governance to a more pro-active and targeted effort for moving towards proven sustainability.

Transition management is a form of transition governance that aims to ‘resolve persistent problems in societal systems’, based on transition dynamics insights. It is “a new mode of governance for sustainable development” (Loorbach, 2007), which “tries to utilise the opportunities for transformation that are present in an existing system” by “joining in with ongoing dynamics rather than forcing changes” (Rotmans et al. 2001). Transition management is about understanding how actors (can) influence transition processes (Loorbach 2007) in an iterative, reflective<sup>6</sup> and explorative way of governing. (Frantzeskaki et al., 2012)

The ‘transition management cycle’ (Figure below) is a particular operational governance design that combines transition ‘arenas’<sup>7</sup> with various systemic transition instruments in a cyclical four-step transition management process (Loorbach 2007:115, Kemp et al. 2007). The transition management cycle serves to organise a participatory stakeholder-process that is aimed at envisioning, learning, and experimenting (Loorbach 2007:115) and that is focused upon long-term sustainable solutions (Loorbach and Rotmans, 2010).

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<sup>6</sup> For Meadowcroft, reflective governance is “a dynamic posture, oriented to exploiting the diffusion of power to promote adjustment of the development trajectory. It is about judicious interventions to channel social energies down pathways conducive to sustainability.” (2007: 20) Meadowcroft (2007: 310) further sees reflective governance as “extending an approach to governance that consciously employs interactions with other power centres to define and realise goals, and that encourages reflection (within government but also across society) about societal circumstances in order to reassess practices and adjust initiatives.”

<sup>7</sup> One of the most central elements in transition management concerns the set-up of a so-called transition arena: “a multi-actor governance instrument [that] intends to stimulate and coordinate innovation through creating shared (new) problem definitions and shared long-term goals”, consisting of “a virtual arena, an open and dynamic network in which different perspectives, different expectations, and different agendas are confronted, discussed and aligned where possible” (Loorbach 2007:132-133).

# Governance framework for dealing with transitions

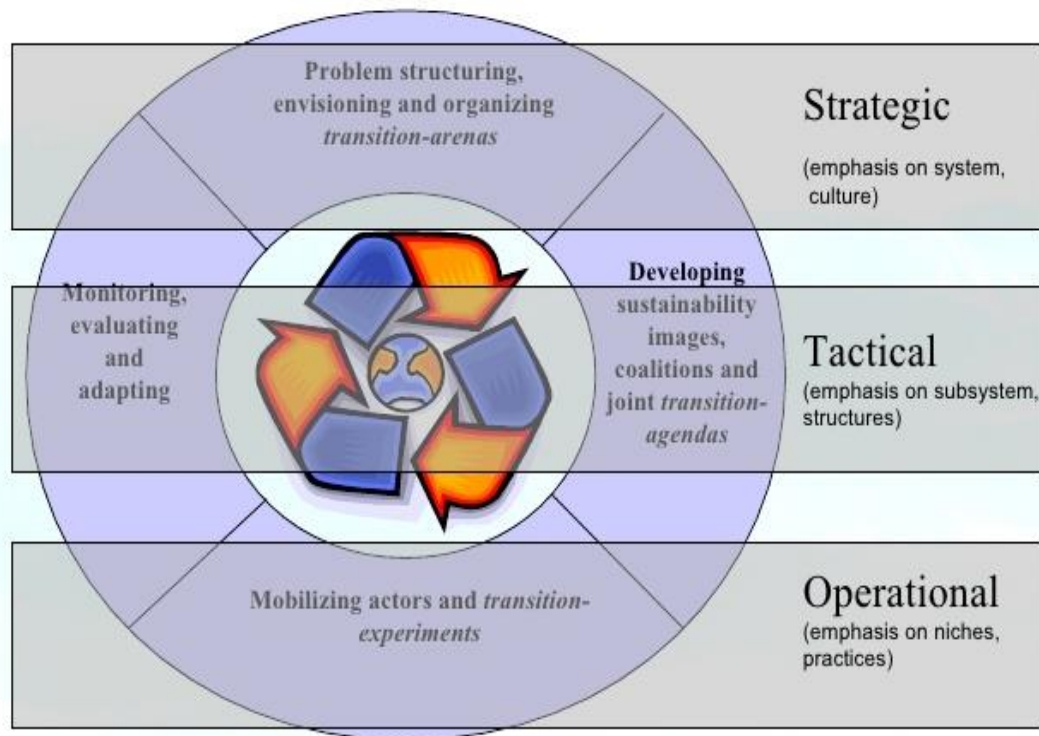


Figure 1 Transition management cycle

(Source: DRIFT, 2012)

Transition management considers traditional command and control governance unable to address persistent problems. Instead, one can ‘manage’ these problems in terms of adjusting and influencing the choices of both individual actors and the societal system by organizing a joint searching and learning process.

## 1.3 Analysing transitions: multi-level, multi-phase, and driving forces frameworks

In order to analyse transition dynamics, within transition theory the ‘multi-level’, ‘multi-phase’ and ‘multi-pattern’ frameworks were developed. (Grin et al., 2010)

### The multi-level frameworks

The static *multi-level framework* (Figure 2 below) is one of the most central concepts in transition studies (Geels 2005). The multi-level framework serves to analyse a transition process as an interaction between different levels of functional aggregation through time: the ‘Landscape’ (macro), ‘Regimes’ (meso), and ‘Niches’ (micro) levels.

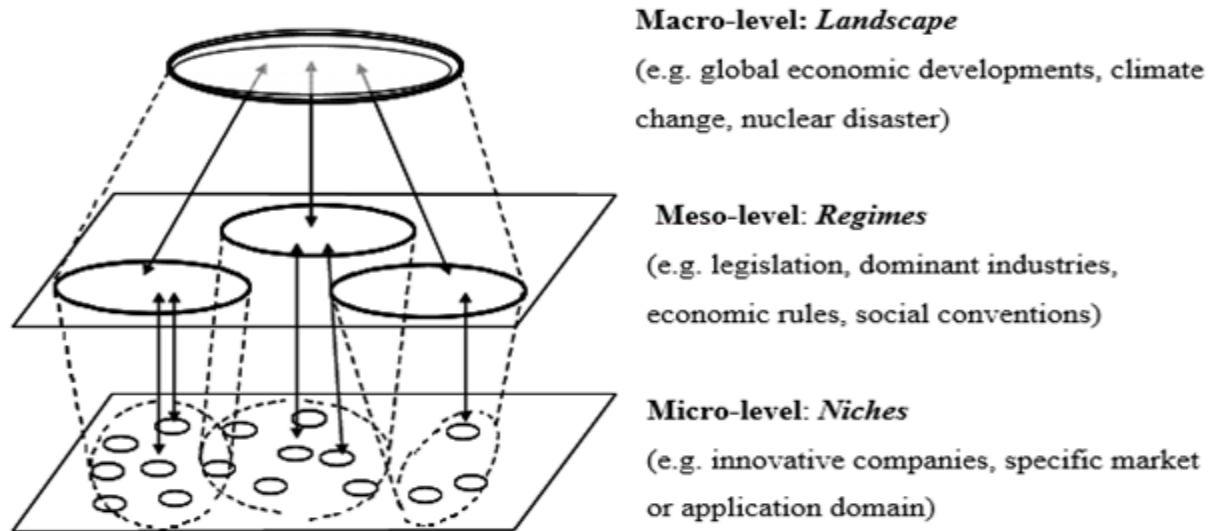


Figure 2 Static multi-level framework.

(Source: Geels and Kemp, 2000)

Besides the static multilevel framework, Geels (2002:1263) also developed a dynamic multi-level framework (Figure 3), which shows in more detail how the three levels interact dynamically in the unfolding of socio-technical transitions.

Increasing structuration  
of activities in local practices

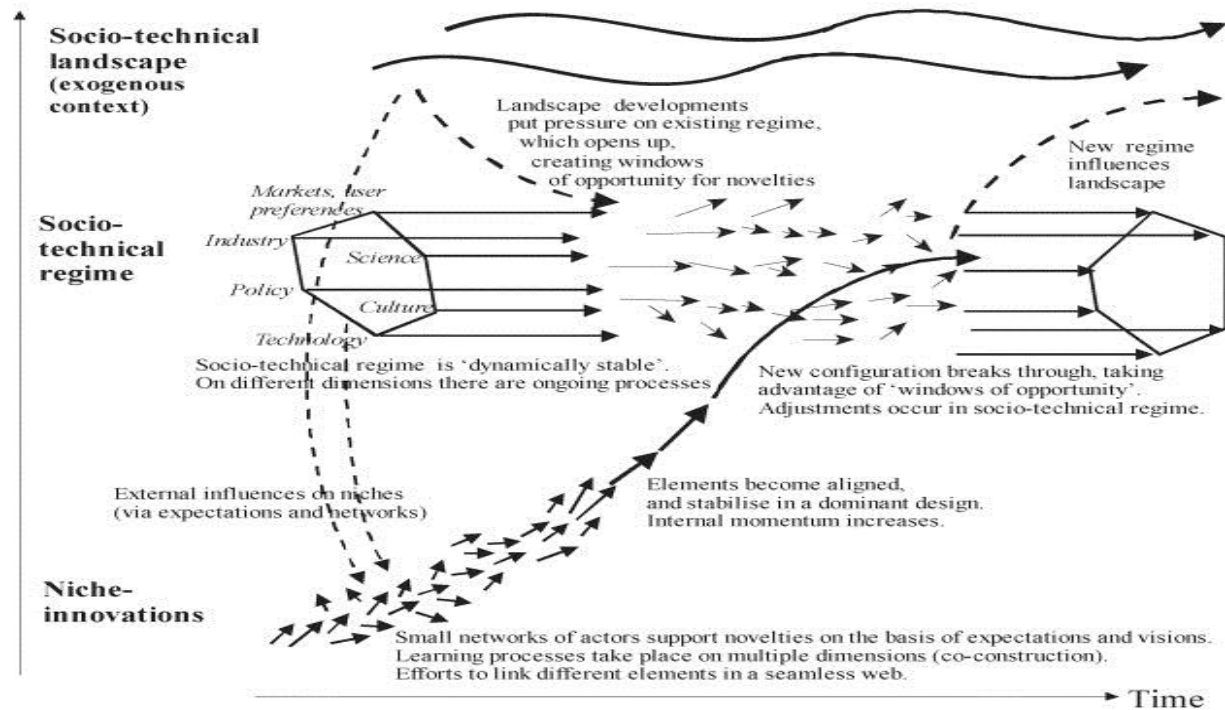


Figure 3 Dynamic multi-level framework.

(Source: Geels, 2002)

The transition theory concepts of 'Landscape', 'Regime' and 'Niche' will be described in the following and will be capitalised in the remainder of this book to distinguish them from the concept of 'landscape' in a geographical sense and from the regime concept in international relations.

The *Landscape* refers to the surroundings of a particular societal system under study, where one sees macro-trends with a relatively slow progress and developments with a high autonomous character.

In transition theory, the term *Regime* has a different meaning than in international relations and international law, and essentially is the most 'dominant' societal constellation. The Regime defends the status quo (e.g. fossil fuel industry) and is based on a set of rules that control the stable functioning of a societal system.

*Niches* refer to those arrangements in which non-conformism and innovation can develop. Niches are part of the societal system, but they can deviate from the dominant structures, cultures and practices within that system.

Niches can cluster (or network) outside of the Regime and form an emergent Regime or ‘Niche-Regime’.<sup>8</sup> Such a Niche-Regime can become more powerful as the incumbent Regime is weakening, and finally the Niche-Regime can take over the incumbent Regime. Niche-Regimes have the capacity to replace old resources by new ones and to transform the extant distribution of resources.

Because Regimes dominate the societal system, an important condition for a transition is that Regimes are either transformed or replaced by new Regimes. The idea in transition management is that the Regime resists radical change through incremental adaptation and innovation, similar to the process of autopoiesis. However, as top-down pressure from the Landscape and bottom-up influence from the Niche-level increase, the Regime starts breaking down. To this end, in transition management practice Niches are typically created and empowered as open, multi-actor networks. Such networks contain representatives of different sectors who are committed towards the transition goal and approach.

Processes within the regime can also lead to an integration of innovations from the niche level into the regime.<sup>9</sup> (Rotmans and Loorbach, 2010) In particular developments at ‘the edges’ of the regime can accelerate regime destabilization. (Bosman et al., 2014) For example, in the context of decarbonisation, transition management provides a framework for considering portfolios of policy measures that nurture low-carbon Niche developments and put pressure on dominant fossil fuel-based Regimes.

### **The multi-phase framework**

As changes during transitions accelerate and multiply, old Regime structures are replaced by new structures. Ultimately a new Regime is formed that replaces the old Regime. In this interaction between Regime, Niches, and Landscape various ‘phases’, ‘patterns’, and ‘pathways’ can be distinguished. (De Haan and Rotmans 2011)

Whereas sustainability transitions (e.g. decarbonisation) are urgently needed for

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<sup>8</sup> The ‘Niche-regime’ (‘empowered Niche’) refers to “a Niche that has grown powerful enough to gain a number of new characteristics, most important of which is the ability to attack (sometimes effectively) an incumbent regime (and therefore to potentially take over from it)” (Rotmans and Loorbach, 2010: 136). A Niche-regime is a group of actors that exercises *transformative power*; i.e. develops new structures and institutions.

<sup>9</sup> In the case of organizations undergoing environmental change, barriers external to an organization pose less of a problem than barriers that are internal in nature. (Post and Altma, 1994; Murillo-Luna et al., 2011)

achieving the SDGs, the social science literature seems to privilege stability over change. This can be related to a lacking dimension of time in much of the social science literature and the acceleration of global change which was at a lower speed when most currently dominant theories were crafted. Pollitt (2008: 7) claims that “political science in particular, but also social sciences more generally, have become increasingly decontextualised” and that “a prime form of this decontextualization was the loss of an explicit theoretical treatment of time”. If the dimension of time is taken into account – as transition theory does – then the occurrence of change (and novelty) and urgency can be better reflected in research.

The *multi-phase framework* in transition theory (see Figure 4 below) is an attempt to reflect the time dimensions of transitions and distinguishes four different phases:

- During the *pre-development* phase, changes occur at the Landscape and Niche level, and the Regime resists these changes.
- In the *take-off* phase structural change accelerates, and these changes put pressure on the Regime up to the point that it starts to break down.
- During the *acceleration* phase, structural change becomes visible as new structures replace old Regime structures.
- The *stabilization* phase implies a new state of equilibrium, in which a new Regime has replaced the old Regime. (Avelino and Rotmans, 2009)

Altogether, these phases describe an ideal-type transition that can be visualised through the so-called ‘S-curve’. ‘Non-ideal’ and ‘reverse’ transition paths can also occur (a *lock-in*, *back-lash*, or *system breakdown*<sup>10</sup>, showing that ‘un-learning’ can be involved in sustainability governance. (cf. Chistensen, 1997)

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<sup>10</sup> *Lock-in*: when “choices made in the past exclude different opportunities now, e.g. by ingrained behaviour or ideas”, *back-lash*: when the diversity of alternatives is too low and ‘too much is betted on the wrong horse’ (e.g. a ‘hype’), *system breakdown*: a dynamic equilibrium is disturbed without being re-established. (Rotmans 2005: 24)

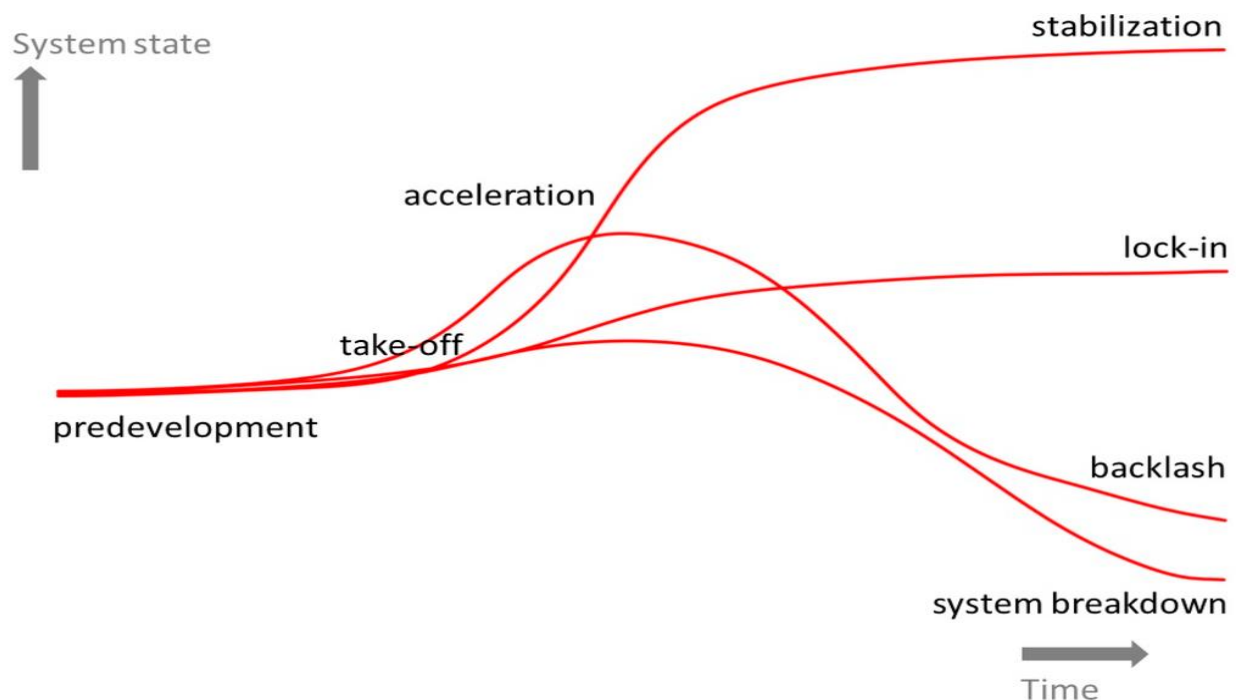


Figure 4 Multi-phase framework

(Source: Vandevyvere and Nevens, 2015)

## 1.4 The need for urban sustainability transitions

Cities are at the frontline of sustainability as they are vulnerable to ecological, socioeconomic, and political crises, and at the same time are hotbeds of innovation and experimentation. Based on the perspective of sustainability transitions (Grin et al. 2010), deeper and more fundamental shifts are required towards different cultures, structures, and practices that are inherently sustainable.

Currently, more than half the world's total population lives in cities (Crosette 2010), and the greatest demand for energy, food, water, buildings, waste management, healthcare, education, and other basic services is concentrated in and around cities. Cities are responsible for the largest proportion of environmental impacts. Almost 75 % of total resource consumption (Madlener and Sunak 2011) and emissions of greenhouse gas (GHG) emissions (Grimm et al. 2008) originate in cities. At the same time, cities are locations for sustainability innovation and societal progress and can even be considered as potential 'drivers' for sustainable development (Rotmans et al. 2000) or 'hubs' for radical sustainability innovation (Ernstson et al. 2010; Bulkely et al. 2012).

Many cities indeed put substantial efforts into developing new urban energy solutions, which range from stimulating energy efficiency, to diffusing renewable technologies, to developing waste-heat systems or smart grids. Cities are in this way providing space for radical alternatives to the dominant fossil fuel-based and centralised energy system, thereby becoming important change agents in transitions. As such, cities can act as facilitators of sustainability transitions, in terms of committing to long-term investments in sustainable socio-technological (infra)structures that create space for the emergence of more sustainable alternatives (Loorbach et al. 2010).

## 1.5 Olympic Games and urban sustainability transitions: the centrality of infrastructure

In line with transition thinking, hosting the Games can enhance fundamental structural changes in cities and regions. The most significant long-term changes which take place in an Olympic host city are the construction or upgrading of new sports and multi-functional venues as well as the modernisation of the transport systems and other infrastructures (water treatment, power supply and distribution, etc.). These long-term changes can take various forms: new roads and tram lines, better public transport systems, etc.

Several examples in Olympic history show that hosting the Games became the opportunity to undertake extensive urban renewal. In some cases, the Olympic Games have allowed entirely run-down areas to be upgraded. In Barcelona, the renovation of the seafront area, a stretch of 5.2 km of coastal landscape, was transformed and now offers attractive leisure and recreation opportunities for visitors and residents alike.

Thus, a major part of sustainability transitions that are caused by the Olympic Games is due to the development of infrastructure, in particular public transportation. Currently, the main objective of most host cities and governments, and other stakeholders involved in the Olympic Games and other major events is to avoid ‘white elephants’ and to think well in advance about the future of buildings and other infrastructures. The idea is to transform them from an iconic venue designed for a specific event into a daily working, living and leisure attraction pole that will participate in the regeneration of an entire urban area.

To achieve that, every actor involved in the design, construction and management of major sports infrastructure must think long-term (10 to 50 years). They also have to plan their

integration within the local “ecosystem”, think about how they can boost business and activities, how they can help restructure a whole urban fabric. The idea is to build flexible and open infrastructure which will not only shine during a limited amount of time, but which will also have a real sustainable impact.

By one estimate a total of US\$ 57 trillion is needed globally by 2030, or US\$ 3.4 trillion per year, for infrastructure investment. (S&P, 2014) Yet there is currently a finance gap to meet this demand of US\$ 500 billion per year. (ibid.) Governments are therefore increasingly looking for mechanisms to close this gap, crowd-in private finance, and improve efficiency and effectiveness of infrastructure projects. Innovative approaches to infrastructure, finance, and sustainable public procurement will be critical to their success. (Casier, 2015)

Infrastructure appears both as an explicit goal and as an implicit means to implement and achieve other SDGs. SDG 9 — Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation — is the most direct call for increased investment in sustainable infrastructure. Annex 2 gives an over view of the targets under SDG9. But, implicitly, infrastructure development will also play an important role in many other SDGs: SDG 1, SDG 2, SDG 6, SDG 7, SDG 11, SDG 13, and SDG 17.

## 2. The science dimension: the role of evaluations and impact assessments

### 2.1 Background to the Games OGI Report

The IOC embraced the environment as the third pillar of Olympism along with sport and culture at its Centenary Congress in 1994 and the Olympic Charter was further amended in 1996 to commit the movement to “sustainable development”. Thus the Olympic movement sought to promote sustainable practice, positive action and changed attitudes within the whole sporting community within the context of Olympism.

Principles derived from the 1992 Rio Earth Summit also found resonant echoes in the dealings between the IOC and the host cities. In 1994, future candidate cities had to show how their proposals addressed the goal of sustainability, with the IOC’s own Agenda 21 document introduced in 1999. By this time, too, the hosts for Sydney 2000 were also looking to create a “Green Games”.

The emergent emphasis on sustainability was formalised in the criteria used for the Olympic Games Global Impact (OGGI) programme, which the IOC introduced in 2003 and which was renamed the Olympic Games Impact Study (OGI) in 2007.

The Olympic Games Impact Study (OGI) was born from the International Olympic Committee’s (IOC) desire to develop an objective and scientific analysis of the impact of each edition of the Games. The study provides a record of both individual nature of each Olympiad and its host context. The IOC receives the OGI reports and by this means the IOC can build up a detailed and tangible information base on the effects and legacy of each Games. In turn this will allow the IOC to fulfil two of its principal objectives as enshrined in the Olympic Charter, to:

- Encourage and support a responsible concern for environmental issues, to promote sustainable development in sport, and require that the Olympic Games are held accordingly;

- Promote a positive legacy from the Olympic Games for the Host Cities and Host Countries.

Based on the analysis of impacts from each OGI study, the IOC will integrate appropriate changes to maintain the long-term viability of the Games in keeping with the ideals of the Olympic Movement. These will be fed into IOC guidelines and processes, thus forming the framework for future Games organisers.

The study was first introduced into the formal Games planning requirements for the Vancouver 2010 Winter Olympic Games and Paralympic Games. London was the first Host City of the Olympiad to be mandated to carry out the study.

It is important to look into the OGI in more detail as in fact, the OGI can be seen as a description of the sustainability transitions that are targeted by the organizers of the Olympic Games (and an assessment of the negative impacts of the Games).

## Overview of Olympic Games Impact Study (OGI)

OGI is based on a set of 120 defined indicators spread across the three internationally recognised areas of sustainable development: economic, socio-cultural, and environmental. This is not a predictive study of potential impacts; the indicators allow the observation of trends and outcomes of hosting the Games. Indicators can be categorised into context (C ) and event (E ) indicators. An indicator is referred to as a context indicator if what it measures relates more to the environment in which the Games will be staged, the general context, a broader scale or is not directly related to the Games. An indicator is referred to as an event indicator if what it measures is directly related to the Games, or it is highly probable that the staging of the Games will have an impact upon what is to be measured by that indicator.

The indicators draw upon data from a maximum period of 12 years, commencing two years prior to the Host City election, and continuing through to three years after the Games.

## Latest developments: the end of OGI?

It should be noted that in 2016, the IOC dropped the OGI which was in progress for the Tokyo 2020 Games. The reason is that the IOC now gives precedence to legacy over sustainability. The

concept of ‘legacy’ surpasses sustainability as the guiding framework for considering urban outcomes in the context of the Olympic Games. Best understood as being as something passed from one generation to the next although not necessarily purposefully, legacy was always a loosely defined and all-embracing concept. A seminar organized by the IOC in 2002 defined it as having:

*many aspects and dimensions, ranging from the more commonly recognised aspects—architecture, urban planning, city marketing, sports infrastructures, economic and tourist development—to others.... that are less well recognised... the so called intangible legacies, such as production of ideas and cultural values, intercultural and non-exclusionary experiences... popular memory, education, archives, collective effort and voluntarism, new sport practitioners ... experience and know-how.*

The permissive looseness of this definition allowed legacy to become a notion that was sufficiently flexible to provide an all-inclusive framework that was able to embrace, with equal facility, outcomes that could be tangible and intangible, planned and unplanned, direct and indirect, short- and long-term, and positive and negative. In 2003, the Olympic Charter was amended to require the IOC to take measures to “promote a positive legacy from the Olympic Games to the host city and the host country”. Cities now had to show not just that their proposals would have sustainable consequences but also that they would leave a positive legacy. Yet “legacy” perforce suffers from the characteristics of most comprehensive notions, especially in terms of being vague, easily manipulated to suit different ideologies and, in the case of the Olympics, to fit into different meta-narratives of urban development. Moreover while legacy and sustainability remain distinct entities in Olympic terminology there are substantial areas of overlap with legacy looking to be sustainable in social, economic or environmental terms and sustainability aiming to leave a legacy in terms of on-going attitudes and behaviours. The two concepts act as filters for visions of post Games transformation or those urban areas most affected by the Games.

## 2.2 Objectives of Sustainability Impact Assessments (SIAs) in general and of the OGs in particular

Evaluation of the impacts of the Games based on scientific data collection and objective monitoring will help the IOC and the Olympic delivery bodies (the Local Olympic Games Organizing Committee, the City authority, and the State) to make informed decisions and avoid the pitfalls outlined above that are implied in the hosting of the games. Such an examination exercise could prove to be valuable both for the Tokyo Olympic Games and for subsequent global events. The Games, with its global commitment and heightened civic engagement, provide a unique momentum for the wide-range of stakeholders to work together to achieve the SDGs on the city and national levels.

Objectives of SIAs generally are:

- Good governance:
  - inter-dependencies of policy fields
  - address effects of planned action at early stage
- Policy integration: integration of different policies, identify synergies and trade-offs
- Transparency:
  - decision-making process more open/transparent
  - identify underlying assumptions, interests, motivations, etc
- Participation:
  - include stakeholders -> discussion of different view points
  - foster policy learning and capacity-building
- Efficiency:
  - objectives met at least costs
  - avoid unnecessary bureaucracy

A Sustainability Impact Assessment (SIA) is crucial for policy integration and for improving policy decisions. Impact Assessment can improve and structure the knowledge base for the three basic (or more) dimensions of SD and make trade-offs transparent, while it remains in the

political sphere to weigh up and decide for an alternative presented. IA has to be established as a governance procedure, and its scope of application has to be broadened to all major decisions.

### 3. Experience with previous and upcoming Games

#### 3.1 Lillehammer 1994

Environmental considerations and more general concerns for sustainable development took on a new dimension with the Olympic Winter Games in Lillehammer in 1994. These were the first “ecological” Games, although this statement owes much to a successful pro-active communication strategy. Since then, sustainable development has tended to take on growing importance among the concerns and strategies of event organisers. The Lillehammer Games were the first Olympic Winter Games to initiate and implement a comprehensive, co-operative environmental programme.

#### 3.2 Sydney 2000

A significant turning point in the “greening” of the Games took place in 1993 when the Sydney 2000 Games Bid Committee released the Environmental Guidelines for the Summer Olympic Games prior to winning the right to host the Games of the XXVII Olympiad. These guidelines not only served as a great selling argument by convincing many IOC members to choose Sydney as the host city, but also guided much of the Games planning and preparation as well as produced an environmental legacy for all future editions of the Olympic Games.

Dubbed the “Green Games”, the Sydney 2000 Olympic Games were the most ecologically responsible in history. Various environmentally friendly technologies and processes were incorporated into the planning and operations stages. Wide spread use of solar energy at the Olympic Village and low emission public transport were but a few examples. These Games were used as an innovative platform to showcase some of the latest developments in green technologies.

The transformation of the Homebush Bay area from a polluted, industrial wasteland to a revitalised complex of venues, wetlands and parklands by the NSW State Government is one of

the most notable environmental achievements, and legacies, of the Sydney 2000 Olympic Games (Balderstone 2001).

Attempts at a wide consultation process were made with the setting up of the Homebush Bay Environmental Reference Group to provide advice on the remediation programmes at Sydney Olympic Park and surrounding areas. It contained community groups, environmental organisations and academics and technicians.

Green groups such as Greenpeace were involved from the early stage of the bid and were then integrated into the overall planning of the Games. This not only helped Sydney to win the bidding contest to host the 2000 Games, but it had some very concrete effects on the organisation of the Games. Environmentalists took an active part in the drafting of the “Environmental Guidelines” adopted by the organising committee.

Also important to note is the involvement of sponsors in the Sydney environmental strategy. Several of them adopted green initiatives and showcased them during the Games. Green groups such as Greenpeace and an environmental watchdog called Green Games Watch 2000 encouraged Games sponsors to go over and above their normal procedures in areas such as recycling, waste management, lighting systems, CFC-free cooling systems, etc.

On World Environment Day 2001 the United Nations awarded Sydney the Global 500 Award for environmental excellence. Even the hard to please green movement gave grudging praise. Indeed the adoption by the Sydney organisers of the “Environmental guidelines for the Summer Olympics” has established a new and high standard of environmental performance for future major events. This genuine commitment and full integration of environmental concerns paved the way to success as well as a partnership approach which emphasised education, training and communication (Doikos et al. 2001).

### 3.3 Beijing 2008

The 2008 Olympics represented a major way for China to signal the country's opening up policy. Alongside this important effort in public diplomacy, the Games catalyzed a major project of urban transformation and new infrastructure development in the capital city. Most of the capital invested in the 2008 Olympics was in fact spent on infrastructure, which has helped shape and

foster a greater environmental awareness among the public and was an opportunity to showcase China's commitment to growing in an environmentally sustainable manner.

The Beijing Olympics highlighted a number of environmental issues, including the city's poor air quality. During the bid phase in 2000, Beijing set ambitious goals to improve the city's environment. The goals ranged from addressing air and water quality and waste management to introducing environmental considerations in the development of new infrastructure.

Initiatives to improve air quality and reduce air pollution included the relocation and retrofitting of major polluting industries, restrictions on construction sites, conversion of coal burning boilers to cleaner fuels like natural gas and the implementation of vehicle emissions standards within the city. In addition, Beijing vastly expanded its transportation infrastructure to improve local, regional, national and international connections. The improvement in public transport continues to help millions in their daily commute and has helped reduce the amount of automobile pollution since the conclusion of the Olympic games.

In addition, Beijing significantly upgraded its wastewater treatment and sewage network capacity. A variety of water saving schemes and rainwater collection and re-use systems were implemented in the Olympic Village and competition venues. The city also made efforts to improve the quality and availability of clean drinking water, placing the protection of drinking water reservoirs high on the agenda. Beijing also implemented an improved waste processing system throughout the city in preparation for the Olympics that still benefits the city today.

Beijing 2008 shows how a mega-event can have a significant impact on urban infrastructure and livability provided that it is properly integrated in an already existing programme of infrastructure, technology and policy roadmap development.

### 3.4 London 2012

The London 2012 Games have had a permanent effect on the International Olympic Committee's (IOC) view of legacy. The real lesson of London 2012 is that legacy is about working with existing thinking, not cutting across it. Putting the Games in East London meant that they could produce a legacy consistent with established plans to regenerate the area. Olympic candidate cities now have to show that they are planning a sustainable legacy that chimes with the city's existing ambitions and aspirations.

London 2012 was a 'mega-event' as it was big enough to have a transformative effect on the city in which it takes place.

Following London 2012, host cities are required to show that they have minimised the climate change effect of the event they are proposing, and that they have organisational, governance and financial structures in place for the period of the event itself and beyond. This approach is known in IOC circles as 'additionality' – the idea that the Olympics can make it quicker and simpler for a city to achieve its existing aims.

Another example from London 2012 is transport in East London. The Olympics meant that the Docklands Light Railway got a new line, the London Overground was revamped and the Underground refurbished. As a result, about £6.5 billion of investment took place that would otherwise have taken a decade longer to complete.

This spending will have brought a substantial economic benefit to London and to the UK as a whole. But this example illustrates a more general problem with measuring legacy. You can only measure the legacy against a counterfactual idea of what would have happened without the Games, and a city such as London changes all the time.

### 3.4 Tokyo 2020

The High-level Sustainability Plan is the framework outlining the basic approach for ensuring sustainability in Games preparations and operations. The Fundamental Principles for the Sustainable Sourcing Code will ensure the sustainable sourcing of products and services deemed vital to the successful delivery of the Tokyo 2020 Games with full consideration given to of economic rationality, fairness and equity.

These two documents together provide a framework for ensuring sustainability from the planning stage onwards, but there is also plenty of scope for further development through the collection of ideas, opinions and information from various delivery partners, such as the Tokyo Metropolitan Government, the national government, private entities, and NGOs/NPOs.

For Tokyo, organizers are trying to come up with new ways to make the games sustainable, through such projects as recycling metals from discarded cellphones into the medals awarded to Olympic athletes.

The organizing committee has already decided to power the Olympic Village with hydrogen, which is cleaner than traditional sources of power, and plans to use fuel-cell cars powered by hydrogen. Projects are underway to reduce waste from food to be served in the Olympic village and recycle dinnerware and wooden interior materials.

### 3.5 Paris 2024

Paris 2024 will be the first ever Olympic and Paralympic candidate city to be awarded the internationally-recognized ISO 20121 best-practice standard which is awarded to event organizers that are able to guarantee sustainable management of major global events. The certification highlights the best-practice approach the Paris 2024 bid team has taken to ensure sustainability. Several strong points were identified during the certification, particularly the strength of the dialogue with stakeholders. Since the very beginning of the project, Paris 2024 has established strong values such as inclusion, integrity and transparency.

During the audit process, the certification company identified four key areas of sustainable responsible event planning, at which the Paris 2024 Organizing Committee has excelled. These were:

- Social consultation – Paris 2024 has consulted with a number of social development bodies (NGOs, Unions, Civil Society, political parties) on every aspect of its bid, ensuring sustainable and responsible planning
- Commitment to stakeholders – including schools, public sector, sports entities, private companies (17 of Paris 2024’s corporate partners all offer innovative services to ensuring a progressive, sustainable bid as referenced on [parcoursdurable.paris2024.org](https://parcoursdurable.paris2024.org))
- Governance – Paris 2024’s bid is built upon an ingrained code of ethics which practices financial transparency, environmental responsibility and sustainable innovation
- Legacy – the Paris 2024 Games will leave a lasting legacy for the people of France, with more sport, sustainable projects, and social enterprises than ever before.

Leadership in Paris has been driving this effort within a wider context. 2016 also saw Paris Mayor, Anne Hidalgo, elected President of the C40 Cities Climate Leadership Group, while just three months ago, Paris picked up a prestigious C40 Cities Award, recognizing it as one of the world’s most innovative cities tackling climate change.

Paris 2024's concept also promises that 100% of spectators will travel by public transport during the Games, contributing to a 55% smaller carbon footprint than London 2012, which currently stands as the most sustainable Games to date.

The [Paris 2024](#) Olympics bid committee promises to host the "Greenest Games Ever" by slashing carbon emissions by more than half compared to London 2012 and Rio 2016.



Figure 5 Carbon footprint of the 2024 Paris Games

The Paris 2024 bid committee said the Games would produce an estimated 1.56 million tons of carbon dioxide (CO<sub>2</sub>) emissions, down 55 percent from the roughly 3.4 million tons created by the Rio and the London Games (Figure 5). Here are some key ways Paris plans to meet those aggressive targets:

- Rely on existing venues and temporary structures.
- The only major new venue scheduled to be constructed is an aquatics center.
- Build the aquatics center as well as the temporary facilities with low carbon materials.

- Following in the footsteps of EURO 2016 (hosted by France), greatly restrict private car parking at the Olympic venues. This will lead 100 percent of fans to use public or shared transit. Metro, commuter rail, bus transit, bicycles and car sharing will predominate.
- House 85 percent of athletes within 30 minutes of their competition venues, limiting their travel-related footprint.
- Use existing infrastructure.

Low carbon and eco-designed buildings in the Olympic and Paralympic Village, a model of sustainable development, will ensure the impact of construction represents less than 30% of the total. The Village will target the use of 100% renewable energy and will have a strong zero waste policy. A fleet of zero emission vehicles for the entire Olympic and Paralympic Family and the use of temporary infrastructure during Games-Time will help reduce the running of the Games to less than a quarter of the total impact.

The Paris 2024 Olympic and Paralympic Bid Committee is also leading an ambitious carbon offsetting policy at both a national and international level and is on track to become the first carbon neutral Olympic and Paralympic bid campaign thanks to its action with the Caisse des Depots et Consignations - Paris 2024 Official Sponsor, who is neutralising the bid's carbon emissions. This sits alongside its strategic partnership with WWF France via a dedicated environmental committee.

This builds on a strong year for the city of Paris, which has further established itself as a global leader in environmental initiatives and at the forefront of the fight against climate change. In 2016 Paris beat 125 cities to be crowned World Wildlife Fund (WWF) Global Earth Hour City after it was judged a role model on climate action by an expert international jury. 2016 was also the year that saw Paris Mayor, Anne Hidalgo, elected President of the C40 Cities Climate Leadership Group, a network of the 85 biggest global cities, which work together to create sustainable and liveable cities for citizens.

## 4. Recommendations: envisioning, systems thinking, and deliberation as critical competencies for coherence

From the series of workshops organized by the University of Geneva and Keio University, one issue that clearly came forward was the need for more coherence and integrated planning.

‘Integrated manner’ and coherence in this context covers the dimensions of

- time (assessing impacts along the full process so from the bidding process into the legacy of the event, and comparing baseline scenarios with actual outcomes);
- substance (take a systems approach to the economic, environmental, and social dimensions of sustainable development and to different sectors and topic areas such as infrastructure and innovation/water-energy-food nexus);
- human capacity (competencies of stakeholders);
- considering the Sustainable Development Goals (SDG) framework as a basis for an improved sustainability assessment methodology. This facilitates replicating the lessons learned and the comparability of any methodology so that it can be more easily applied to other major events;
- integrating transition evaluations in practice and policy making (i.e. consideration of the evaluation in planning and legacy processes), so that the result of a sustainability evaluation does not just produce another report but has a positive impact in the real world (strengthening the science-policy interface); and
- collaboration: partnerships between various stakeholders.

This section suggest four ways which could promote increased governance coherence and collaboration: envisioning, systems thinking, deliberation, strengthening science-policy interface.

### 4.1 Envisioning

Envisioning is a process in which participants identify values, describe the future they seek, and develop a plan to achieve goals (Meadows, 1996). Envisioning complements

traditional forms of planning, serving as a tool for determining common needs and desires and initiating the process of organisational change. By focusing on shared values and long-term goals, envisioning exercises among different actors can result in a surprising amount of consensus while avoiding the divisiveness and polarisation that often challenge open-ended discussions on governance (Pollock et al., 2009). Mebratu (1998) sees visioning as “the most powerful tool for escaping from the confines of ideas and paradigms that lock us into many undesirable patterns of behaviour and practice”<sup>11</sup>. While its roots lie in local government and business planning, it is equally effective at the institutional level (Costanza, 2000). In this project, interviews will be employed to expand the visioning process to the participants (Sharp, 2002; Solop, 2001).

Envisioning can fail if the focus remains mainly on processes rather than on identifying specific outcomes (Helling, 1998). Envisioning is often done concurrently with more traditional and hierarchical planning processes (such as results-based management), and is generally seen only as a guiding tool. This can limit its ability to effect change in the highly political arena of global governance and decision making.

Visioning is important for breaking through the common ‘is-versus-ought’ thinking in social science. By studying sustainability governance in the context of how things can be, it will approach the key parameters in terms of pragmatism and transformative capacity. Visioning will be used as a tool to assess the potential for governance to contribute to sustainability solutions. According to Meadows (1994: 43), “a vision should be judged by the clarity of its values, not by the clarity of its implementation path”. For Meadows, planning based on models and information precedes implementation, and vision precedes planning.

In organizing the Olympic Games, as early as the master plan, it is essential to have a vision of the next decades ahead, to anticipate the transformation and the adaptation of the infrastructure and imagine how they can be fully engaged with local surroundings, entirely barrier-free and perfectly connected to local populations and the rest of the city. The longer-term commitment also means that the regeneration of areas enabled by new sports infrastructure has to be incorporated in an overall urbanization plan including the whole metropolitan area.

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<sup>11</sup> This does not mean that vision always leads to desirable outcomes; in history there have been numerous destructive events based on individual and collective ‘vision’.

Girginov and Hills (2008) point out that there is a dearth of information on the actual process of envisioning, framing, and implementing Olympic legacies. However there are two frameworks (Hiller, 1998; Preuss, 2007), which are useful because they eschew the simple categorizations of impact into the three spheres of sustainability. Hiller's framework (1998) distinguishes three types of linkages, or effects, of mega-events – forward linkages (effects caused by the event), backward linkages (background objectives that rationalize the event), and parallel linkages (side effects that are residual to the event itself and not directly under the control of event organizers). Forward linkages tend to dominate the literature because they are the first to be identified and are often represented in quantifiable terms; however, it is the backward and parallel linkages that speak to the kinds of policy consolidation efforts that provide a more balanced and comprehensive perspective of impacts.

Future efforts should also include Preuss' framework (2007), which presents a “legacy cube” that situates impacts (infrastructure, knowledge, image, emotions, networks, culture) in an intersection of three dimensions of mega sport legacy – planned/unplanned, positive/negative, and tangible/intangible. The legacy cube can be used for a particular time and space (e.g., planned infrastructure impacts that are positive and tangible in 2010 in Vancouver), but several legacy cubes would need to be considered for different times and spaces.

## 4.2 Systems thinking

### **The benefits of systems thinking in governance: the example of the SDGs**

Systems thinking can assist in viewing complex systems from a broad perspective that includes seeing overall structures, patterns and cycles in a system, rather than only individual events. Systems thinking is suggested here as an important way to address complexity in governance for the SDGs. The systems thinking approach is a perspective which views an event or a system in a holistic manner by placing explicit emphasis on the relationships and interactions between its various elements and constituents (Senge, 1990; Finger et al., 2005). System-level problems, such as the ones that many SDGs aim to address, require “a different policy approach: a long-term, integrated approach addressing problems of uncertainty<sup>12</sup>,

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<sup>12</sup> As Frantzeskaki (2011: 3) explains, there is a difference between complexity and uncertainty when referring to systems and their processes: “Complexity refers to the characteristic of the subsystems of a system and it is a property of the system. When we know the subsystems and functions of a system but its interdependencies and processes are too nested and too intertwined to disentangle, the system is characterized as complex. Uncertainty

complexity, and interdependence” (Kemp and Loorbach, 2003: 3). This makes strong policy coordination necessary that can integrate innovation, economic, environmental and other policy areas. (Scrase and Smith, 2009: 718)

Thinking systemically is performed through a dynamic cycle of action, observation/reflection and consultation among stakeholders. It means thinking about the different aspects of a system or process, and integrating all the dimensions and their interactions: “[a] central principle of system dynamics is to examine issues from multiple perspectives; to expand the boundaries of our mental models, to consider the most important long-term consequences [ . . . ] including their [economic,] environmental, [social,] cultural and moral implications” (Sterman and Booth Sweeney 2002: 32).

Systems thinking enables breaking down complexity into sub-systems and exploring interlinked information loops of feed-back and feed-forward. Systems thinking both allows for and necessitates crafting the procedural and substantive conceptual framework which is envisioned in this book. Systems thinking further offers a framework for distinguishing exogenous and systemic forces for transitions.<sup>13</sup>

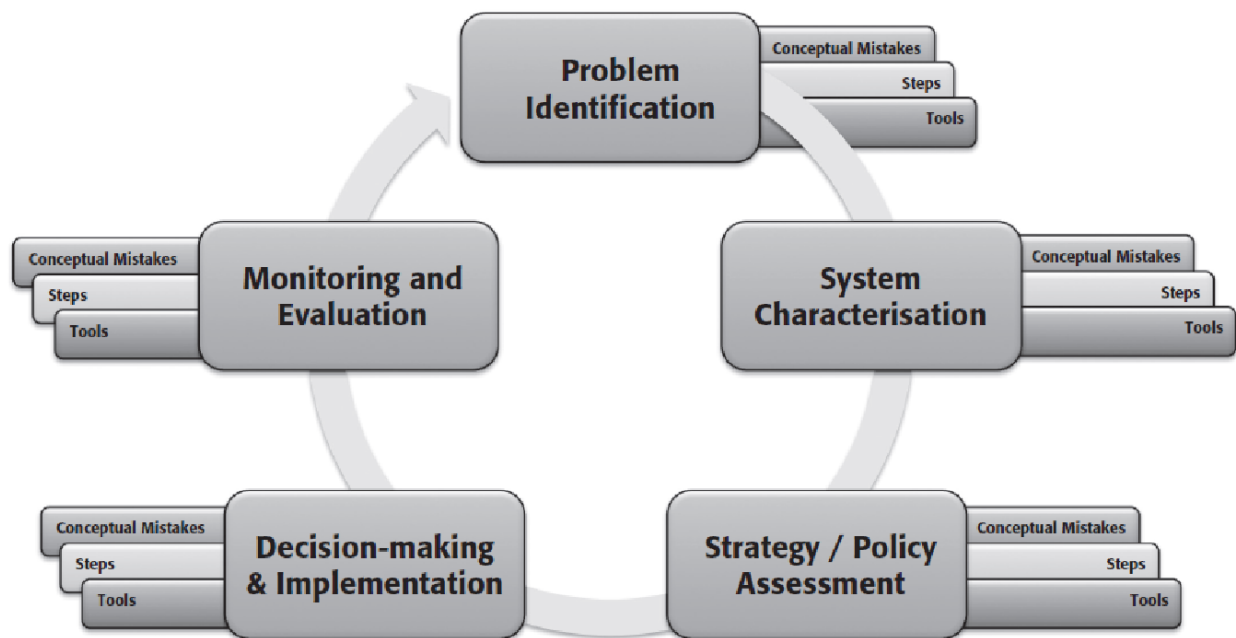
### **A structured method for (collective) systems thinking**

Probst and Bassi (2014) discuss systems approaches to complexity governance and propose a decision-making cycle which is very similar to the experimentalist governance and the transition management cycle in terms of the problem identification, decision-making and monitoring steps. However, Probst and Bassi add two steps in the process: system characterization and strategy/policy assessment (see Figure 6 below).

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refers to the inability to foresee how processes or phenomena will develop over the long-term and/or the unknowability of these processes. The distinction between complexity and uncertainty relies on the dimension of time: uncertainty relates to the time dimension whereas complexity as a property is indifferent or, better, unrelated to time.”

<sup>13</sup> Systemic forces are exercised and/or act within the system, while exogenous forces are present and exercised upon the system (from outside the system).



*Figure 6 The decision-making process based on systems thinking.*

*(Source: Probst and Bassi, 2014)*

The first additional step, system characterization, is needed for going beyond simple causal models to solve complex problems. (Damer, 2009) Decision makers across different sectors and expertises need to engage continuously and effectively in order to avoid overlooking the dynamic complexity of the SDGs. Instead of only taking a snapshot of the actual state of a complex system, an appreciation of its dynamism should include assessing the relation between the stock (history) and flows (constant modifications) of that system. This can be done by identifying and isolating the different components of a system, finding the causal relations between them (e.g. by building a causal loop diagram), and understanding the ways in which these relations (in terms of feedback loops) govern the total system's behaviour in the face of a problem. Systems thinking encourages identifying causes and effects across a sustainability problem's social, economic and environmental dimensions. The shared understanding thus gained should lead to more effective and targeted governance interventions which take relevant governance drivers and barriers into account.

The second additional step, strategy or policy assessment, should be based on the premise that “the system always kicks back” (Gall, 1986: 27)<sup>14</sup>, that governance of complex systems should be adaptive, and that solutions should take into account a system’s learning capabilities. Carrying out an integrated assessment of strategies and policies can be done in three steps (Probst and Bassi, 2014):

1. Designing potential interventions (based on the system characterization and in the form of investments, (dis)incentives (e.g. taxes and subsidies) and regulations/standards);
2. Assessing interventions (e.g. through scenario building and envisioning
3. Selecting effective and efficient intervention options (e.g. through a cost-benefit or multi-criteria<sup>15</sup> analysis) and indicators.

## 4.3 Involvement of stakeholders, inclusiveness (systems deliberation)

### 4.3.1 Why deliberate with citizens?

Addressing the SDGs in the context of the OGs is also a means to assist in developing a common understanding among different stakeholders, most importantly among citizens. Deliberation in this context is a “collaborative process of identifying and weighing policy options with a view to establishing priorities and articulating a direction for action” (Gollagher and Hartz-Karp, 2013: 2347). Involving everyday citizens through deliberation in decisions on planning for the OGs is appropriate for three main reasons. First, determining trade-offs between issues such as environmental, economic and social impacts cannot usually be based purely on technical and economic data as such judgements involve ethical and political decisions (for example, who gets or pays how much for what?). The SDG approach highlights the need to address interconnected policy sectors and resource systems not in isolation but through integrated management

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<sup>14</sup> [http://books.google.ch/books/about/Systemantics.html?id=DT4mAQAAAJ&redir\\_esc=y](http://books.google.ch/books/about/Systemantics.html?id=DT4mAQAAAJ&redir_esc=y)

<sup>15</sup> E.g. the costs of inaction in terms of economic, biophysical, social and cultural damage across the different systems elements.

approaches that cut across multiple domains. Secondly, mega events often result in high levels of risk and uncertainty and so it is important to engage citizens collectively to determine the level of risk that they find acceptable within their specific circumstances. Further, where behavioural change is required, imposed decisions are less likely to be accepted than collaborative decisions, which are owned and honoured by all. Bringing citizens along as collaborators, therefore, strengthens governance of the OGs, and ownership of decisions is more likely to lead to collaborative action.

When defining major groups that need to be engaged to participate for sustainable outcomes, international organizations and governments usually identify categories which silos women, children, indigenous people, local authorities, farmers etc. In doing so, there is an absence of understanding the value of bringing a microcosm of a population together including those already-engaged and currently-unengaged. A microcosm delivers diversity, essential for effective deliberation, and collective ownership of decisions based on this co-intelligence. As Hartz-Karp argues, “...we need everyday people to have the capacity and opportunity to help generate the public wisdom needed to address the tough, often ‘wicked’ problems that face us... the only way we can shift into a sustainable future is through new technologies of cooperation... deliberative democracy is such a technology” (2012, p.4).

Furthermore, Hajer et al. (2015) argue that what should be avoided is “cockpit-ism”, i.e. the illusion that top-down steering from governments and intergovernmental organizations alone can address global problems and achieve the SDGs. In addition to action from governments, agents such as business, cities, and civil society needs to be mobilized. Concepts such as the “energetic society” (e.g. through local renewable energy generation by citizens and the provision of knowledge through citizen science) may be helpful to realize the transformative potential of the SDGs (ibid.).

An important benefit of more participatory forms of governance is that people are more likely to accept energy policies if they believe that the decision-making process is fair, and if they feel they are sufficiently involved in decision-making and that their interests are considered (Perlaviciute and Steg, 2014). Beyond information provision, higher levels of public involvement include active public engagement in decision-making (Devine-Wright, 2011). Whereas technocratic

top-down decision making processes inhibit public acceptability, collaborative approaches taking community concerns into account enhance acceptability and legitimacy (Wolsink and Breukers, 2010). Public engagement here means that people's opinions are seriously considered in decision-making and can have an actual impact on energy policies.

Beyond citizens, deliberation is important in communities of practice (CoPs). Mohtar and Lawford (2016) coin the term Nexus Community of Practice (NCoP). A CoP is “a group of people who share a craft or profession; it signifies a way of knowing and learning and focuses on people engaged in sharing knowledge and practices regarding a specific set of issues” (ibid: 196). Successful CoPs engage in activities such as brainstorming, seeking or sharing information, providing feedback, and mapping knowledge and knowledge gaps (Wenger, 2011). Deliberation is crucial for fostering these activities, including the empowerment of communities as they relate to NCoPs that are made up of professional experts.

#### 4.3.2 inclusiveness through systems deliberation

We argue here that by combining systems thinking with deliberative governance a more coherent, effective, and legitimate mechanism for sustainable change in the WEF nexus is possible. We call this *deliberative system thinking*, which in turn enables *collective intelligence*.

Deliberative capacity can be distributed amongst many different stakeholders, most importantly among citizens who constitute the largest number of actors within a city and beyond. A deliberative system can thus result in an integrated, interconnected and essentially polycentric system that can be local, national, regional or global in scale, and sectoral or overarching in scope.

An important capacity that can enable such deliberative systems is or collective intelligence or ‘co-intelligence’. Co-intelligence is the capacity to think in terms of interconnected aspects of governance and incorporates diversity, creativity and power sharing (Atlee, 2002). Systems thinking and co-intelligence – systemic intelligence - can further help to conceptualise the motives, expectations and assumptions of relevant actors and of drivers for inclusive governance<sup>[1]</sup> and causal awareness in deliberative governance. A co-intelligence perspective generally requires an apolitical approach, which means disregarding the interests and behaviours

of specific actors and how they influence the decisions taken. Thus, co-intelligence is suitable for facilitating deliberative processes in an unbiased manner.

Deliberative systems thinking can be useful for problem structuring, envisioning and organizing in transition governance. Secondly, it can support the development of images, coalitions and agendas collectively before implementation and enhance monitoring, evaluating and adapting afterwards. Co-intelligence is strongly linked with mental frames and the use of knowledge and can be a guiding principle for bringing inputs from different stakeholders coherently together through deliberative systems thinking. Renn and Schweizer (2008) for example argue that there may be good reasons for combining functionalist (analytical) and deliberative perspectives. Deliberative governance can foster inclusiveness<sup>[2]</sup> and in combination with systems approaches it can be an avenue for changing power dynamics.

In creating spaces for systems deliberation, Monkelbaan (2015) demonstrates how the complexity and interconnectedness of sustainability governance has increased with respect to scale, variety of actors, and linkages with non-environmental issues. Multiple arenas for deliberation can provide the ability to deal with different levels of complexity, but they also require a system of inter-regime and multi-actor coordination. Deliberative spaces are defined here as physical or virtual spaces where various problems, actors, and processes converge, and where decisions are taken, agreements concluded, knowledge shared, perspectives discussed, and social norms created (e.g. a local community assembly). Instead of seeking consensus as a single-point outcome, the purpose of deliberative spaces would be to increase the *harmonization of and engagement between* discourses.<sup>[3]</sup>

How, then, might deliberative systems thinking operate to achieve such governance objectives?

#### 4.3.3 A framework for collective intelligence through deliberative systems governance: co-defining, co-designing, co-envisaging, and co-transitioning

In considering a dynamic and holistic approach to address wicked problems, three principles must underpin any proposed procedures: inclusion, deliberation, and influence (Carson & Hartz-Karp, 2005). This is because of the value of heterogeneity—of participants, of input and more (Landemore & Elster 2014, Landemore, 2012). Decision making is usually in the hands of elected representatives and policy officials, with input from key players (business leaders,

environmental activists, experts or special interests). The deliberative collaborative model is different. Even in democracies, the affected wider population has been mostly passive or voiceless until now, except to provide opinions through polls or focus groups or casting votes at elections. In our model a miniature population is brought directly into decision making.

A first principle in our model, therefore, is to deliver heterogeneity of stakeholders in any collaborative activity. It is clearly impossible to involve an entire population in decision making, but it is entirely possible to create a mini-public or a population-in-miniature through stratified random selection (see, for example, Carson & Martin 1999; Delannoi & Dowlen 2010). The aim of such a selection method, also known as sortition or a lottery, is to assemble a diverse group of people who *resemble* an entire population. This achieves *descriptive representation*.

Having assembled a population-standing-in-for-the-whole, the second principle to employ is deliberation. Attention must be paid to the quality of the group's discussion which is less about argument or debate than it is about creating a respectful environment in which genuine deliberation can occur. Participants are exposed to experts (including local experts), and detailed information and opportunities to reach common ground in the company of an independent facilitator. Talk may be impassioned, but it should not replicate any existing structural inequalities (as noted, for example, by Sanders, 1997 and Young, 2003) or privilege those with the loudest or most powerful voices. It requires skillful moderation so that consensus is not over-emphasized or that genuine disagreement is side-lined, dissent being the lifeblood of democracy (as argued by Mouffe 2000). Despite the airing of all perspectives and worldviews, such heterogeneous groups, in a process of genuine deliberation, inevitably, but perhaps surprisingly, orient themselves away from self-interest to that of the public interest or common good. When asked, previously-unengaged citizens are willing to participate and to work hard to overcome competing and divergent claims and to act on proposed solutions (see multiple case studies at [www.newdemocracy.com.au](http://www.newdemocracy.com.au)).

The third principle is the most difficult to enact: influence. By opening public discourse to greater scrutiny and bringing the wider population into the resolution of wicked problems, greater political efficacy arises for participants (see, for example, Gastil et al., 2010). People not

only learn to participate in policy making by participating in it, but a common observation is that formerly-intractable disagreements are overcome (Ryfe, 2003). These remarkable outcomes are only likely if the subject and outcome of the group's deliberations—usually in the form of recommendations—is taken seriously by decision makers, in other words, a guarantee that recommendations will lead to real influence or impact. Increasingly, for example in Australia, mini-publics are convened only once a decision maker has agreed to enact recommendations or publicly declare why this will not happen.[4] Decision makers are finding these methods agreeable because they have developed confidence in the quality of the decisions and the sensible recommendations that emerge which are typically thoughtful, innovative and workable. They know that the problems are becoming harder to solve, and the public's trust is diminishing. Decision makers can then proceed with confidence, knowing that decisions match community values, and that trust has grown.

In short, deliberative, collaborate governance involves convening mini-publics which are official or quasi-official processes whereby policy-makers, policy/scientific experts, and lay citizens work together on a public problem or concern, with citizens carefully examining a problem and seeking a well-reasoned solution through a period of informed, inclusive and respectful consideration of diverse points of view (adapted from Gastil 2008). These mini-publics take many forms: citizen panels, citizen juries, consensus conferences and more. There is no “one best way” or standardised way of convening such mini-publics.[5]

However, the three principles (outlined above) are essential and underpin the framework that the authors of this paper are suggesting. The stages have similarities to other multi-phase frameworks. Similarities can be detected with the systems thinking cycle, for example, that was described earlier (see Figure 3 above). In particular, this paper exploits Twyford's model—from *The Power of CO*. Twyford's suggest five stages: Commit to Collaboration, Co-define the Dilemma, Co-design the Process, Co-create the Solution, Co-deliver Actions. These have been collapsed into four. A process for addressing wicked problems in diverse contexts would have four stages: **co-defining, co-designing, co-envisioning, and co-transitioning change**—these four stages being essential for addressing various (WEF) insecurities:

### **Co-defining**

What is the problem, exactly? Accurate framing is essential. What decision makers see as the problem or challenge is often not what citizens understand the situation to be.

### **Co-designing**

How should collaboration be organized? Bringing a diverse group together to think about: how to ensure all voices are heard, how all expertise will be accessed, and how deliberation is structured in order for effective decision making to occur.

### **Co-envisioning**

Together, a future outcome is envisaged through robust deliberations, as well as the actions that will support such a vision. Decisions need to be specific, measurable, actionable, relevant and timely (to invoke the commonly used mnemonic acronym: SMART[6]).

### **Co-transitioning**

Having established recommendations for action, activities begin with responsibility shared.

## **4.4 Strengthening the science-policy interface**

The science-policy interface needs to be framed by an effective and efficient governance structure to promote better interaction between the two. A dynamic science-policy interface can be a core instrument to support well informed decision making on the environment while also engaging the right actors in achieving the Sustainable Development Goals (SDGs).

Identifying the key elements of an effective science-policy interface allows for the identification of the internal gaps that act as barriers to such processes, and which impact decisions. There are three key elements for an effective science-policy Interface:

- a. Links in the chain: Motivated and capable individuals, able to utilise and exchange evidence and expertise to
- b. influence decision outcomes
- c. The right evidence: Availability of the appropriate data and expertise
- d. Productive exchange: of this evidence between individuals in the pathways

In the environmental area, three challenges have driven an evolution in science-policy interface activities:

- a. Achieving the Sustainable Development Goals: The achievement of the 2030 Agenda for Sustainable Development will require the co-operation of a multitude of decision-makers with divergent primary priorities, scientists from a wide-range of disciplines and a great degree of understanding of interactions between achievement of parallel goals. In the spirit of ‘leaving no one behind’ it is crucial that gender mainstreaming is adopted in all science-policy activities, failure of which might lead to policies that aggravate the existing unintended consequences that further intensify inequality (United Nations Environment Programme 2016a).
- b. Supporting Policy Implementation at the regional and country level: To tackle continued environmental degradation, despite well-developed global environmental governance, science-policy activity is moving further towards supporting implementation of international environmental agreements in countries and regions.
- c. Engaging with a ‘post-normal’ scientific context: The political context for science-policy work has changed: decisions are urgent, uncertainty is high and political will fluctuates rapidly. Science-policy activities aim at more than the synthesis of scientific research. They are designed to influence policy where the existing availability of evidence alone has not influenced outcomes.

These three challenges above have brought two additional hurdles to science-policy activities being effective in this mission:

- a. Working with divergent viewpoints: Improved outcomes come from engaging policy-makers who hold significantly divergent viewpoints on the importance of the environment, but whose decisions influence environmental outcomes, for example officials in economics or agriculture ministries.
- b. Dealing with complexity: Achieving the Sustainable Development Goals requires scientific advice on complex interactions between goals achievement, which are dynamic, non-linear and uncertain. Policy processes are also complex – with interactions of multiple parties producing uncertain outcomes.

These additional hurdles not easily fit into the movement through the data-information-knowledge-action chain, which requires processes that are predictable, include the right actors and that are designed to achieve impact.

### **Possible ways to address these gaps**

Many gaps are persistent or recurring (United Nations Environment Programme 2014a), suggesting that existing practices in the science-policy interface are hard to change. Steps to change existing practices are needed to fill gaps, for example, by changing the governance frameworks of organizations involved in the science-policy interface.

The five categories below present ten steps which may be a helpful guide to action:

#### Step 1: Build your own understanding of gaps and capacities

- Seek to understand the links in the chains by which evidence could impact on the chosen environmental outcomes, determining which policy processes are relevant, who are the key players in those policy processes, what are their current viewpoints and their evidence needs. Build a more specific sketch of the pathways to impact – or ‘theory of change’- for each intervention.

- Understand what information is missing about these pathways to your impact, and from whom and how you could

find it. Learn through feedback from your own activities – through improved use of evaluation of impacts, and from the lessons and examples of other organizations.

- Prioritize your activities on these understandings. Dedicate resources to actions to build your capacity to engage with the new challenges – e.g. in skills, external expertise, networks or new decision processes. Build new partnerships to strengthen your capabilities.

#### Step 2: Build partnerships to grow your capacity to act

- Gain access to specific complementary expertise, sectoral and geographic networks and access to important decision makers by forming partnerships with external organizations with shared interests in improved policy outcomes.

- Use ongoing partnership activities to promote learning of new perspectives and process skills in your organization’s officials and academic and governmental participants.

#### Steps 3 and 4: Fill gaps in available evidence

- 3. Stimulate greater investment in monitoring and reporting of environmental states, particularly in those areas with clear links to welfare – like air quality. Fund long-term

environmental monitoring to deliver trend data that can be openly accessed online by decision makers.

- 4. Build statistical capacities, nationally and globally, to deliver reliable and timely statistics that can stimulate and inform policy debates. Promote the standardization of methods to allow comparability across countries.

## 5. Conclusions: outlines of a conceptual framework for the Olympic Games and urban sustainability transitions

### Conclusions:

- Application of transition frameworks not clear. However, that doesn't mean that OGs organizers can't benefit from transitions approaches, esp. in terms of the TM cycle of participatory stakeholder- process that is aimed at envisioning, learning, and experimenting
- OGs are accelerator for transitions rather than game changer compared with baseline; but this is not necessarily bad. Acceleration means doing what needed to be done anyway. If build something that is not really needed, risk of building white elephants.
- Lack of knowledge sharing between host cities (despite the Transfer of Olympic Knowledge programme of the IOC)
- Need more explicit focus on systems innovation

### Ways forward for transitions studies:

- It is important to identify drivers and barriers to the envisioned transitions. These drivers and barriers could then provide the basis for improved Olympic evaluation methodologies.
- How do multi-level and multi-phase frameworks apply to OGs? Landscape: OGs themselves; strengthens regime incl IOC and global multi-national sponsors; niches still play a limited role? Now OGs very top-down

- OGs offer an opportunity for combining systemic case studies with theoretical approaches
- OGs can be approached from both sustainability science and transitions studies perspectives (socio-technical/ecological/political/economic angles)
- OGs contain production (transitions 1.0) but also distribution and consumption (transitions 2.0) issues
- What are multi-scalar interactions? E.g. host city – host country – global actors
- What would a new sustainability assessment methodology look like? E.g. based on SDGs?
- host cities to see hosting mega events such as the Olympic Games more explicitly and in a more coherent way as an opportunity for sustainability transitions.