BOOK OF ABSTRACTS

I. SESSION DESCRIPTION
II. SESSION PROGRAM
III. ABSTRACTS

I. SESSION DESCRIPTION

ID: T20b

Planning for equity and spatial justice in urban risk reduction through green and blue infrastructure ecosystem services (and disservices)

Hosts:

	Title	Name	Organisation	E-mail
Host:		Viviana Pappalardo	Department of Civil Engineering and Architecture	viviana.pappalardo@unict.it

Abstract:

"It is well acknowledged that urban ecosystem services provide many social, ecological and economic benefits. The extant literature shows countless studies that have contributed to filling many of the existing knowledge gaps around the effectiveness of ecosystem-based solutions for climate mitigation and resilience, nature and biodiversity protection, and economic and social gains in urban landscapes. Ecosystem services are understood and studied as complex social-ecological phenomena, very often by making use of aggregated method, with the potential disregard of important inter- and intragenerational equity issues and spatial justice challenges. The latter are vital in the policy and planning context, particularly with regard to urban areas globally dealing with the promotion of equal and durable social and economic resources to improve, among others, the quality and conditions of urban environment and to achieve sustainable development goals and principles of Do No Harm.

All people, regardless the social dimensions (age, race, gender, income), have the right to be protected from specific environmental issues (i.e. pollution, climate changes risks) and have access to the same services (i.e. sustainable urban drainage systems, greenspaces) in the urban environment.

A very less explored field of urban environmental justice is related to urban risks and their spatial dimension. The geographic dimension of polices related to risk reduction is often not considered and sometimes even not clear. This is why planning for equity represents one of the most urgent topics and tasks faces by planners today. But what it really means is often ambiguous and difficult to act on. What does it means for planners to operationalize equity practices in their work with urban green and blue infrastructure ecosystem services?

This is the key and guiding question underlying the session."

Goals and objectives of the session:

This Session aims to scope the latest frontiers in managing the aspects of equity and spatial justice of planning with urban green and blue infrastructure ecosystem services to support real-life decision-making processes. The preferential framework is the spatial planning realm in the light of current urban risks challenges (climate change and urbanization processes related risks).

In particular, the session encourages studies and contributes addressed to:

- Uncover specific knowledge gaps in research and practice related to the incorporation of the concept equity and spatial justice into local planning domains and urban green and blue infrastructure decision-making process
- Highlight current methods for mapping and analyzing equity data, and assessing the equity implications of ecosystem services provision and appropriation
- Map (current) governance approaches of risk reduction measures based on ecosystem services with regard to equity considerations from an empirical and or theoretical perspective.
- Collect experiences and case studies showcasing innovative approaches and exemplary applications of best practices operationalization that have facilitated the integration of the equity concept in spatial planning at various levels

Planned output / Deliverables:

- Invitation for authors to contribute to the Special Issue "Frontiers in Ecosystem Services: Planning the Changing Urban Landscapes" in Sustainability (MDPI) (deadline for paper 31 March 2023 - https://www.mdpi.com/journal/sustainability/special_issues/Frontiers_Landscapes)
- Development of a shared Manifesto based on the session conclusions, to be spread in the scientific/academic context and wider society by means of a collaborative paper.

Session format:

Standard session (presentations)

Voluntary contributions accepted:

Yes, I allow any abstract to be submitted to my session for review

Related to ESP Working Group/National Network:

Thematic Working Groups: TWG 20 – Equity in ES research

II. SESSION PROGRAM

Date of session: Thursday 13 October
Time of session: 11:00-12:30

Timetable speakers

Time	First name	Surname	Organization	Title of presentation
11:00-11:05	Viviana	Pappalardo	University of Catania	Introduction to the session
11:05-11:20	David	Fletcher	UK Centre for Ecology & Hydrology	Sounds like injustice: Investigating the equitability of noise mitigation provided by urban woodland

Time	First name	Surname	Organization	Title of presentation
11:20-11:35	Claudia	De Luca	University of Bologna	Assessing cooling capacity of urban green and blue infrastructure (GBI) in the city of Bologna through the lens of distributional justice
11:35-11:50	Tomasz	Grzyb	University of Warsaw	Managing inequities in access to and use of the urban riverscape: insights from Warsaw, Poland.
11:50-12:05	Edyta	Laszkiewicz	University of Lodz	Should children be seen and not heard? Children's involvement in urban green space planning
12:05-12:20	Lucie	Chuchmakova	PAD Foundation	Local policy change for just green transition
12:20-12:30	Viviana	Pappalardo	University of Catania	Exploring urban vulnerability to flood hazards in the context of environmental justice

III. ABSTRACTS

Abstracts are ordered based on the session program. The first author is the presenting author unless indicated otherwise.

1. Type of submission: Abstract

T. Thematic Working Group sessions: T20b - Planning for equity and spatial justice in urban risk reduction through green and blue infrastructure ecosystem services (and disservices)

Managing inequities in access to and use of the urban riverscape: insights from Warsaw, Poland.

Presenting author: Tomasz Grzyb

Affiliation: University of Warsaw, Poland

Contact: t.grzyb@uw.edu.pl

The opportunity to directly contact nature is recognised as a key stimuli of the quality of life in cities. Size, location, connectedness to other natural areas, and perceived naturalness influence the importance of riverscapes for urban dwellers. These attributes, combined with riverscape diversity, make them polygons where the postulate of justice in access to Cultural Ecosystem Services (CES) can be implemented through proper management practices. The issue has been addressed in the Sustainable Development Goals agenda with the call for accessible, inclusive, and safe urban public spaces. Knowledge of positive experiences (CES)

and, more importantly, negative experiences (Ecosystem Disservices, EDS) of various groups of users can help riverscape managers to identify common interests and conflicts between users, reduce inequities in access to nature benefits, and balance policies between satisfying the needs of users and meeting the requirements of sustainable planning and management.

The paper aims to show positive practices and shortcomings in managing inequities in access to and use of the urban riverscape. It presents the results of the research on the perception of riverine nuisances along the Vistula River in Warsaw, Poland. A sample of 462 socially engaged residents who have visited the river at least once in a recent year was involved in the research. The mix of quantitative data on perceived EDS and free comments made by survey participants was supplemented by press publications that raised the issue of spatial injustice according to the urban riverscape. The analysis was carried out in light of the needs of several vulnerable groups of users, namely women, seniors, families, people with limited mobility, and minorities. Examples of spatial and social policies and actions that aim to overcome (1) river-based conflicts between users, (2) the exclusion of seniors from riverine life, and (3) the injustice in riverscape accessibility will be given.

Keywords: urban riverscape, cultural ecosystem services, ecosystem disservices, management for justice

2. Type of submission: Abstract

T. Thematic Working Group sessions: T20b - Planning for equity and spatial justice in urban risk reduction through green and blue infrastructure ecosystem services (and disservices)

Sounds like injustice: Investigating the equitability of noise mitigation provided by urban woodland

Presenting author: David Fletcher
Other author(s): Laurence Jones
Affiliation: UK Centre for Ecology & Hydrology, United Kingdom
Contact: dfletcher@ceh.ac.uk

The majority of Earth's population now live in urban settings. Urbanisation is associated with a number of negative environmental pressures on health and well-being, such as noise and air pollution, urban heat island effect and flooding. Because of the concentration of people, urban areas are a focal point for the negative impacts of these pressures.

Urban green space provides an array of ecosystem services that support the health and well-being of City inhabitants. However, the supply of these services is not equitably distributed, often to the detriment of lower socio-economic status individuals. Noise pollution from road traffic is ubiquitous in modern cities and is one of the greatest environmental risks to human health in Western Europe. Urban woodland can provide substantial noise mitigation if located

properly, however supply of this important ecosystem service is rarely quantified and even more rarely assessed in terms of equitability.

Focusing on the Paris City Region (approx. 12,000 km2), we apply a novel approach to quantify the traffic noise mitigation provided by urban woodland. We quantify exposure to noise and value the mitigation received by all residential buildings. We then assess and map the equitability of the distribution of these factors, using poverty as an indicator of socio-economic status. Finally, we discuss the implications of our findings and suggest ways to help address imbalances through advances in the planning technology.

Keywords: Noise, Urban, Mitigation, Equitability, Health

3. Type of submission: Abstract

T. Thematic Working Group sessions: T20b - Planning for equity and spatial justice in urban risk reduction through green and blue infrastructure ecosystem services (and disservices)

SHOULD CHILDREN BE SEEN AND NOT HEARD? CHILDREN'S INVOLVEMENT IN URBAN GREEN SPACE PLANNING

Presenting author: Edyta Laszkiewicz
Other author(s): Paula Dominiak, Jakub Kronenberg
Affiliation: Social-Ecological Systems Analysis Lab, University of Lodz, Poland
Contact: edyta.laszkiewicz@uni.lodz.pl

Green spaces provide multiple benefits to physical and mental health, especially for children. At the same time, citizen participation – which aims to incorporate the inhabitants' needs into green space planning – typically addresses adults as those whose voice counts, even when it comes to children's needs. This raises a question whether and how to ensure age-inclusiveness in urban planning. This research assesses the extent and depth of children's participation using qualitative and quantitative analysis of three participatory processes for green space planning which took place in Lodz, Poland. These processes differ in the initial condition of age-inclusiveness and the methods used to secure children's participation. Our findings suggest the need to increase the awareness of the importance of children's inclusion in participatory processes not only to guarantee that their needs are taken into account but also to endow children with pro-environmental behaviours and social activity.

Keywords: environmental justice; children; preferences; urban green spaces

4. Type of submission: Abstract

T. Thematic Working Group sessions: T20b - Planning for equity and spatial justice in urban risk reduction through green and blue infrastructure ecosystem services (and disservices)

Multifunctional open space and climate change adaptation: urban forest as part of an adaptation strategy for cities

Presenting author: Petja Ivanova-Radovanova

Affiliation: Climate, Atmosphere and Water Research Institute at the Bulgarian Academy of Sciences, Netherlands

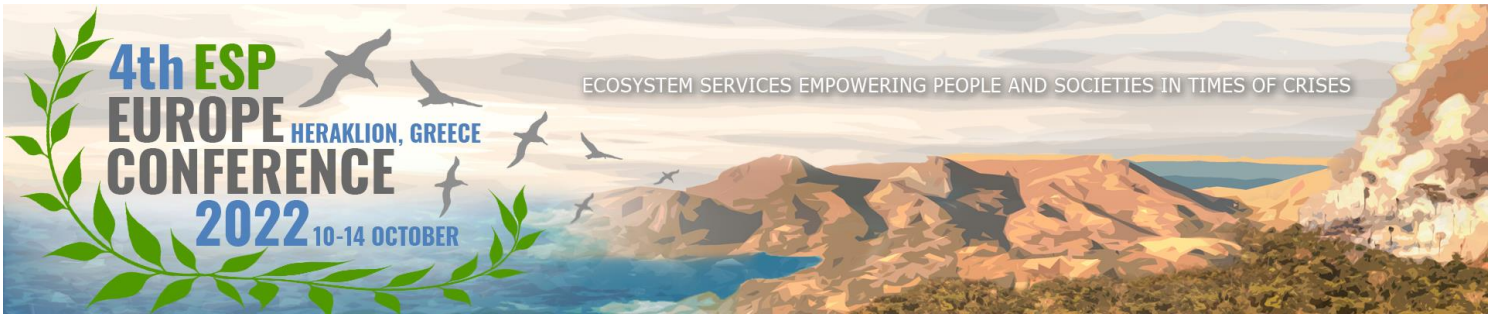
Contact: p.radovanova@gmail.com

The last decades have seen enthusiastic growth of urban open space and greening which takes many forms, from the large-scale reclamation of industrial dereliction to the small, scale-management of vacant urban plots and to the implementation of ICT in public open space. European governments are tending to perceive cities of renewed economic dynamism and physical renaissance and as a places that can help to resolve social and environmental challenges. However, the worsening social and environmental condition of many inner and outer-city areas both required and has stimulated decision-making, new planning approaches, community activities focused to renovate urban environment, neighborhoods in ways which combine work on open space and buildings.

Concerning the relationship between region, city and neighborhood level, the State of European Cities Report said that in many cases functional interdependencies call for regional-scale solutions – such as transport, water supply and sewage, but other issues can often be better addressed at the neighborhood level – such as design of public areas, education, social integration and mitigation of climate change.

But, if the community contribution to urban regeneration is to grow and become more effective, then specific knowledge, understanding of local corcumstances and extra support are needed. In support of this efforts, the paper presents the case study in Sofia for the implementation of the British concept of urban forest, as an important part of both the urban green system and development of successful adaptation strategy. Investigation ns had been carried out though documenentary study, site visits and interviews. The main factors, trends and expectations in application of the concept of urban forestry in Sofia as a part of effective adaptation plan had been outlined. It was proved that further development of urban forest could be a vital part of effective adaptation strategy for sustainable cities.

Keywords: Key words: open space, adaptation strategy, urban forestry, regeneration



5. Type of submission: Abstract

T. Thematic Working Group sessions: T20b - Planning for equity and spatial justice in urban risk reduction through green and blue infrastructure ecosystem services (and disservices)

Assessing cooling capacity of urban green and blue infrastructure (GBI) in the city of Bologna through the lens of distributional justice

Presenting author: Claudia de Luca
Other author(s): Denise Morabito,
Affiliation: University of Bologna, Italy
Contact: claudia.deluca5@unibo.it

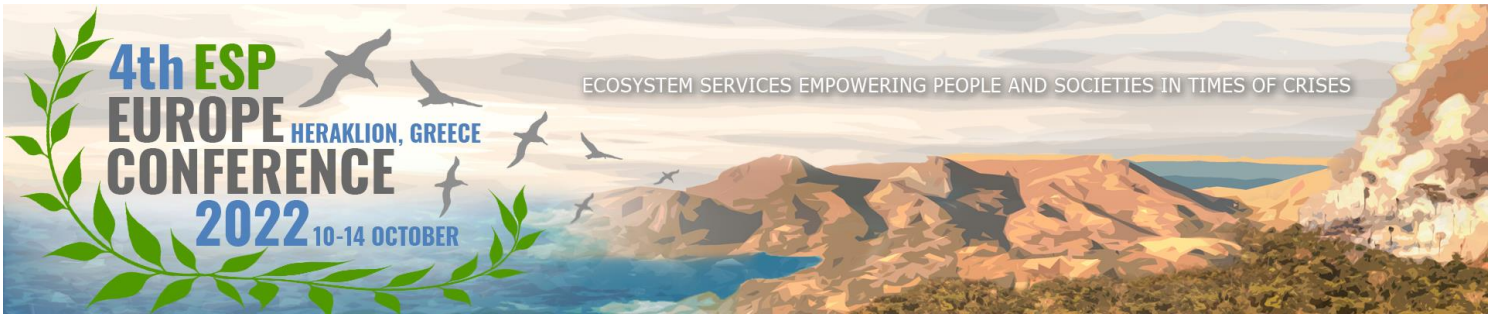
Global warming and the increase of population in urban areas highlighted the problem of high temperatures in cities. Heavily built environments are often characterized by the combination of a lack of greenery with an enhanced absorption of solar radiations, which leads to an increase in temperature compared to natural environments. The absence or scarcity of vegetation in cities also contributes to a decreased provision of ecosystem services, the benefits that humans obtain from ecosystems. The development of urban green areas can mitigate temperatures through evapotranspiration and the provision of shading, while also providing other ecosystem services which benefit both the environment and the citizens. The implementation of GBI for heat mitigation requires a spatial analysis of supply and demand of ecosystem services, considering the raising issues of distributional justice where supply-demand mismatches overlap with specific socio-demographic groups. An analysis of the cooling capacity provided by urban GBI has been performed in the city of Bologna, where the combination of geographic, climatic, and socio-demographic information allowed to identify supply-demand mismatches, in order to develop and implement appropriate nature- based solutions.

Keywords: cooling capacity, urban heat island, distributional justice, GIS, invest

6. Type of submission: Abstract

T. Thematic Working Group sessions: T20b - Planning for equity and spatial justice in urban risk reduction through green and blue infrastructure ecosystem services (and disservices)

Exploring urban vulnerability to flood hazards in the context of environmental justice



Presenting author: Viviana Pappalardo

Other author(s): Daniele La Rosa,

Affiliation: Department of Civil Engineering and Architecture, Netherlands

Contact: viviana.pappalardo@unict.it

Stormwater green infrastructure (SGI) are ecosystem-based solutions to deal with the risk of flooding in urban areas.

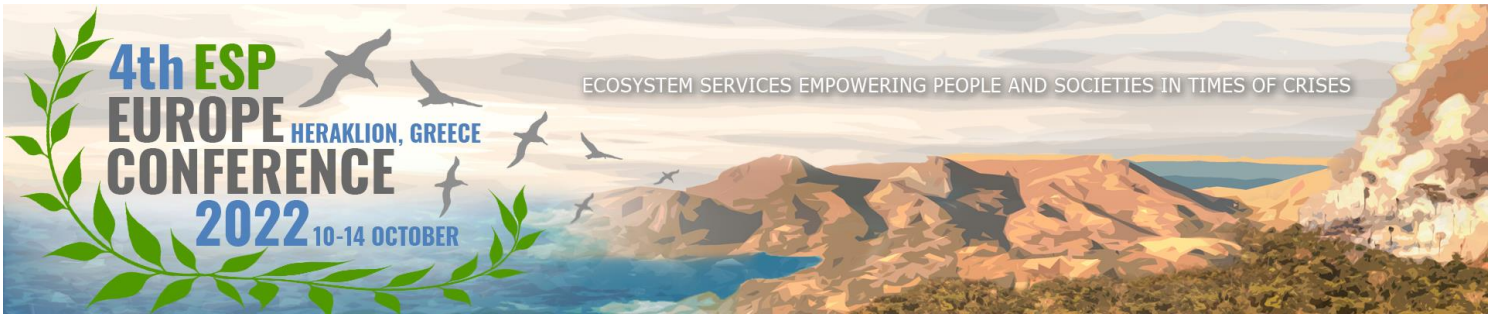
Positive effects of SGI are dependent on complex spatial behaviors of different variables such as land uses, hydrologic systems, socio-economical profiles of people that can get benefits by implementation of specific scenarios of SGIS. These should be planned to maximize these benefits, ensuring convergence of demands needs for SGIs from population from an environmental justice perspective.

One important aspect is given by the vulnerability to flooding, a multi-dimensional parameter that involves a number of different variables (e.g. the presence of human beings with gender, age or disabilities issues; the characteristics of geo-morphological and physical components of the exposed environment; income and impacts related to the breakdown of basic economic activities) and that underlines a differentiated geography of potential needs for SGI. Understanding this geography allows to identify scenarios of SGI that are more just because they can be potentially implemented for most vulnerable areas.

This contribution proposes a spatial explicit method to identify strategic/priority areas for a more equitable SGI location mapping. In particular, this study places the geography of needs for SGI, based on a multidimensional analysis of flood vulnerability of the urban environment. To the purpose, different indices are proposed to account for the spatial distribution of infrastructure, social and built environment that can be vulnerable to flooding events.

Specifically, census-based tracts are used as the reference units for the spatial analyses. The infrastructural vulnerability of each unit is assessed by considering the number of crossing public roads and traffic data; the social vulnerability includes the assessment of age/education features of the social component; the year built of the building stock, the number and position of public areas and facilities, and shops location are aggregated to define the built environment vulnerability. The method is tested for the case study of Sicily (Italy).

Results highlight the potential of the applied method in supporting decisions on which strategic/priority areas represent the most fair options for SGI. The study also points out



how the geography of areas most in need spatially varies according to changing vulnerability aspects. It thus comments the likely challenges and barriers to gather different combination of needs, most suitable spatial options for SGI and areas where benefits are indeed generated. Conclusions remark the usefulness of the method to tailor mitigation strategies to target vision-led, unifying and equity-based SGI practices.

Keywords: environmental justice; flood risk vulnerability; stormwater green infrastructure

7. Type of submission: Abstract

T. Thematic Working Group sessions: T20b - Planning for equity and spatial justice in urban risk reduction through green and blue infrastructure ecosystem services (and disservices)

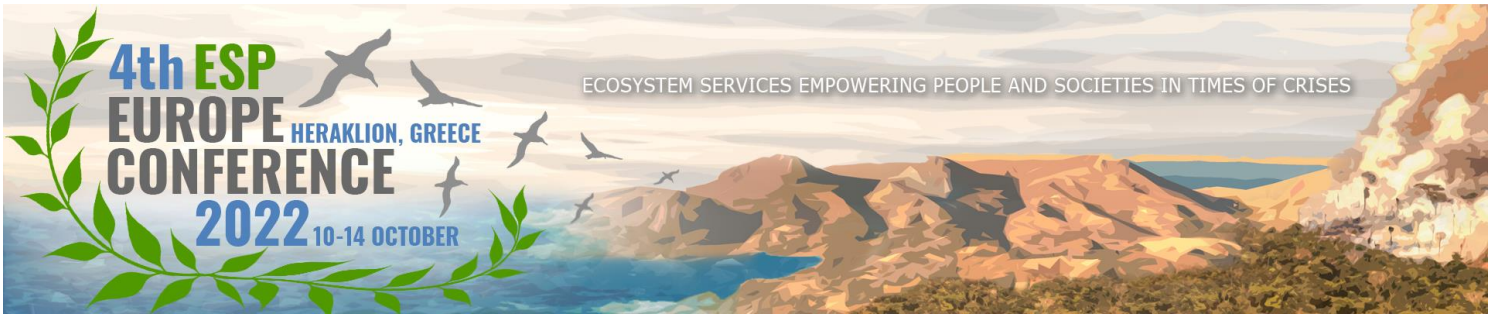
Local policy change for just green transition

Presenting author: Lucie Chuchmakova
Other author(s): Gergely Papp, Sára Vargha
Affiliation: PAD Foundation, Hungary
Contact: lucie.chuchmakova@pad.network

In the majority of European countries, there is a large amount of brownfields on the periphery of regional post-industrial medium-sized cities in close proximity to socially vulnerable, segregated neighbourhoods. Our research supports both regional and European analyses, which show that the socially most vulnerable communities are also the ones most exposed to the harmful effects of climate change, environmental degradation and unequal ecosystem services distribution/provision.

Our research showed that urban development strategies and also municipalities' representatives support systematic, long-term brownfield rehabilitation. At the same time, residents of the segregated neighbourhoods have already been managing some of the surrounding brownfield areas with environmentally sustainable practices.

However, there is a lack of institutional framework for implementing these kinds of local practices into local/institutional policies of public space management, (urban) planning and socio-spatial inclusion. There is also a lack of knowledge on connecting social inclusion, just climate change adaptation, reduction of socio-spatial inequalities and the increase of urban green spaces within the brownfield rehabilitation process.



Our pilot project took place in Tatabánya (Hungary), a middle-size town with a heavy industrial and mining heritage. We developed a framework for rehabilitation of brownfields and adjoining neighbourhoods, while following the principles of community empowerment and local stakeholder involvement. We achieved this by developing socially just and sustainable socio-ecological systems and complex local land use policy change which engaged a variety of local stakeholders (residents, municipality, forestry bodies, public institutions). The proposed policy change includes a design of a new land use category. This new, 'mixed use' category would allow for more flexible adaptation of a specific land to existing societal and/or environmental needs. The ultimate goal is to combine residential housing, SMEs and community led coppice woodland land use, resulting in an easy-to-implement, participatory and adaptive urban development tool.

Keywords: urban green planning, socio-spatial justice, ecosystem services equity, brownfield rehabilitation, socially just climate adaptation

8. Type of submission: Abstract

T. Thematic Working Group sessions: T20b - Planning for equity and spatial justice in urban risk reduction through green and blue infrastructure ecosystem services (and disservices)

Participatory community socio-ecosystem monitoring, a strategy for the recovery of ecosystem services in the forests of Mexico City, Mexico

Presenting author: Carlos Peralta Olmedo
Other author(s): Juan Manuel Núñez-Hernández, Enrique Pérez-Campuzano
Affiliation: National Technological Instituto of Mexico, Gustavo A. Madero campus,
Contact: karlosscor@gmail.com

The demand for ecosystem services by the population of Mexico City has led to the degradation of its ecosystems, and the loss of its services. Fires, clandestine logging, and urban pressure have produced changes in land use and decreases in the resilience of the socio-ecosystem. This is the case of the Abies religiosa forest in the Magdalena River basin, a peri-urban area of CDMX, where one of the surface runoffs that supply drinking water to the southern part of the city is found. Aiming to generate a socio-ecosystem strategy for the forest that involves society in the management of its resources and in the maintenance of ecosystem services, participatory monitoring was carried out in three plots chosen by local actors in the fir forest, according to their experience and needs, to determine the differences

between reforestation with seedings introduces from the nursey and natural regeneration with seedings that grow in situ. The variables calculated were relative growth rate (TRC) and survival; in addition, the perception of the actors involved in the monitoring was collected through semi-structured interviews. The TRC did not show significant changes between both reforestation strategies. Natural regeneration had a better chance of long-term survival. Local actors consider monitoring important, but their little participation was limited, due to the lack of agreements between authorities and community members. Training programs are required to properly monitor and conserve the fir forest. This socio-ecosystemic strategy is essential to recover the ecosystem services provided by the forest for the benefit of local actors and the residents of Mexico City.

Keywords: Local actors, complex systems, peri-urban socioecosystems, ecosystem services, participatory processes.