



Ecosocial values beyond market-oriented conservation: A just compensation of urban green

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ABSTRACT

Urbanisation is a prevailing trend in urban areas, causing densification and sprawl in the cities. As a result, new construction often targets urban green spaces, weakening the unity and quality of these areas. Biodiversity offsetting has been expressed as a solution to such environmental problems. The challenge of offsetting is its failure to account for the multiple values of local nature for residents, and thus, creating unjust outcomes. Our research focuses on the fairness of compensation, specifically emphasising the ecosocial aspects of urban green spaces. We have conducted 21 thematic interviews for decision-makers, urban planners, NGOs, and researchers, exploring the conceptual and practical aspects of compensating nature-based social values, referred to as ecosocial compensation. Our findings suggest that it is essential to recognise the nature basis of social values in the context of green spaces. Attention must be given not only to the spatial and temporal distribution of offsetting measures but also to the stakeholder and public participation processes and the identification of the values of different social groups. The current land use system and dualistic approach do not adequately address these considerations, and therefore, achieving fair compensation necessitates a more holistic as well as a more practice-oriented ecosocial approach.

1. Introduction

1.1. Urbanisation and environmental consequences

Urbanisation is a current megatrend and the driver of community development — over half of the world's population lives in urban areas, and the number is projected to be 68 % by 2050 (United Nations, 2019). Urbanisation continues because it is advantageous for businesses, households, and public sector entities to be located in urban areas. However, urbanisation has significant impacts on nature and biodiversity (McDonald et al., 2008), and urban areas drive environmental change (Grimm et al., 2008). On the other hand, cities can also promote a sustainability transition (Seto et al., 2010).

Urbanisation causes the densification of urban structure. Dense urban structure has been widely recognised as a development objective and strategic guideline for planning (Ristimäki et al., 2017; Rubin et al., 2020). Densification can reduce environmental harm, increase regional sustainability, promote social cohesion and justice, and create opportunities for innovation and economic growth (Stevenson et al., 2016;

Waters, 2017). At the same time, it also brings problems to urban communities and land use planning. New urban construction often takes place in green areas (Haaland & van den Bosch, 2015; Tiitu, 2018), i.e. in unbuilt and vegetative land (Collin, 2011).

The loss of green spaces is problematic as these areas provide people with a wide range of ecosystem services. They regulate storm waters and cool buildings and provide positive health and well-being effects (European Commission, 2022; Niemelä, 2011; Sandifer et al., 2015), stress reduction (Hedblom et al., 2019) and a lower mortality rate (Villeneuve et al., 2012). Easy access to green spaces may also have a positive impact on exercise habits and the health of residents (Pasanen & Toikka, 2017), as well as often being socially important to residents (Tzoulas & Greening, 2011). Furthermore, construction in green spaces can also conflict with objectives other than recreation, for instance biodiversity goals (Haaland & van den Bosch, 2015; Ives et al., 2016).

A gradual loss of the green urban space challenges the residents' sense of justice. Increasing construction pressures and the deterioration of green spaces cause land-use conflicts (Kleemann et al., 2023). Residents do not approve of the loss of green spaces, which are important to

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them. Thus, in a compact city, issues of fairness arise in relation to residents' possibilities to influence the development of their everyday environment. It is possible to see these issues as a matter of justice, since the loss of green spaces impedes, *inter alia*, their accessibility and usability from the residents' point of view. In an increasingly urbanising world, new ways should be found to solve the problems caused by densification.

Legislation, in Finland especially the [Land Use and Building Act \(132/1999\)](#), safeguards to some extent the sufficiency of urban green spaces. Additionally, the European Union is strengthening the protection of urban green ([European Commission, 2020, 2022](#)), and different types of compensation might be part of the implementation of future legislative requirements. Compensation mechanisms can support to reach nature targets by safeguarding a sufficient level of green space.

1.2. Compensation, marked-oriented conservation, and Ecosocial approach

Market-oriented, economic approaches are increasingly common in nature conservation schemes ([Arsel & Büscher, 2012](#)). The issue of compensating for the lost green spaces in urban areas has gained prominence as a solution to the problem of urbanisation and its impact on green spaces. Compensation is the last step of the mitigation hierarchy, a four-step model to achieve no net loss of biodiversity. The mitigation hierarchy prescribes to avoid, minimise, restore, and finally compensate for ecological harm. Biodiversity offsetting, or ecological compensation, is already part of the biodiversity laws and no net loss policies in many countries ([Bull & Strange, 2018](#)).

This compensation mechanism is an integral part of rational, market-oriented conservation ([Apostolopoulou, 2020](#)). 'Developer pays' and 'No net loss' principles, and especially institutional arrangements such as habitat banks, turn ecological compensation into a market-based policy instrument ([Enejtjärn et al., 2015](#)). Biodiversity offsetting makes nature values into tangible units, thus paving the way for their commodification. In Finland, voluntary biodiversity offsetting is part of the [Nature Conservation Act \(9/2023\)](#); see also the [Decree of the Ministry of the Environment on Voluntary Ecological Compensation, 933/2023](#)) and is becoming a more important tool for preserving and restoring ecological values. Yet, this voluntary approach has not acknowledged urban green and novel biotopes sufficiently, even if some development has occurred recently ([Kassi et al., 2025](#)).

In addition to biodiversity values, urban green spaces also hold other values for humans. For this reason, in biodiversity offsetting practices, the social and cultural values are advised to be considered ([BBOP, 2018](#)). Social aspects of biodiversity offsetting have been studied from the welfare effects ([Nordström & Hammarlund, 2021](#)), the citizens' acceptance and prioritization ([Cole et al., 2022](#)), and the ecosystem services perspectives (e.g. [Nordström et al., 2021](#)). Still, social aspects have mostly been overlooked in the practice of biodiversity offsetting ([Griffiths et al., 2019](#); [Ives & Bekessy, 2015](#); [Sontter et al., 2018](#); [Taherzadeh & Howley, 2018](#); [Tupala et al., 2022](#)).

Therefore, in this article, we focus on compensation theory and practice from the perspective of residents' everyday living environment and seek solutions to these recognised challenges. In our endeavour, we develop the conception of ecosocial compensation. The term reflects a mindset in which nature and social aspects are inextricably intertwined in human practices ([Haila, 1998](#)). The ecosocial approach takes ecological and social aspects into account together, intertwined, and the former and the latter co-constituted in institutional settings and social practices ([Matthies et al., 2001](#)). Places for ecosocial values can be, for example, green areas for walking the dog, recreation areas, quiet places, or beautiful landscapes. Ecosocial compensation is about identifying, negotiating, and offsetting nature-based social values that are threatened and disappearing.

The context of urban land use planning provides a good viewpoint for this solution, since it guides the structure, building, and life of cities.

It is also an important way to bring nature-based solutions into urban development ([Bush & Doyon, 2019](#)). In Finland, the municipalities' planning system is two-level. Master plans guide land use planning at the general level, and detailed plans guide construction at the neighbourhood level. We examine the preconditions for ecosocial compensation from the perspective of just urban planning:

- What could ecosocial compensation mean conceptually and practically in terms of compensation practices?
- How would it be possible to integrate an ecosocial approach into urban planning?

We do not analyse the process of incorporating ecosocial values into the process of biodiversity offsetting. However, these processes can be combined without compromising either of them.

1.3. Urban green spaces and compensation as justice issues

From the ecosocial perspective, everyday nature-based practices are important. Regarding urban green spaces, different people do different things, depending on the habits and practices of everyday life, leading to a plurality of values in an area. Urban densification and incremental encroachment threaten the diversity of these practices, but so may biodiversity offsetting if used as a primary mitigation measure.

The concern over fairness in urban planning has increased, together with the challenges of preserving green spaces amidst urbanisation and increasing densification ([Næss et al., 2020](#)). Furthermore, residents often strongly oppose construction on green spaces, mostly because of the so-called NIMBY (not-in-my-backyard) effect ([Wicki & Kaufmann, 2022](#)). Marginalised and vulnerable groups, including low-income communities, ethnic minorities, and young and older people in general, are particularly affected by limited access to urban green spaces ([Byrne, 2018](#)). Consequently, questions of justice and democracy arise when urban structure becomes denser.

In the transition from offsetting biodiversity values to also compensating for nature-based social values, such aspects as environmental justice and democracy are accentuated ([Campbell, 1988](#); [Schlosberg, 2007](#)). Biodiversity offsetting is compensation specifically for nature, offsetting the harm to biodiversity and pursuing a state of no net loss, often leaving the social dimension unrecognised. In ecosocial compensation, the focus is simultaneously on both; however, in this paper, we primarily emphasise the people, the residents, and their nature-based values. The aim is not necessarily that there should be no net loss of biodiversity, as in biodiversity offsetting, since the aim is primarily to compensate for the loss of social values provided by urban green areas, for humans and other species. Nevertheless, there is nothing in the initial logic of ecosocial compensation that would exclude or prohibit aiming also for the full compensation of biodiversity losses.

Alongside John Rawls (1973), the justice debate regarding urban green has primarily focused on the fair distribution of environmental benefits and harms ([Schlosberg, 2007](#)), including for instance, the placement of green spaces within cities. This has also been the case in the context of biodiversity offsetting as the distributional effects have recently gained attention. The placement of compensation may cause unequal consequences and prevent access to green spaces for some ([Apostolopoulou, 2020](#); [Karlsson & Edvardsson Björnberg, 2021](#)). Previous studies have highlighted the meaning of place and place-based values ([Maron et al., 2016](#); [Apostolopoulou & Adams, 2017](#); [Griffiths et al., 2020](#)).

On the other hand, the participation of different stakeholders is important in planning such compensation ([Taherzadeh & Howley, 2018](#); [Jones et al., 2019](#)). In the processes of no net loss, those who receive the benefits are not necessarily the same as those who experience the harm ([Sontter et al., 2020](#)). Procedural justice pertains to the fairness of the decision-making processes, the inclusion of stakeholders, and the effectiveness of public and stakeholder participation ([Bell & Carrick,](#)

2018; Walker, 2012). Regarding this, it is also essential to recognise and respect cultural, historical, and social identities, especially of marginalised communities in relation to the everyday lived environment.

Justice issues in urban environments call for a nuanced perspective on the mitigation hierarchy and compensation, particularly concerning nature-based social values. Merely following the mitigation hierarchy and biodiversity offsetting is insufficient; considering nature-based social values is necessary to ensure justice from the residents' point of view. The accessibility of green spaces brings benefits to residents, while their loss creates disadvantages. Therefore, the mitigation hierarchy and related participatory measures serve as means to influence the fair distribution of harms and benefits.

2. Materials and methods

Our study focuses on Southwest Finland. At the city and regional level, the interviews were directed at two municipalities: Turku and Lieto. Southwest Finland is a province with approximately 490,000 inhabitants, and the majority of the population resides in the Turku region, with around 201,000 inhabitants in Turku and over 21,000 in Lieto (Statistics Finland, 2025). Urbanisation is the prevailing trend in the Turku region, and its population is growing. The densification of urban structure is driven both by the regional objectives (Land use, housing and transport agreement 2024-2035 of the Turku Urban Region, 2024) and the cities' programmes and strategies (City of Turku, 2023; Lieto Municipality, 2023), which corresponds to the development of other major urban areas in Finland (Ristimäki et al., 2017).

The data for our study was collected through 21 semi-structured interviews in 2020 (Table 1). The interview framework covered the following themes: the different forms and tensions of land use, green spaces, and their importance, compensation for nature-based social values as a phenomenon, compensation as part of planning, and the potential for compensation in practice (see Appendix A). Before actual research interviews, we carried out two pilot interviews. We interviewed seven officeholders working on land use planning, eight decision-makers (members of the city or regional council), and four representatives of civil society organisations, as well as researchers who have studied biodiversity offsetting. Of the first three groups, the interviewees were selected from Turku, Lieto, and regional-level actors in Southwest Finland. The interviewees were selected based on their relevance to the topic, and additional candidates were identified using the snowball method, where interviewees recommended other potential interviewees (Lynch, 2013). The aim was to include a diverse range of actors to capture different perspectives. Five interviews were carried out face-to-face, and 16 were carried out remotely. After conducting the interviews,

Table 1
Interviews for authorities (Auth.), decision-makers (DM), non-governmental organisations (NGO), and researchers (Res.) at different spatial levels. Some interviews were conducted on-site, and some were conducted remotely.

		June	July	August	September
Online	City	P3 (Auth.) P4 (Auth.) P5 (DM)	P8 (Auth.) P9 (Auth.) P11 (DM) P13 (DM) P15 (DM) P14 (NGO)	P20 (DM) P18 (NGO)	
		Regional	P2 (Auth.) P17 (Auth.) P6 (DM)		
		Supraregional		P16 (Res.)	P21 (Res.)
On-site	City	P7 (DM)	P10 (Auth.) P12 (DM)	P19 (NGO)	
	Regional	P1 (NGO)			

we transcribed the data from audio to a textual format in a verbatim way.

We analysed the data using qualitative content analysis (Elo & Kyngäs, 2008). First, we coded the transcribed data by adding keywords to the text segments. Next, we formed simplified impressions from coded text samples inside the thematic code groups and created subcategories, i.e., we reorganised the data by an abstraction process (Fig. 1). As a result, we saw what aspects were included for different categories. By combining subcategories, we finally formed the main categories of our study, which shaped the structure for the results. This way, we discovered the main themes of the study and their content.

Our approach for the analysis process was abductive in the sense that we started to structure the codes in a data-oriented manner (Elo & Kyngäs, 2008), but we also utilised the previous research to conceptualise the categories as an attempt to understand the research situation and find answers to research questions (Bromley, 2006; Hiedanpää & Bromley, 2016; Reichertz, 2014). This allowed us to understand the content of the ecosocial approach in relation to current compensation practices and also discover novel insights regarding its usability in land use planning, as we did not limit ourselves to existing conceptualisations. Thus, the existing theory guided but did not determine our analysis process (Atkinson et al., 2003).

3. Results

3.1. The problem

Interviewees identified the problem of incremental loss of urban green spaces. Construction in green spaces is typical in compact cities, and safeguarding green spaces is often perceived as challenging. Furthermore, the planners recognised that green spaces, even of recreational significance, do not have defenders in the same way as, for example, biodiversity or cultural heritage during the planning processes.

“The fragmentation of recreation areas in urban area is also a pretty remarkable and challenging, conflicting issue. Thus, existing and also smallish recreation areas are eroded away a bit by bit.” (P17, planner).

Although the densification of cities is a widely recognised goal, it does not affect all municipalities. There are more vacant areas in smaller municipalities, and there is not such intense competition between different land use categories and less pressure to build on green areas. Although Lieto is rather a fragmented municipality in terms of green spaces and there are not so many continuous and large green spaces, the interviewees of Lieto still experienced the situation as better and less conflicted than in Turku. In Turku, densification was perceived as creating more challenges and conflicts.

“Here [in Lieto] we have a lot of green areas and there are quite a few opportunities for sports and walking, so in that sense, there isn't really any confusion here. But in bigger cities, these pressures, specifically between construction and people's well-being, come into play.” (P18, NGO).

Several interviewees called for the importance of the holistic view and how it might be passed over in the current land use planning system. The so-called patchwork planning was presented as a major problematic feature of detailed land use planning: small areas are planned one by one without considering the overall picture. This was considered a key reason for the decline and fragmentation of green spaces, as the mindset was often found to be that a small loss of a green space in one plan was not important for the whole, but together these losses can be substantial.

3.2. Attitudes to ecosocial compensation

Although both decision-makers and planners already considered compensation as an idea that is a familiar part of urban planning, the use of the idea is not practiced systematically or always consciously or focused on nature-based social values. The replacement of lost green spaces with new ones or other nature-based solutions, after concrete

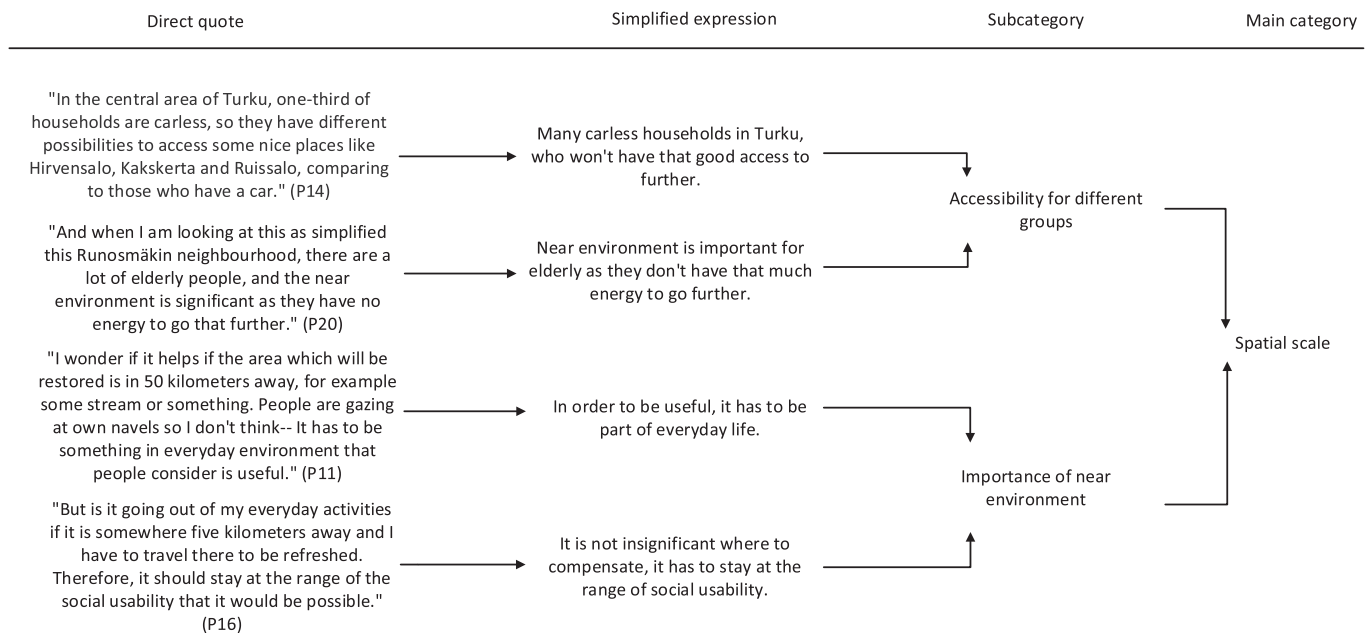


Fig. 1. An example of the abstraction process.

plans of avoiding, minimising, and restoring nature harm, was viewed positively by all interviewees, although such a new type of tool also raised doubts.

"Well, in principle, those are familiar concepts, but at least in our organization, we haven't come across any concrete situations where they have been used." (P03, land use planner).

"I'm not that familiar with compensations, but of course, we're always thinking about compensations, in a way. I mean, if we build and we have to cut old trees, we plant new ones. There is a clear logic for us to safeguard the greenness of the city." (P7, decision-maker).

First, the interviewees thought ecosocial compensation could prevent and mitigate conflicts arising from construction projects, which could reduce complaints and, consequently, planning projects could be carried out more quickly. This could save costs as well. Compensation projects could integrate residents more closely into the planning, and discovering nature-based social values was perceived as providing valuable additional information to the planning process. A consideration regarding compensation would better reflect nature-based social values in planning and help to consider the overall view in planning regarding green spaces.

Second, and perhaps most importantly, compensation can benefit both residents and non-human entities in nature. The compensation could help to secure residents' access to green spaces in the future. It was felt that compensation could increase the value and quality of green spaces. This could contribute to the development of neighbourhoods. The preservation of green spaces in the vicinity of residents would therefore bring health and welfare benefits, as well as assist in the development and preservation of the relationship between humans and nature. Implementation of ecosocial compensation could also bring benefits to urban biodiversity protection, carbon sequestration, and especially safe places and movement opportunities for other animal species, depending, of course, on how the compensation is implemented.

Thirdly, the interviewees thought that integrating compensation into land use planning could change attitudes and contribute to a change in planning practices and decision-making. The interviewees highlighted that ecosocial compensation would better elevate nature-based social values into political and social debate, which would help to defend those values. This could also further a mindset shift away from the destruction of nature and persuade actors to take greater responsibility for the common environment.

"At least on a mindset level, it has significance because if this kind of compensatory thinking is made visible and tangible, it shows people that, well, this nature is in a way irreplaceable, so when it's, or this value is lost here, now it's compensated elsewhere so that some equivalent type of . . . Well, in my opinion, it's good in terms of attitude and mindset." (P06, decision-maker).

"It [compensation] could bring flexibility and new concepts to the discussion, at its best." (P21, researcher).

The distribution of costs and responsibilities created suspicion, as compensation was thought to be expensive. The interviewed researcher, however, pointed out how costs sometimes fell below estimates in the case of biodiversity offsetting. It was widely believed that the costs should be the responsibility of the developer, which was also thought to reduce the willingness to start implementing compensation. At the same time, it was noted that compensation might have positive effects on costs, too. Nevertheless, the fear was that developers would move to other municipalities if they were made to pay for compensation. Compensation would also require a new kind of cooperation between the municipality and the developer, which would necessitate new resources in the municipal administration as well. Concerns were also raised among the decision-makers about how everyone would demand compensation if their neighbourhood were to change.

"On the other hand, municipalities might not choose that path [the compensation of nature-based social values] easily because they must act within the budget, and then every village would want something more." (P15, decision-maker).

Some interviewees saw the potential for greenwashing, as compensation could offer a way to enhance various actors' public image without an actual or adequate offsetting. Compensation might also be seen as a license to degrade the environment; compensation could provide access to areas that would otherwise be no-go areas. Then again, some interviewees thought that the compensation itself would be a good thing, but it must not block other greening measures. The fear was that the compensation would become the only way to develop green infrastructure and, thus, there would no longer be other greening measures. This raises the question of additionality, as gains from offsets should be additional to business-as-usual scenarios, and not reduce the money spent on green areas otherwise.

"Certainly, there might be a pitfall if other green development will stop because of the practice of compensations. . . . It must not block other inevitable [greening] development, so that compensations would be the only way

to development.” (P02, land use planner).

3.3. Preconditions for ecosocial compensation and its suitability to urban planning

According to the interviewees, time, place, and to some extent also equivalence are essential factors for ecosocial compensation (Table 2). Similar preconditions have also been considered in many schemes of biodiversity offsetting, including the Finnish Nature Conservation Act (HE 76/2022 vp; Nature Conservation Act, 9/2023).

Interviewees highlighted the proximity of the compensation and

Table 2
The preconditions of time, space, and equivalence, and comparison with eco-social and biodiversity-based approaches.

	Ecosocial compensation	Biodiversity offsetting
Time scale	<ul style="list-style-type: none"> - Compensation for the group of residents who experience the harm. Therefore, compensation should occur at the same time as losses. - The limitations of nature are challenges – It takes time for the forest to grow. - The aim is that compensation will benefit residents immediately. Thus, for example, recreation possibilities should not disappear at any point. - Interviewees suggested that compensation should be implemented beforehand. 	<ul style="list-style-type: none"> - In the ideal situation, offsets are available at the same time as harms occur (McKenney & Kiesecker, 2010; HE 76/2022 vp). - Time discounting is also possible (Moilanen & Kotiaho, 2018). - Benefits are usually realised only after a long period, as the natural benefits of restoration or management activities are realised.
Spatial	<ul style="list-style-type: none"> - Interviewees highlighted that compensation should be carried out as close to residents as possible, in the surrounding area. Accessibility is significant. - It could be difficult to find a compensation site in compact centres, where areas have official and unofficial purposes of use. - Interviewees underline the meaning of the place. Nature-based social values are often positional. - Compensation sites should be large enough relative to residents and non-humans. 	<ul style="list-style-type: none"> - Offsets should be implemented near the development site (Persson et al., 2015). - A Finnish Nature Conservation Act establishes the rules for offsetting and requires the same or adjacent forest vegetation region (Nature Conservation Act, 9/2023). - As for human communities, only the indigenous Sámi people are recognised in the law: biodiversity offsetting must occur within the area of the same Sámi community (Nature Conservation Act, 9/2023).
Equivalence	<ul style="list-style-type: none"> - Interviewees viewed the demand for equivalence as being relatively flexible. It is important that the possibilities of the same kind of activities remain in the area. - Flexibility makes more compensation measures possible. - Compensation could be the creation of new green spaces, improving the quality of current areas, or safeguarding the preservation of present green spaces. - The social dimension of the compensation was highlighted during the interviews. However, it is important to ensure a nature-based basis for compensation. Interviews also raised the positive effects of development projects that destroy green spaces. 	<ul style="list-style-type: none"> - The main emphasis is put on offsetting biodiversity losses, even if the social dimension should be acknowledged (BBOP, 2018). - Like-for-like options take priority (Kiesecker et al., 2010; HE 76/2022 vp). - No social perspective in the Nature Conservation Act.

development site, both temporally and spatially. Therefore, the interviewees stated that the local detailed plan would be the most appropriate tool to examine and implement ecosocial compensation in practice. In the detailed planning process, it would be easiest to assess what kind of harm will eventually occur and how wide an area will be affected. In a local detailed plan, it is also easiest to carry out citizen surveys in a specific area. The regional and master plans do not seem to interest people in the same way as the detailed plan. Hence, it is often at the detailed plan level that residents awaken to the fact that changes are taking place in their neighbourhood and local nature. On the other hand, detailed plans often contain only a small area where it is challenging to implement ecosocial compensations and to obtain an overall view. Thus, the master plan helps to manage the wider picture.

“Compensations should be considered in the master plan of the municipality. However, the process of making a master plan is also pretty long. The master plan isn't renewed very often, so there aren't many possibilities to consider compensations. It can take years, even tens of years, until the master plan is renewed. So in practice, it [compensation] will be done through detailed planning.” (P12, decision maker).

“It could work at the master plan level too, even if it's so general. However, principles can be defined in master plans.” (P09, land use planner).

The problem with the regional and master plans is that the time span is often very long. The implementation of a master plan can take tens of years. During this time, the residents of the area may change, and new residents may not be aware of the developments planned by the master plan. According to the interviewees, this may lead to conflicts when it is time to make a detailed plan and start construction. Since the purpose of the compensation would be to address the challenges that occur in a particular period, the plan should be sufficiently detailed. On the other hand, more general zoning can help to reach the overall view and wider management of green spaces.

“The detailed plan is the most accurate level, and therefore, compensation must be completed in detail and take different issues into consideration in the detailed plans. Certainly, something must be done in the master plan too, or a little bit more than just something. The broad outlines of compensations should be determined there — things that at least should be done.” (P17, planner).

3.4. Participation in determining compensation

Since ecosocial compensation is concerned with nature-based social values and specifically the residents' local environment, participation was perceived as a very important part of compensation. Residents often ascribe values to the area that planners and politicians may not have thought of. For example, the values attributed to Independence Square in Turku, which was a green space in the city centre, were partly due to the symbolic significance of its name. Additionally, compensation could raise the values of green spaces not only in the eyes of the decision-makers and planners but also in the eyes of the residents.

“I'm not particularly patriotic, but replacing Independence Square for the Music Centre is almost sacrilege.” (P19, NGO).

Compensation is seen as a form of bargaining, negotiating, and trading with residents, which contributes to its participatory dimension. Close cooperation with residents can increase the acceptability of projects when residents are allowed to be involved in the planning and compensation process. Top-down planning would not necessarily achieve residents' approval, and offsets could thus be doomed to failure. After all, the residents know best what the social values of their living environment are.

“It is good that there is an external perspective, but they never know the inside dynamic and the mindset of the local community. Therefore, the acceptability is higher when the proposed action is in line with the residents' opinion.” (P12, decision-maker).

Involving residents may bring new ideas into compensation designs. The interviewees considered it would be beneficial if residents had ideas about the forms and location of compensation. This could also facilitate

the work of planners and decision-makers by providing them with ready-made options and a relatively high degree of assurance that compensation would serve as a refund to the residents, which contributes to the success of both compensation and the development of the area.

On the other hand, the interviewees wondered whether residents are prepared to think about compensation in a situation where they are losing green space in their neighbourhood. Residents often want to preserve the area as it is, and some interviewees considered that opposition to development reflects resistance to change. Discussing compensation would effectively mean recognising and even accepting that changes are coming to the neighbourhood. In such situations, the importance of compensation in increasing acceptability or conflict mitigation may remain limited and would depend much on residents' attitudes towards the project.

"Many times, the zoning plan arouses anger; it's so typical. I just wonder if people are then [during the planning process] in such a state of mind that they can think what they might want as compensation." (P9, planner).

"There is potential in compensations. However, a challenge is that residents' starting point is that there shouldn't be any construction in their neighbourhood. Therefore, why would they negotiate compensation since they don't need anything, they are happy with the present state." (P17, planner).

Residents use green spaces in very different ways, so ideas about compensation measures vary, too. Different user groups have different needs. The interviewees specifically highlighted children and the elderly, for whom the accessibility of green spaces is significant. Overall, according to the interviewees, it is important that the compensation is directed to the group experiencing losses and those who have used the green spaces before.

"It doesn't always have to be one-to-one, so to speak. However, the compensation should create the same kind of possibilities that are lost. In my opinion, it is too rough to demand like-for-like compensation, although it would feel good to demand exactly the same, but there has to be flexibility on both sides [residents and planners/decision-makers]." (P18, civil society).

Participation in compensation processes requires time, activity, and competence from residents. Participation often requires a certain level of anticipation, too. Interviewees underlined how residents wake up to changes in their local nature only at a late stage, when the possibilities to influence development are very small, if they then exist at all. Participation can also seem unnecessarily heavy and time-consuming for residents in some cases. Therefore, interviewees pointed out how it is sometimes difficult to make people participate in planning processes. Some interviewed NGO representatives stated that people do not seem to be as interested in the development of their living environment or influencing it in the same way as they were before.

Interviews also raised concerns about the representativeness of residents in planning and how different participation methods can distort the views and overall picture. Often in planning projects, the largest group of participants is those people who oppose the development. Often at public events, most time is taken up by the loudest in the crowd, and those who do not have quite so strong opinions are disregarded. Various electronic participation platforms have contributed to the multivocality, but they only reach certain citizens. These challenges are the traditional challenges as regards participation that land use planners and decision-makers must solve anyway.

Direct participation of individual residents is the basis for participation, but the importance of different associations, such as those mediating residents' views, was also evident in the interviews. Some decision-makers spoke of how associations can be easier interlocutors in certain situations, as finding a dialogical connection with individuals can sometimes be difficult. Some interviewees had good experiences of how Turkuseura, a civic organization in Turku, has increased participation by organising the resident associations of different neighbourhoods to participate in planning processes. It is also usually easier for associations to comment on plans in the early stages of zoning, as often

planners ask for opinions directly from them.

"These kinds of community associations often represent the views of residents. It is a better interlocutor than individuals in these sort of issues [conflicting planning processes]." (P15, decision-maker).

4. Towards the ecosocial compensation

4.1. The social and the ecological

According to our study, local green spaces are meaningful to residents in many ways, and all the interviewees considered the social dimension as important for compensation practices in cities. The densification of the urban structure affects the residents' immediate surroundings and potentially harms local nature. Our finding was that after measures targeting to avoidance and minimisation of negative impacts on nature-based social values, it is even more important to compensate for residual harm so that similar welfare benefits remain in the area, which is in line with previous research that suggests usually kind-for-kind compensation (Persson, 2013). To safeguard those benefits call for ecosocial compensation and activities of greening and rewilding. The interviewees were flexible regarding the compensation measures and highlighted the divergence of needs and desires among the residents. The usability and pleasantness of green spaces were identified as important elements (see also Fagerholm et al., 2021), and their symbolic status in the cityscape was highlighted too.

In a representative democracy, decision-makers should see all the relevant valued dimensions and interests in the decision-making situation. However, according to the interviews, it can be difficult for decision-makers and planners to grasp all the values and meanings of the local green spaces provided. They often see the area very differently from the residents. According to the philosopher John O'Neill (2020), divergent values, interests, and power positions often lead to land-use conflicts. In practice, this means that decision-makers typically see the area as abstracted, general, and with features comparable with other places, *de dicto*. At the same time, residents tend to see the area as distinctive, their lived environment, and valuable in itself, *de re*. The areas under planning are the organic contexts of residents' everyday lives, strongly associated with lived history and future visions – social practices, beliefs, and emotions. Hence, there are perception and valuation gaps in a planning process, causing land use tensions and conflict events, and consequently, challenging the compensation of nature-based social values (see Ferreira et al., 2021; Giordano et al., 2020; O'Neill et al., 2008). Bridging these gaps by an ecosocial approach calls for an in-depth emphasis on citizen participation and closer collaboration of different stakeholders in urban environmental planning and development.

Consequently, seen from a *de re* perspective, kind-for-kind compensation of nature-based social values is next to impossible. In addition, the social dimension was highlighted during the interviews, as decision makers especially consider the wider sociopolitical setting of the area. The other types of compensation, such as monetary or social compensation, have been supported in other cases, and the preference for these may be influenced, for example, by poverty, since other aspects are perceived as more important than habitat improvement or restoration (Mmom & Igwe, 2011). In our case, the social elements were highlighted rather because of different valuations of local nature or a lack of resources. However, monetary compensation may also be perceived as a bribe, in which case it might only increase opposition (Frey & Oberholzer-Gee, 1996) and raise issues regarding the procedural side of justice. All this illustrates how different kinds of compensations are desired in specific cases. Although compensation has been much discussed during recent years, it still triggers confusion in a local context.

Furthermore, pure social or monetary compensation does not reach the nature-basis of values. Local green environments are both ecological and social, and nature is primary for ecosocial well-being (Salonen & Konkka, 2015). When looking at compensation for green spaces,

attention should be placed particularly on the just distribution of harm and benefits. The eroding of green spaces can threaten this distribution of affordances, which safeguards nature-related practices and contact with nature for all residents. The compensation provides an opportunity to offset these losses and maintain the equitable development of regions and neighbourhoods. On the other hand, as revealed in the interviews, it also offers an opportunity to improve accessibility to green spaces, since the situation may not have been adequate before compensations were initiated.

Biodiversity offsets do not currently encompass the social aspects of the local nature (Tupala et al., 2022). Moreover, according to our results, the rationale for biodiversity offsetting differs from the needs and expectations of residents. Elements of nature can be offset, but that alone does not guarantee fair outcomes from the point of view of residents. Thus, the dualistic approach to compensation does not reach the heart of the matter, justice. There is a need for an ecosocial approach that could acknowledge the nature-basis of the social and the social basis of the ecological, thus combining the ecological and the social (Haila, 1998, 2009). In our ecosocial approach, as we focus on the everyday life and the livelihoods of residents, it becomes essential to account for the nature-basis of social practices and the social-basis of environmental justice in urban development. For us, ecosocial compensation is the way to acknowledge the intertwined nature of the social and the ecological in urban planning. In this study, we have focused on nature-based social values from the residents' point of view. However, to achieve a holistic understanding of ecosocial values in a specific area, it is important to address nature-based social values of non-humans, for example, habitats, ecological corridors, and rendezvous areas. This would help land use planners reflect on what the actual difference between humans and non-humans is from the social point of view (Hiedanpää et al., 2012).

4.2. System-level preconditions of ecosocial compensations in densifying cities

Green spaces become a justice issue in a dense city. Compensation mechanisms that acknowledge justice holistically can help reach acceptable solutions for land use planning, both from ecological and social perspectives. Such compensation would require the fulfilment of some systemic conditions to be functional in land use planning practice, which we have studied in this paper. Although the main criteria of ecological and ecosocial approaches for compensation are relatively similar, according to our findings, they have significant substantive differences when considering justice issues.

Nature-based social values should be compensated as closely as possible to residents experiencing harm. This is also the case with recreation values (Cole et al., 2022). From the distributional justice point of view, offsetting should then be implemented within the same planning area or zone. The interviewees raised the concern about how compensation sites can be found, especially regarding detailed planning in city centres. Even though the master plan is the most appropriate tool to manage the overall view in the city (see also Hiedanpää et al., 2023), the concrete planning of the measures happens at the detailed level. The current planning procedures do not support taking the nature-based social values into account spatially, and too fragmented patchwork land use planning in a detailed planning scheme causes challenges. To consider ecosocial values, wider continuous areas should be assessed during planning. A detailed plan is often not large enough to consider a fair distribution of green spaces and the implementation of ecosocial compensation, as the planning areas can consist of single land lots, and the current detailed plan scheme does not allow planners to consider areas outside the zoning. Small patchwork plans may be useful for specific purposes, but they should be used cautiously with regard to eroding green areas. For this reason, the practice of mitigation hierarchy at all land use planning levels would strengthen municipal preparedness, including for ecosocial compensation.

Urban planners working with detailed plans need more tools to take

into consideration compensation at the larger neighbourhood level. Ideally, planning sites should be expanded to include compensation sites or ensure that there are enough compensation sites in store. Additionally, incorporating better preparation for these situations in the master plan facilitates tackling challenges in detailed plans. However, more flexible mechanisms may be more appropriate, and there is no guarantee that the reserved compensation site is close enough to the development site. In some cases, implementing compensation measures does not require a lengthy planning process, especially when the harm is minor and can be addressed through measures in cities' green infrastructure services. Closer cooperation with local businesses is also a promising way forward, as some companies own private land which could be used for greening measures. Reciprocity is beneficial for companies too, as they are increasingly reporting their efforts for sustainable development (Liu et al., 2025). Many cities' initiatives and tools, like the 3–30–300, require new potential for greening (Konijnendijk, 2023). We claim that there is no single solution for all situations, but rather a palette of different measures is needed.

Municipalities whose population density is not so high often have more leeway with the use of areas, and there may also be more compensation opportunities. These smaller municipalities, such as Lieto, may be able to apply the mitigation hierarchy and its previous phases more effectively, especially avoidance. Since there are possibly more areas free from active land use, there is also more flexibility to locate development projects in such a way that they do not cause degradation of socially valuable green areas. In low-density areas, there are also more compensation sites. Hence, smaller municipalities without high land use pressure often have more opportunities for taking the social into account in land use planning practices. This allows the possibility to test and develop ecosocial compensation practices.

Compensation of nature-based social values can also be viewed from a temporal perspective. The compensation is primarily offset for the current residents. Nevertheless, compensation offsets something that already exists, something that has its own history. In that sense, the conservation type of compensation considers the past, which becomes visible in past planning solutions in the current cityscape (Lehtinen, 2006). Further, compensation may also anticipate future needs for green spaces. Thus, compensation and the fairness of those have a dialogue between different temporal dimensions, even if primarily directed to current residents. Since densification is one of the primary trends in cities, zoning should be able to respond quickly to compensation needs, often already in advance. Municipalities should be increasingly active in surveying greening opportunities, whereby compensation sites could also be booked beforehand. However, habitat banking developed for biodiversity offsetting alone (Enetjärn et al., 2015) is not enough to safeguard nature-based social values, as it does not consider the preconditions for the ecosocial approach presented in section 3.3. Cities could apply that criterion for their banking process as an additional criterion, at least in residential areas.

When mapping potential compensation sites in advance, it is important to remember that additionality is one of the main principles of compensation (Moilanen & Kotiaho, 2018). Planners and decision-makers must ensure that compensation is an additional greening measure and not the only way to develop green infrastructure, if the aim is to reach net positive effects, or nature positivity. Agreed rules for ecosocial compensation would clarify the terms of its implementation in land use planning and increase fairness between different neighbourhoods.

4.3. Justice and collective capabilities

Participation is strongly related to the procedural side of planning and perceived justice. It is especially important when changes occur in the living environment. One aspect of participation is the recognition of how non-human actors react to environmental changes and how these reactions are incorporated into land use planning. From both human and non-human perspectives, participation was perceived as an important

part of compensation processes and is significant for procedural justice. Participation was particularly relevant to social values, which is consistent with previous studies (Persson et al., 2015) and engaging residents in the planning can be beneficial for nature too (Huber et al., 2023). The social dimension of ecosocial compensation provides a significant advantage through inclusion compared with other types of compensation, when, in the case of social values, residents can be asked beforehand whether the compensation is sufficient. Non-human actors could also be incorporated into these wider valuation schemes through non-human participation methods, such as multispecies stakeholder analysis (Sarkki et al., manuscript).

The participation of residents is essential for ecosocial sustainability (Turunen et al., 2001). According to Finnish legislation, residents have the right to participate in the land use planning of their neighbourhood. Yet, their participation tends to remain symbolic, since officials or even a single civil servant may decide which citizen input is relevant (Bäcklund & Mäntysalo, 2010), and as we discovered, even the basic assumptions of values may differ, and too top-down approach could not work in compensation planning. There is no clear guidance on when and how citizen knowledge should be used in planning, which makes practices in Finnish cities inconsistent (Faehnle et al., 2014; Rossi et al., 2024). Sometimes strategic planning practices even bypass formal participation requirements, which can reduce transparency and weaken democratic accountability (Bäcklund et al., 2020).

Currently, residents can raise the impacts of the loss of urban green areas and find ways to avoid and minimise them in the Participation and Assessment Scheme (PAS), which is prepared early in any land use planning (Land Use and Building Act, 132/1999). The purpose of the PAS is to inform stakeholders about the aim of the plan and participation opportunities. Developing the PAS to incorporate ecosocial compensation aspects and measures in all land use planning levels would be particularly important, and there have been suggestions to strengthen institutional norms for the systematic use of experiential knowledge, to increase transparency and fairness in information sharing, and to foster organisational cultures that support planners in making effective use of citizen input (Faehnle et al., 2014; Niemi et al., 2025; Rossi et al., 2024). The interviewees found the compensation process as a way to raise the diverse values of nature into a social debate, but that requires that the procedural mechanisms are effective for catching and delivering information. The PAS would be an appropriate existing tool for that, if it could be developed to take multiple values into consideration more deeply and make it even easier for residents to participate, as it was considered resource-intensive. Stakeholder collaboration and deliberation as a means of inclusion should be encouraged to support planning and decision-making and also catch shared social values (Kenter et al., 2015).

Hence, different resident associations could be good interlocutors, as interviewees highlighted. For us, ecosocial compensation is a way to engage residents more closely in environmental decision-making. This would allow residents to be meaningfully involved from the beginning of the planning process (the PAS) and throughout the steps of the mitigation hierarchy. Even before the PAS, residents should be involved in envisioning their living environment, where they could influence the broad outlines, as they had a chance to do during the Maritime Vision of Western Turku work (City of Turku, 2024). In addition, ecosocial compensation could, from the collective capabilities perspective, be a means of strengthening the actual possibilities of residents to influence densification development and the erosion of green spaces by helping to find workable joint solutions for them and other actors in shared urban living environments.

Recognising different groups and their needs is crucial for fair participation (Schlosberg, 2007). The current lack of recognition indicates problems in planning and decision-making procedures and contributes to the uneven distribution of green spaces. Groups like children, vulnerable groups, and the elderly with limited access to public spaces should be especially considered in the compensation

processes. Specifically, the concerns of adults often overshadow the concerns of children (Mansfield et al., 2021). Safeguarding accessibility and the quality of green spaces for groups with constraints on access and experience is necessary. This is a matter of holistic environmental justice. Greater significance should be given to the recognition of different human groups in planning to achieve fair outcomes and distributive justice. This would require more engaging methods and cooperation with public associations, which could represent different groups in sometimes long-lasting planning processes. In Turku, the interviewees already had good experiences with city–association cooperation, and this could be broadened to understand the associations of different vulnerable groups, such as associations for the elderly or people with different disabilities.

The acknowledgement and development of residents' capabilities and opportunities for recreation and nature's health effects are central to just planning. Activating residents to secure local green spaces and participate in community activities enhances welfare benefits and sustainability. For sociologist Peter Evans (2002), communities are arenas of shared values and offer tools for pursuing these – communities hold collective capabilities that potentially allow achieving goals that cannot be achieved by individuals alone (Ibrahim, 2006), and individual capabilities are dependent on collective ones (Evans, 2002). Activating these collective capabilities is essential for implementing compensation and engaging residents and thus, the local community is a key actor for just compensation.

5. Conclusions

The objective of this study was to explore the practical and conceptual implications of ecosocial compensation within the framework of just planning. Our findings suggest that it is essential to recognise the nature basis of social values in the context of green spaces. Attention should go beyond the spatial and temporal distribution of offsetting measures. It must also address stakeholder and public participation processes, which still require development in Finland, and the recognition of the needs and values of different human and non-human groups by moving forward to a more ecosocial way to see the values of urban green. Emphasising participation in ecosocial compensation processes within land use planning could also contribute to improving organisational culture and resources, thereby strengthening planners' willingness and capacity to utilise citizen input (Rossi et al., 2024).

Local nature is both ecological and social, and the dualistic approach does not help understand how ecosociality is constituted in everyday practice. It is essential to break that dichotomy to reach just solutions in urban planning in this era of market-oriented conservation. The current land use and development planning systems do not adequately address these considerations, and therefore, achieving fair compensation necessitates a more holistic but at once more practice-oriented approach. An ecosocial approach is recommended to ensure recognition of the lived values of green spaces and the social aspect in compensation schemes. Thus, it is possible to achieve just compensation for both people and other species. Clearly, ecosocial compensation should not be claimed to be biodiversity offsetting. In biodiversity offsetting, criteria such as like-for-like and ecological gain are stricter and unnegotiable, but there is no reason why social aspects could not be combined without compromising the strict principles of biodiversity offsetting.

In this study, we focused on compensation of nature-based social values in the context of the land use planning scheme in Finland and sought to explain the concept of the ecosocial approach to compensation practices. Our findings and recommendations could be applied in other regions too, as they offer actionable insights for the recognition of the nature-based social values in city planning. Nevertheless, more research is needed regarding the perceptions of the ecosocial approach from the perspective of various stakeholders, including non-humans, in other planning contexts, and practical integration of the ecosocial perspective in biodiversity offsetting projects. A comprehensive, ecosocial approach

for urban green valuations could lead to more just and sustainable planning solutions, considering both human and non-human perspectives.

CRedit authorship contribution statement

Misa Tuomala: Writing – review & editing, Writing – original draft, Visualization, Validation, Software, Resources, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Juha Hiedanpää:** Writing – review & editing, Supervision, Project administration, Methodology, Funding acquisition, Conceptualization. **Minna Pappila:** Writing – review & editing, Supervision, Funding acquisition, Conceptualization.

Declaration of competing interest

Authors do not have competing interests directly or indirectly related to the work submitted for publication.

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Appendix A. Interview framework (translated from Finnish)

1. Opening/background

- Personal/organisation's role regarding land use planning
- Personal background

2. Different forms and tensions of land use

- What are the biggest conflicts between different forms of land use at various levels (local/regional)? What needs the most coordination?
- How successful has the integration of different land use forms been?
- Are social and cultural values and functions sufficiently considered in current land use planning?

3. Green spaces and the meaning of them

- How do you consider the meaning of green spaces for the residents?
- What are those nature values or objects that make them important for the people?
- What activities threaten the green spaces?

4. Compensating nature-based social values

- Are you familiar with any kind of compensation? What do you think about them?
- Have you come across compensation before?
- What benefits do you see in compensation in practice? How about the challenges?
- What would be the most important factors when planning compensation for the residents?
- Could it influence land use conflicts?

5. Compensation of nature-based values as part of the planning

- At what stage of the planning process would it be best to include compensation?
- What benefits or disbenefits that might bring at different levels?
- How would compensation fit into different planning levels (detailed/master/regional)?

- Should the focus be on developing legislation or voluntary solutions?
- What is the role of public participation in the compensation process?

6. Compensation of nature-based social values in practice

- What could be compensated and what could not?
- In what kind of situations could compensation work?
- Do you have any examples in mind?
- Would you like to add something?

Data availability

The data that has been used is confidential.

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