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Proposing a participatory value-driven approach for the appraisal of multifunctional land use {CONFERENCE}

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Abstract

Combining multiple functions allows public and private stakeholders to achieve the synergy of integrating various resources in the project. To achieve the intended synergy of multi-functionality, it is important to identify combinations of functions that help to balance conflicting objectives, and bridge different interests in the project. In this paper, we focus on understanding the role of project interdependences, tradeoffs and divergent objectives in the definition and selection of functions of two multifunctional projects located in the Netherlands. Our findings reflect how functional and organizational interdependences, as well as the realization of mutual objectives, strongly influence the tradeoffs that stakeholders make when defining and selecting functions. We consider that the appraisal of multifunctional projects could benefit from methods that allow to (1) incorporate the stakeholder values and objectives early in the process to guide the definition of combinations of functions and to identify mutual project objectives, (2) provide an understanding of trade-offs among project choices, and (3) create awareness about stakeholder preferences.

Introduction

In recent years, there has been increasing attention to multifunctional land use. Space scarcity and changes in public and private spending encourage governments to look for projects that satisfy multiple purposes simultaneously. This way, it is possible to achieve synergy by integrating the resources, expertise and knowledge of various stakeholders. These stakeholders often belong to different administrative levels and sectors. To achieve the intended synergy of multi-functionality, it is important to identify combinations of functions that help to balance conflicting objectives, and bridge different interests in the project.

Appraisal takes place prior to the implementation of the project. In this process, stakeholders define potential combinations of functions, assess the performance of these alternatives according to various criteria (i.e. environmental, economic, financial) and select the alternative that can better achieve the anticipated synergy of multi-functionality. Although stakeholders attempt to satisfy multiple objectives by developing multifunctional projects, there is an inevitable tradeoff among options, in which stakeholders have to prioritize some objectives over others. Consequently, multifunctional land use requires an appreciation of the interdependence of the functions and resources in the project. Therefore, the development of multifunctional projects calls for a high degree of coordination among stakeholders.

The use and introduction of methods to support the definition and selection of functions of multifunctional land use has been debated over the last years. According to De Jong and Spaans (2009) the increasing demand for better spatial quality, the new existing concepts to finance spatial plans, and the greater coordination at more levels among public and private organizations require methods to assist the selection and combination of specific land use types. This is in line with Salet et al. (2013) who state that the strong interdependences in multifunctional projects require different approaches for planning and evaluation than those for single sector projects. To be able to propose

methods to support the definition of combinations of functions that can help to achieve synergy in multifunctional land use, we consider it important to provide practice-based studies of the appraisal process of multifunctional projects.

The aim of this paper is to illustrate the dynamics during the appraisal of multifunctional projects. Our focus is on understanding the role of project interdependences, tradeoffs and divergent objectives in the definition and selection of functions. To this end, we present two case studies of multifunctional land use. Our findings reflect how functional and organizational interdependences strongly influence the tradeoffs that stakeholders make when defining and selecting functions. We present the conclusions and implications of our study, suggesting the application of a value driven approach to facilitate the definition of combinations of functions that can help stakeholders to achieve the complementarity they seek through multi-functionality.

Seeking synergy through the development of multifunctional projects

Appraisal is the judgment of the expected results from different actions before making a decision (Khakee, 1998). Some scholars acknowledge the role of appraisal as a learning process that produces an increased knowledge and understanding of specific project issues, helps to clarify different positions and to acquire a greater knowledge of a problem, and produces changes of opinion converging towards the solution of a common interest (Selicato and Maggio, 2011; van der Meer and Edelenbos, 2004; Khakee, 2003). If appraisal steers the planning process towards producing opportunities for action (Selicato and Maggio, 2011), in the context of multifunctional land use this production of opportunities translates into identifying a combination of functions that helps to achieve the intended synergy of multi-functionality.

In multi-functionality, the planned use and combination of interdependent resources can help to promote synergy between multiple purposes. Interdependences translate into several resources: funds, authority, land, information, politics, etc. (de Bruijn & ten Heuvelhof, 2008). The mutual dependence of resources and objectives influences inter-organizational interactions (Lundin, 2007; Janssen, 1999). When there is interdependence, stakeholders may achieve their objectives as a result of the exchange of resources or the actions of other actors.

The existence of interdependences calls for the consideration of two types of objectives: common and mutual (Alexander, 2001). Common objectives are held in common by actors. Mutual objectives are self-interested goals that can be achieved by the realization of other actor's objectives. Not surprisingly, the existing interdependences in multifunctional projects influence the achievement of common and mutual objectives. Previous literature has emphasized the importance of focusing not only on the interdependence, but also in to what extent actors' goals are shared and catalyze cooperation (Lundin, 2007). In multifunctional projects, stakeholders' objectives influence their preferences for a particular function or combination of functions. Some authors have already emphasized the importance of balancing potential tensions between multiple objectives during the project appraisal because of their influence on stakeholder preferences (Gerber & Gibson, 2009).

Preferences entail tradeoffs that are often based on an understanding of the opportunities and consequences of the choices made. These choices are influenced by values and objectives, having an influence on the evolution of the appraisal process. Consequently, the process of finding opportunities for action cannot be independent of the stakeholders' values. Authors in both management and planning literature have acknowledged that *what matters* to stakeholders (values) influences their preferred courses of action (Keeney, 1992; Cerreta, 2010). Values are what stakeholders hold as important, and Cerreta (2010) states that values *help to explore the decision context and structure the*

problem, by guiding information collection, uncovering hidden objectives, improving communication, facilitating involvement in multiple-stakeholder decisions and interconnecting decisions. This view is in line with Keeney (1992) who acknowledges that values should be the driving forces for any decision making process. As van der Knaap (2004) acknowledges, figures, numbers or calculations mean little without insights into the world views, interests, and preferences of those involved in the project.

In the next section we present our research method in the attempt to better understand the appraisal process of multifunctional projects and the role that interdependences, common and mutual objectives and tradeoffs have in the definition and selection of combinations of functions.

Method

The empirical part of this project draws on two case studies of multifunctional projects in the Netherlands. The first project is the Roof park, a multifunctional project in the city of Rotterdam. This case was retrospective and we reconstructed the decision making process to understand the dynamics of delivering projects that combine various functions. For the data collection, we relied on semi-structured interviews with 17 stakeholders involved in the decision making process from both public and private organizations working at different levels of government and disciplines. During our interviews, we asked the participants to reconstruct the decision making process from their perspective, focusing on the elements that were decisive to them to get the project implemented. We also got access to more than 70 project documents related to the design, regulations and decisions made in the project. These data allowed us to identify the episodes that influenced the definition and selection of functions for the project.

The second case is the Grevelingen Volkerak Zoommeer (GVZM) case in the South West Delta in the Netherlands. In this project, we focused on understanding the appraisal in an ongoing project, aiming at depicting the challenges that practitioners encountered and the type of methods they used. In this project, we interviewed 20 participants from different organizations and disciplines. During our interviews, we asked the participants about the most important aspects in the decision making process from their perspective. We observed 21 meetings, and we had access to more than 200 internal documents that stakeholders used during the appraisal process.

We analyzed two independently collected data sets to gain insights into the dynamics for the definition and selection of functions for multifunctional projects. Assembling data for an unintended comparative case study requires a different analytic process than that of a planned multiple case study (Eisenhardt, 1989; Bechky and Okhuysen, 2011). We collected data about a series of events during the decision making process of both, the Roof Park and the GVZM. We analyzed the decisions made in both projects and the factors having an influence on these decisions. We did not have a priori categories to frame our initial analysis. Instead, we drew on preliminary similarities among the factors influencing the appraisal process in multifunctional land use. During this step, we went constantly to literature to develop categories to link our findings to more generalizable concepts (Miles & Huberman, 1984).

Although both projects are very different in terms of scope and approach for data collection, it was possible to establish a comparison between these two cases because of their main commonalities. Both projects combine multiple purposes in the same area with various organizations involved in the definition and selection of functions. Furthermore, the two projects had long trajectories with various events and factors influencing the evaluation process. We separately arrived at the conclusion that the diversity of objectives and values among organizations, and the interdependence among functions and

stakeholders were major elements influencing definition and selection of combination of functions for multifunctional projects. Based on these observations, we selected one event for each project, and analyzed (1) the interdependences existing in the project, and (2) the influence of the interdependences among functions and actors on the choices they made, with the consequent trade-offs.

Project data and findings

The Roof park

The Roof Park is a multifunctional project near the former fruit port in the city of Rotterdam. This project combines a mall with an 8ha park on its roof and is part of a larger development that integrates the harbor and the city.

The decision making process started in the late 1990s initiated by the municipality of Rotterdam. Long standing complaints from the residents and the district authority about the lack of green areas, and a need to provide businesses for the companies located in the harbor encouraged the municipality to look for projects that could satisfy both wishes. The municipality and the port authority were planning to move the companies operating in the harbor to a different location in the city, and although the fruit port used to be very active in the past, there were only few companies operating in the late 1990s.

Planners of the municipality of Rotterdam came up with the idea of designing a building with a park on top of it. Simultaneously, there was a subsidy from the national government awarded to projects that combined various functions and involved citizens in the design of the project. To comply with the requirements of the subsidy, the municipality appointed a private developer to build the structure under the park. Moreover, the municipality organized a participatory trajectory where the neighbors could give input for the design of the park. Since the project complied with the conditions of the subsidy, the municipality got financial support from the national government to develop the project.

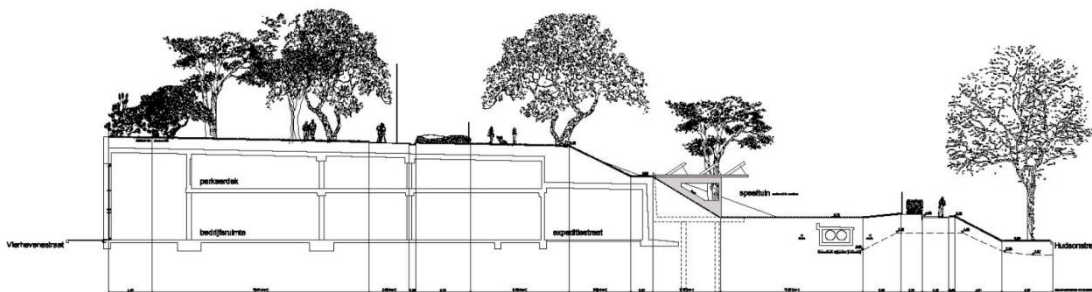


Figure 1 Design of the multifunctional structure (www.dakparkrotterdam.nl)

In this paper, we provide a description about the definition and selection of the function under the park. Although the function under the park was supposed to be office space, there were changes throughout the process. The municipality considered that developing office space was desirable for companies moving out of the harbor. Consequently, the municipality thought that it would be convenient to move the offices of the fruit port to the new project. Building office space under the park satisfied the requirements to get a subsidy from the province to stimulate the development of businesses in the area. The main condition of the provincial subsidy was that the project should not conflict with the existing shops in the neighborhood.

For the private developer this project was important to build reputation for future cooperation with the municipality, hence the provision of a feasible project was one of their objectives. The private developer reckoned that it would be more profitable to develop shops instead of office space. The main purpose of the private developer was to build the function under the park, and then sell it to

another private company. Therefore, one of the main requirements was to rent 70% of the built space. The private developer considered that renting shops instead of office could be more attractive in the real estate market.

Changing the function in the building under the park would entail the reversal of a subsidy from the province. The province considered that building office space did not conflict with existing business in the area. However, building retail could have a negative influence on the earnings of the existing shops and the project did not comply with the criteria to provide the subsidy. Revoking a subsidy was not desirable for the province because every year there was a budget to be spent in projects, and failing to allocate the subsidy could negatively influence meeting their provincial goals of restructuring a certain amount of hectares per year.

Since the subsidy from the national government was dependent on the development of multifunctional land use, and the municipality required the resources from the private developer to get the project implemented, the municipality supported the private developer to build shops instead of office space. This decision would entail losing the provincial subsidy and starting negotiations with the province to get the permit to start the project. In 2008, the province approved the land use plan of the project design including shops instead of office space and the municipality and the private developer could start developing the project. In figure 2, we provide a timeline of events related to the selection of the function under the park showing the long appraisal process for the selection of functions to develop under the park.

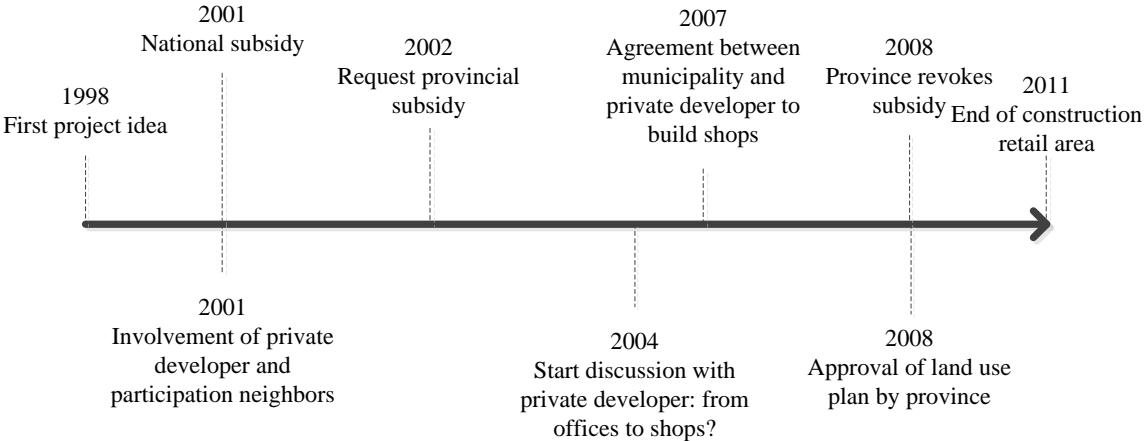


Figure 2 Timeline of events related to the selection of the functions under the park

Interdependences, objectives and tradeoffs in the Rook park

Based on the previous case description, in figure 3, we provide an overview about the diversity of objectives, interdependences, preferences, and tradeoffs for the selection of the function under the park.

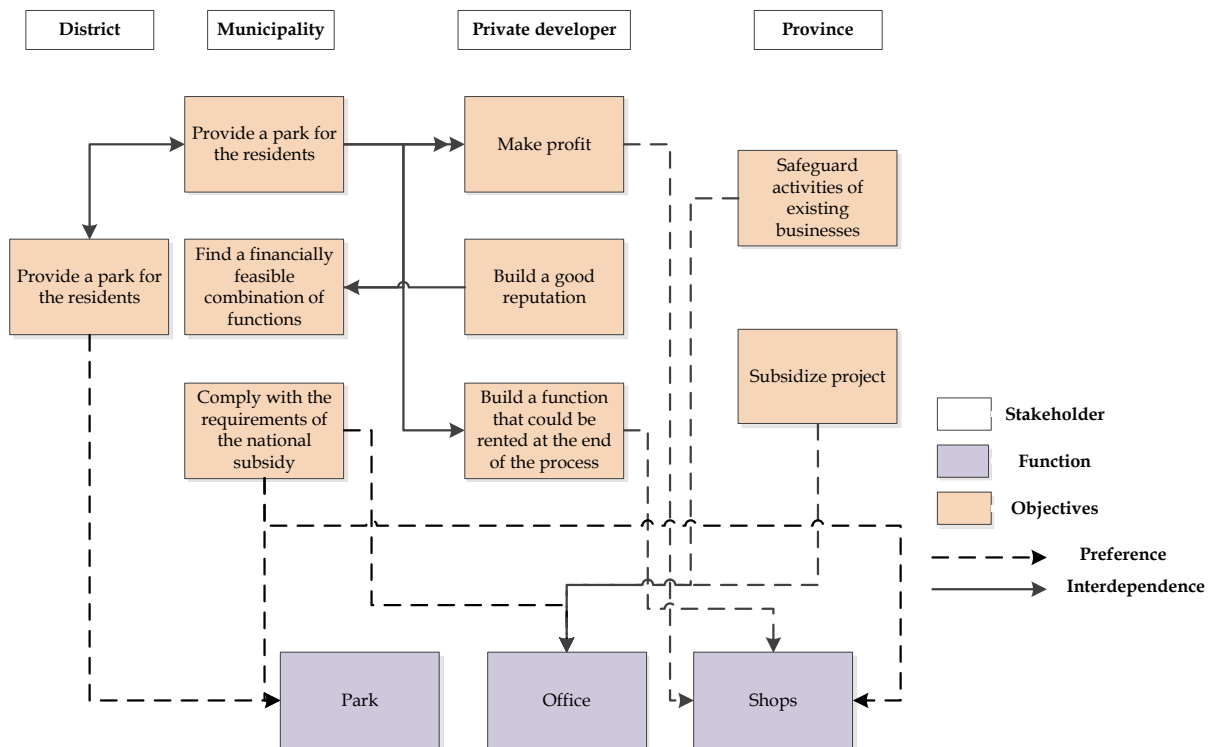


Figure 3 Illustration of stakeholders' objectives, preferences and their interdependences in the Roof Park

Figure 3 displays the interdependence among stakeholders' objectives, and the influence of their objectives on their preference for the functions in the project. We observe that the municipality, district authority, private developer, and the province did not have common goals. However, the achievement of some stakeholders' objectives depended on the achievement of other actors' goals, given the existing interdependence among objectives and stakeholders. The financial gains of the building under the park helped to finance the whole project, hence the strong support from the municipality to satisfy the private developer's objectives. In the following quote we show how a municipal project manager perceived the strong dependence of the park on the development of the building: *'And the (private developer) made a cash flow machine. Nothing wrong with that.... A colleague told me: "This park on top? A byproduct...The real project is the building. And you are spending all your time talking about the roof of the building". And I said: "but this is a very important park for the city...". The real issue was the cash flow machine we had to agree with the private developer. It was being born or killed...'*

Making this choice for the function under the park involved a tradeoff. Building retail instead of shops entailed missing the provincial subsidy and a long legal process that would delay the approval of the land use plan. Furthermore, the new shops could compete with the existing ones, leading to some opposition from the local shopkeepers. According to the district authority, the tradeoff was losing the provincial subsidy and having potential opposition from local shopkeepers in return for gaining green areas in the neighborhood. This tradeoff is illustrated by the quote of the representative of the district authority: *'There was a discussion in this room about whether or not we should go against the shops... We didn't not if it was a good option, but we needed the park... So we decided not to go too much against the city to stop that development, and to put a ban on the supermarket or other things... Because we might end up with nothing.... It was not sure if without businesses we would get a park. Just getting a park is expensive, and now the park is partly paid by the businesses... As a colleague said: "we did sell our soul to the devil for the park"'*

In the next sub-section we present our results about the second case study.

Grevelingen Volkerak zoommeer

The GVZM is an integrated area development project in the South West Delta in the Netherlands. This development combines plans to address water quality, flood protection and fresh water supply issues with various projects linked to agriculture, fisheries, housing, energy, transport and recreation. The location of the lakes and the area of study is shown in figure 4.

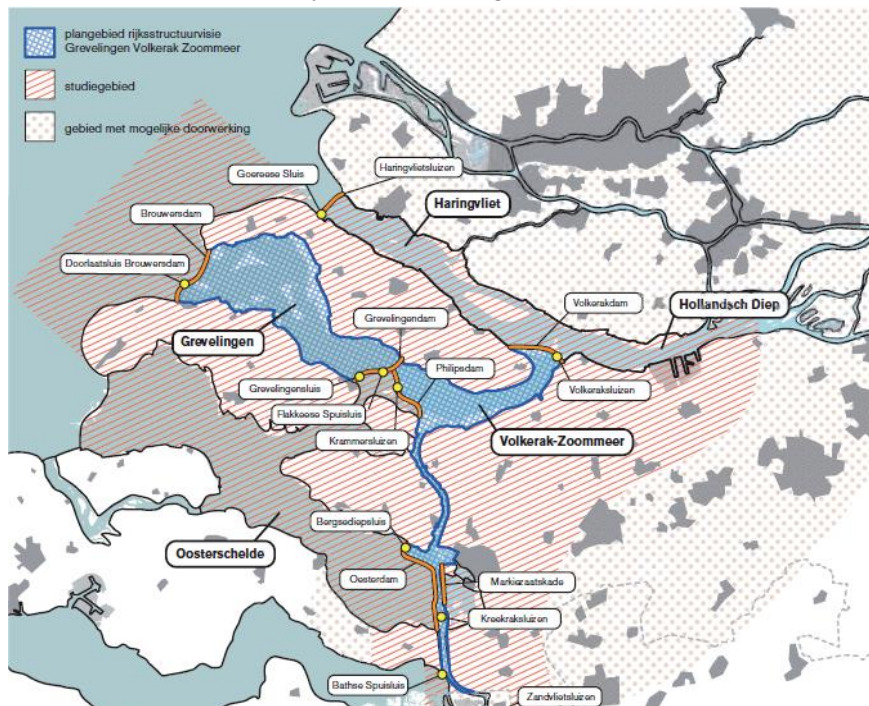


Figure 4 Location of Grevelingen Volkerak Zoommeer lakes

In 2000s, national and regional organizations started to develop studies to gain insights into the problems worsening the water quality in the Grevelingen, Kramer Volkerak and Zoommeer. In 2012, there was a positive decision by the Ministry of Infrastructure and the Environment to set up a consultation process to evaluate a priori the opportunities of addressing these problems. A formal appraisal process started in 2013. The goal of this process was twofold: (1) to assess the impact of projects to solve the water quality problems and provide flood protection, and (2) to identify a combination of functions that could provide financial benefits for those investing in the project.

Since the projects had a regional impact, there were more than 18 stakeholders with an interest in the project. An important part of the process was to identify combinations of projects that could get the support from a great number of stakeholders so they would contribute with their resources to the project. This was what participants in the project called *turning stakeholders into shareholders*.

In this appraisal process, there were two trajectories running simultaneously. One of the trajectories incorporated the objectives of different stakeholders with an interest in nature, business, social interests. The second trajectory dealt with shareholders of the project, those who contributed financially to pay for the projects (provinces and national governments). Both trajectories evaluated the links among projects and ways of balancing their often conflicting objectives, as we describe below.

In the appraisal process of the GVZM we observe the existence of multiple interdependences. The objectives of the provinces and national government were to (1) improve water quality, (2) improve economic development and (3) find projects that help to pay for an improvement in water quality.

In this paper, we focus on the projects addressing the water quality problem. Solving this problem required the salinization of two of the three lakes. This was an expensive project because of (1) its technical complexity and (2) its consequences for fresh water supply for agriculture that needed to be compensated. Consequently, national and provincial authorities explored various projects that could attract financial resources from those stakeholders that profited from an improvement in the ecosystem. These stakeholders belonged to the following industries: recreation, fisheries, agriculture, energy, transport and housing. Cooperating with different regional sectors would also contribute to improve economic development, which was another objective of provincial and national governments.

An improvement in water quality had positive consequences for businesses in the area. Entrepreneurs working in the recreation industry could profit from an improved ecosystem that would attract more tourists and visitors. Furthermore, fishers could benefit from an improved water quality offering opportunities for more production. However, there were also negative consequences from the salinization of the lakes. Given the influence of the salinization on fresh water for agricultural use in the area, the agricultural sector required a compensation for the reduced availability of fresh water supply. For farmers in the region, it was desirable to provide a project that safeguarded the availability of fresh water supply in the future. To avoid opposition to the project, the governmental organizations considered it important to compensate farmers for the reduced availability of fresh water.

For nature organizations, the development of projects around the lakes was not desirable because of their focus on preserving nature instead of putting it under pressure. This contrasted with the position of the energy companies whose financial resources were desirable to finance the improvement of water quality. Energy companies had a preference for developing windmills in the area to increase the production of energy. At the time of writing this paper, there was not a decision about the projects to be implemented in the GVZM. However, we can already observe the interdependences, and potential tradeoffs involved in the appraisal process.

Interdependences, objectives and tradeoffs in the GVZM

Based on the above case description, figure 5 shows the diversity of objectives, interdependences, preferences, and tradeoffs for the selection of the projects to improve water quality and contribute to economic development in the GVZM.

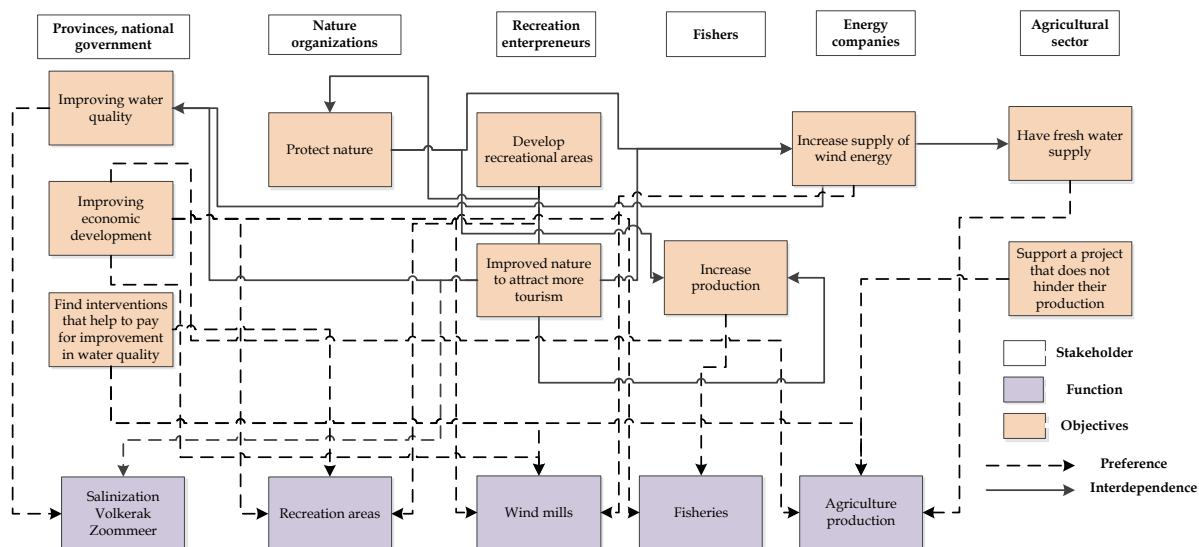


Figure 5 Illustration of stakeholders' objectives, preferences and their interdependences in the GVZM

Figure 5 shows the strong interdependence among objectives, and the influence of the objectives on stakeholders' preferences. We observe that identifying projects that could help to finance an improvement in water quality resulted in a 'domino effect'. For instance, one of the projects consisted of placing windmills in the location and involving the energy sector to finance of the project. Although financially desirable, nature organizations considered that this could have negative consequences for recreation and nature because of the impact of the windmills in the area, as shown by the following quote from a member of the national government: *'If you need to place windmills, and use sustainable energy to pay for the salinization of the lakes, that has consequences for recreation. Not everybody likes camping below a windmill. Perhaps it is not a problem, but you have to consider it. If you have a lot of maritime transport... then you cannot reserve a place for the fisheries. So all these projects that have effects on each other...everything is interconnected.'*

Although provincial and national governments perceived that it was necessary to plan projects that gave a financial profit, these choices were not the most desirable for all the sectors. The appraisal process required to balance societal and financial objectives. Stakeholders concerned with the preservation of the ecosystem like nature organizations had different objectives than entrepreneurs willing to invest in the project and get revenues from it. During the process, stakeholders had to balance value tradeoffs and their objectives ("one man's meat is another man's poison" effect). This dichotomy is illustrated by the following quote from an internal communication of the project: *'It is important to consider the tensions between nature and financial profit. To give few examples: the construction of a recreational park may bring a lot of profit, but it puts the natural location under pressure. Salinizing the Volkerak lake brings opportunities for shellfish, but are we going to make full use of space or reserve a portion of the space for recreation and fisheries in the whole lake? Do we want that?'*

We observe that none of the stakeholders had common goals but the existence of mutual goals influenced their preferences. Identifying projects that could help stakeholders to attain mutual objectives and incorporating the voices of a large array of organizations proved to be challenging in the appraisal process of the GVZM.

Cross case analysis

In both projects various organizations attempted to achieve the synergy of combining multiple functions in the same area. In table 1 we show the description of the Roof Park and the GVZM, focusing on the intended synergy by combining various functions, the existing interdependences, the presence of common and mutual goals, the existing tradeoffs and whether or not we observed an explicit consideration to the values and objectives in the project.

Table 1 Description of the Roof Park and GVZM based on findings.

	Roof Park	GVZM
Project characteristics	Urban project. Development of a building with a park on top of it.	Regional project. Combination of improvement of water quality, and flood protection with projects associated to the agriculture, fisheries, recreation, energy, housing, and transport sectors.
Synergy	Developing a building helped (1) to help to finance the park with the resources of the private developer, and (2) to get the subsidy from the national government.	Better water quality and flood protection stimulate the development of activities. The development of projects for related sectors helps to pay for an improved system.
Interdependences	Developing the park depends on the profitability of the building under it. The profitability of the building under the park depends on the success of the development of a multifunctional project. The project requires the land use permits from the province.	Improving water quality requires projects that provide financial benefits. The earnings of integrated projects depend on an improved ecosystem.
Common goals	No	No
Mutual goals	Yes: municipality, private developer, district.	Yes: recreation, fisheries, energy, provincial and national governments
Tradeoffs	Build retail instead of office space to implement the park. Losing the provincial subsidy and delaying the approval of the land use process	Some projects put nature in tension. Building financially profitable projects although it is unclear the impact in the long term?
Explicit consideration of values and objectives in the process	No	Yes

In both projects we observe that the interdependence among stakeholders' objectives influenced their preferences for the identification and selection of functions, as well as their allocation of resources.

Furthermore, the definition and selection of functions was dependent on the achievement of mutual goals. Although individual stakeholders' objectives differed, the achievement of some individual objectives resulted in the attainment of other objectives in return.

In the Roof Park, the influence of the realization of mutual goals was clear for the selection of the function under the park. The municipality had the objective of finding a financially feasible combination of functions. To this end, the private developer had to achieve her objective of having a profitable project. The main two reasons for this were that (1) the financial resources of the private developer were necessary for the financial feasibility of the project, and (2) developing a multifunctional project was a condition to get the national subsidy.

In the GVZM, defining and selecting the projects depended on balancing objectives among stakeholders, and finding strategies that allowed them to achieve their mutual objectives. For instance, improving the water quality in the lakes would have a positive influence on the recreation sector, since a better preserved natural environment would attract more tourism. However, finding strategies to achieve mutual goals proved to be challenging. Paying for an improvement in the water quality required investments from different sectors, not only recreation. For example, the provinces and the national government were planning to build windmills in the area to get financial support from the energy sector to pay for the improvement in water quality. Nature organizations were not completely satisfied with the idea of building windmills in the location. The appraisal process was dominated by the exploration of strategies to achieve mutual goals and balance conflicting objectives at a regional and local scale.

Another observation relates to the incorporation of stakeholders' values, objectives and preferences for the process. In the Roof Park project, the definition of the function for the building under the park did not include the objectives and values of the province, whose objectives came to the picture later in the process. This led to negotiations among stakeholders, a deferred decision and the rejection of the provincial subsidy. Bringing to the surface the divergent objectives and values earlier in the process could have avoided that situation since it would have helped to find alternatives that satisfied a larger array of stakeholders, including the province. In the GVZM, the organization of both trajectories dealing with stakeholders and shareholders attempted to balance divergent values and objectives. However, the difficulty lay on balancing the voices of the large array of organizations and interconnected decisions in the project.

Discussion

One of the main ambitions of developing multifunctional projects is to attain the synergy of integrating functions and resources. To achieve this synergy, stakeholders attempt to find projects that satisfy various objectives simultaneously. This way, more stakeholders will contribute with their resources for the realization of the project. Our findings show that seeking the synergy of multifunctionality requires an understanding of the interdependences among project resources and objectives. In the multi-sectorial and multi-disciplinary context where multifunctional projects take place, the consideration of interdependences, tradeoffs and strategies to achieve mutual objectives seems highly relevant.

The description of our cases shows how stakeholders' objectives shape their preferences, and how these preferences are oriented towards making choices that help to achieve mutual goals in the project. Since preferences depend on objectives, and objectives are dependent of stakeholders' values, our results support that project choices are highly dependent on stakeholders' values. Based on our

research results, we consider that to define combination of functions that help to achieve complementarity through a multifunctional project, there is a need for approaches that help to:

- Bring the values and objectives of stakeholders to the surface early in the process and define project alternatives based on these objectives instead of waiting to bring them later in the process.
- Define project alternatives that help to achieve stakeholder's mutual objectives.
- Show the stakeholders' preferences to enable stakeholder participation and transparency in the process, facilitating the identification of courses of action that can lead stakeholders to attain their mutual goals.

In the next section we suggest a value driven participatory approach to support the definition and selection of functions for multifunctional projects. We consider that complex social problems like the development of multifunctional projects requires the systematic incorporation of values and tradeoffs in the appraisal process (Keeney & Raiffa, 1993).

Implications of our study and further research

Our research results show that defining combinations of functions that help to achieve synergy strongly depends on the achievement of mutual objectives. We have seen how the achievement of some individual goals depends on the attainment of other actors' goals as a result of the interdependence in the project. When an actor has resources or legitimate authority that help other stakeholders to achieve their own objectives, it is likely that she will accept a tradeoff to select the function that help to attain the mutual goals.

Given the influence of mutual objectives on the definition and selection of combinations of functions, we consider that the appraisal of multifunctional projects could benefit from methods that allow to (1) incorporate the stakeholder values and objectives early in the process to guide the definition of combinations of functions and to identify mutual project objectives, (2) provide an understanding of trade-offs among project choices, and (3) create awareness about stakeholder preferences.

To incorporate stakeholders values and objectives early in the process for the definition of functions, we suggest a "value focused thinking approach" (Keeney, 1992). We consider that value focused thinking is appropriate when working with stakeholders who have often conflicting values and goals because it helps to (1) identify potential project alternatives and (2) take value tradeoffs into account. Besides, a value focused thinking approach focuses on the scoping stage where the key objectives and values of stakeholders are defined (Karjalainen et al., 2013). The use of a value focused thinking approach where stakeholders are actively involved in the identification of project alternatives may provide insights into potential function combinations that would have been disregarded otherwise, while bringing conflicting interests and values to the surface. This way, we expect to support the definition of alternatives that allow achieving mutual goals. Dealing with stakeholder interests is a very important front-end task, since many projects suffer important changes and delays in the attempt to accommodate stakeholder interests that were not considered at early project stages (Edkins et al., 2013).

Given the variety of objectives involved in multifunctional projects, we consider that multifunctional projects could benefit from methods that guided stakeholders to identify courses of action to attain their mutual goals. Once stakeholders have identified different project alternatives, we propose to bring to the surface diverging stakeholder preferences. To this end, we suggest to use a participatory multi-criteria decision analysis (MCDA) in which the criteria to assess the alternatives are the objectives identified in the previous phase. This way, the evaluation criteria are closely linked to the

values of the stakeholders involved in the appraisal process. There are several methods in MCDA. We suggest to use the analytical hierarchy approach (AHP) (Saaty, 1977). The AHP uses pairwise comparisons about (1) the relative importance of the criteria, and (2) the relative performance of the alternatives for each criteria. The different weights stakeholders allocate reflect different social views about the project. Comparing elements in pairs through AHP, it is possible to integrate the different judgments given by each actor obtaining only one weight for each criterion, which expresses the points of view of all the involved stakeholders. AHP provides preference structures and eliminates ambiguities facilitating communication among various stakeholders who often find it difficult to come to a consensus (Ananda & Herath, 2003). Using an AHP to show stakeholders' objectives, we expect to support stakeholders to gain an understanding of the opportunities to attain mutual goals.

The presented approach focuses on the scoping stage where the objectives and values of stakeholders are defined and potential combination of functions must be defined. This way, we think that exploring these approaches in multifunctional land use could contribute to the definition of opportunities and facilitate learning among organizations about their objectives and potential opportunities in the project. In our view the value focused thinking and the AHP approaches are a complement to economic instruments or other evaluation tools more focused on showing the value of the project in monetary terms or supporting the collection of information to facilitate the allocation of resources.

This is an ongoing research. In the next steps of our study, we attempt to apply and test the value focused thinking and AHP approaches to support the definition of project alternatives and stakeholder dialogues for the appraisal of multifunctional projects.

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