The findings from literature in the previous chapters have been brought together in a conceptual framework (see Sect. 3.9) and an analytical framework for Transformative Social-Ecological Innovation (Sect. 5.1). It's main purpose is to study the dynamic interplay between actors and institutional structures influencing and inducing institutional change. This chapter furthermore provides a further operationalization of the TSEI analytical framework for analysing shifts in power dynamics (Sect. 5.2), by investigating a series or cluster of closely related action situations and mapping how power dynamics change. An example of TSEI-framework application is provided in Sect. 6.6. Finally, Sect. 5.3 provides a framework for analysing different levels of collective learning, which is considered as one of the key variables for studying the outputs of TSEI. Finally, this chapter highlights some important insights on collaborative action research and related methods (Sect. 5.4).

5.1 Analytical Framework for Transformative Social-Ecological Innovation (TSEI)

The TSEI-framework presented here is based on earlier work by Huntjens et al. (2016) and Huntjens (2019). Predecessors of the TSEI-framework have been used successfully in environmental diplomacy and mediation processes in various parts of the world (Huntjens et al. 2014a, b, c; Yasuda et al. 2017a, b, 2018), as well as for studying transformation processes and institutional change in water management, agriculture, and spatial planning (Islam and Madani 2017; Yasuda et al. 2018, 2020; Huntjens 2019; Huntjens et al. 2020).

Within the TSEI-framework the action situation has been taken as the core object of analysis, and considers the action situation as the interface or 'glue' between two other analytical components: structure/institutions on the one hand, and actor-agency on the other. As such, the framework can be used for institutional and political-economy analyses, with a special focus on the power dynamics at play (Sect. 5.2).

Power dynamics can be studied by looking at a series or clusters of closely related action situations, in which the initiation, format, content, and output of each action situation are analysed.

This framework allows to zoom in on a series or cluster of related action situations (and their context), looking at ‘structure’ and ‘agency’, and at the output-outcomes-impact of these action situations (per action situation and per series/cluster). An action situation is a moment where multiple parties (with different interests, perspectives, and preferences) come together and are confronted with a series of potential actions, in which these parties exchange goods and services, try to solve problems, influence each other, learn together, and which results in shared output and outcomes. A series or cluster of closely related action situations is often referred to in literature as an action arena (Ostrom 2009) or transition arena (Loorbach 2010).

For analysing a series or cluster of closely related action situations it is valuable to make use of a learning history or timeline method (Sect. 4.7), because it aims to provide better insight into a series of action situations and the associated learning history. The timeline method is therefore an important part of the methodology of the TSEI-framework. Based on empirical data, for instance based on interviews and timeline method, action situations can be identified for further analysis, in particular those that influenced or were decisive for the process of multi-party collaboration and its results.

The TSEI-framework distinguishes five main components, corresponding to the numbers in Fig. 5.1:

1. TSEI context and situation-specific context
2. Action situation
3. Structure/institutions
4. Actors/agency
5. Outputs, outcomes, and impacts

Each component will be briefly explained below.

Component 1: TSEI Context and Action Situation Context

Understanding the circumstances that influence the nature of the Transformative Social-Ecological Innovation and those that affect a decisive moment in the cooperation process (the action situation) is an important first step in the analysis. Examples of contextual factors include the nature and extent of the societal change, the history of cooperation between the parties involved in past action situations (or the lack thereof), and the key biophysical, material, and socio-economic features of the area in question, such as a rural or urban district, a province or ecoregion.

Component 2: The Action Situation

An action situation is a situation in which two or more individuals are confronted with a series of potential actions that will result in shared outputs and outcomes

Fig. 5.1 Analytical framework for Transformative Social-Ecological Innovation (TSEI). Numbers in this figure correspond to description of specific components below

(Ostrom 1999, volume 42; 2005, p. 13). An action situation is referred to as ‘the social space where participants with diverse preferences interact, exchange goods and services, solve problems, dominate one another or fight’ (Ostrom (2005, 32). Researchers using the TSEI-framework may select an action situation by examining whether the situation in question is or was decisive for the process of cooperation and/or its outcome. This can range from multi-stakeholder dialogues to meetings within a negotiation or decision-making process, often as part of a series or cluster of closely related meetings or negotiations. It is often necessary to study several different action situations, as well as their relationship to each other, in order to gain a better understanding of the TSEI. These series of clusters are also referred to as action arenas or transition arenas. The selected action situations are then analysed, focusing in particular on subcomponents such as initiation, process, format, and content of the action situation. Detailed questions regarding these subcomponents are listed in Table 5.1, based on Huntjens et al. (2016, 2017) and Huntjens (2019).

Table 5.1 Subcomponents and questions for the analysis of the action situation

Subcomponent	Question
Initiation	<ul style="list-style-type: none"> • What triggered the meeting? • What was the objective? • Who organized it? Who was invited, who was not, and why? • How was support mobilized?
Process/ Format	<ul style="list-style-type: none"> • Who was present and who cancelled? • Were there any specific reasons for participating or cancelling? • Which venue was used and how was the meeting structured (agenda)? • Who acted as a facilitator? How was inter-participant exchange facilitated? • Which discussion format was used, e.g. round-table discussion, a workshop, or a more advanced participation method? • Who spoke and who took minutes? • Was there any expectation management and was the decision-making process transparent? • Which decision-making protocol was used, e.g. majority vote, consensus, consent? • Which negotiation strategies were used, e.g. accepting the first offer, compromising (splitting the difference), competition (zero-sum game), or problem solving (mutual profit)?
Content	<ul style="list-style-type: none"> • Which issues and topics were addressed during the action situation? Which were excluded or avoided? • What information was made available to participants in advance? Was it relevant? Was there enough time to take in this information? • Which uncertainties were identified and/or addressed in the action situation? • Did participants allow their knowledge and information to be challenged by other participants and did they present their own mental models, insofar as they were aware of them? • Was information presented in an authoritative way or a facilitating way, encouraging other participants to reflect? • Did new information emerge during the action situation, and how did this affect the negotiations or dialogue?
Output	<ul style="list-style-type: none"> • Agreements and related level of commitment, mutual trust, level of collective or transformational learning. For more information, see component 5.

An example highlighted in this book (Sect. 6.6) is a series of closely related action situations, including the final adoption of the Ambition document on the Innovation Agenda for Sustainable Agriculture by the Provincial Council of Zuid-Holland on 29 June 2016. Although the adoption did indeed conclude a decision-making process with regard to ambitions and the agenda, it mainly constituted an important step within a longer-term process of change towards a strong, sustainable and future-proof agriculture and food chain in the Province of Zuid-Holland. With the adoption of this document, the Province made seven million euros in co-financing available, in addition to seven million euros in European subsidies from the Rural Development Programme (In Dutch: Provinciaal Ontwikkelingsprogramma), adding up to a total of 14 million euros in available funds. Entrepreneurs can use this funding to implement innovations in experimental projects to drive sustainable agriculture. In

addition, 350,000 € of co-funding were set aside for the Knowledge and Development programme, an initiative by various educational institutions and universities to collect and share knowledge. To facilitate the transition approach and network building, approximately 650,000 € have been made available for a period of 4 years.

Component 3: Institutions

The concept of ‘institutions’ has several different interpretations in literature. This book follows the definition proposed by Calhoun (2002, p. 33): ‘Institutions are deeply rooted patterns of social practices or norms that play an important role in how society is organised’. Institutions can pertain to various areas of social activity, such as family life, associations, and politics. Generally speaking, institutions result from a process of institutionalization, in which preferences are gradually strengthened until they are fixed and familiar. This process is usually accompanied by conflicts and the exercise of social power (Parker et al. 2003). We distinguish between formal and informal institutions:

- **Formal institutions** are those that structure the practices of actors and which are adopted through a formalized process. They include the constitution, laws, and legislation adopted by society, organizations, and policy.
- **Informal institutions** are those that structure the practices of actors and which are embedded in organizations or groups without a formalized process. They include customary law, existing practices, norms, and culture.

Component 4: Actors/Agency

Agency refers to an actor’s ability to exert influence (Ali-Khan and Mulvihill 2008; Newman and Dale 2005). The first step in analysing this component consists of identifying key stakeholders and actors, with the former referring to all persons, groups, and organizations with an interest in the societal change in question, either because they are affected or because they can influence its outcome. This may include individual citizens and businesses, interest groups, government agencies, and experts. It is important to map the interests, incentives, and access to financial, personal, or institutional resources of all stakeholders who participate actively in the action situation. On top of that, existing coalitions and partnerships need to be taken into account in the analysis, since they can influence the power dynamics. In order to better understand cooperation and decision-making, it will often be necessary to identify the preferred or dominant negotiation and influence strategies of each actor, as this information, when bundled, will provide greater insight into the role and influence of each individual actor.

Cooperation requires potent leadership and management (Leach and Pelkey 2001; Huntjens 2011), which is why it is important to understand the leadership styles in play. Leadership has an important role in building trust, substantive management, conflict management, connecting parties, initiating cooperation, collecting and generating knowledge, and mobilizing broad support for change (Folke et al. 2005).

Component 5: Outputs, Outcomes, and Impacts

An action situation can result in outputs, outcomes, and impacts, three distinct concepts. The difference between these three is defined as follows (Huntjens 2019):

- **Output:** the product resulting from one action situation or output of series or clusters of closely related action situations. Examples of output include a cooperation treaty, other types of agreement, committed investment, a plan, strategy, legislative proposal, financial regulations, or instruments to promote sustainability. Also the level of collective or transformational learning (see Sect. 5.3), mutual trust, type of leadership, and related level of commitment are considered as outputs.
- **Outcome/result:** this is the direct effect of the output. It is measurable and time-limited, though determining the full effect can take an extended period of time. Examples of outcomes include behavioural change, new knowledge, and solutions resulting from co-creation and social learning. A new revenue scheme for sustainable business or a circular business model could be outcomes of (new) financial regulations and instruments that promote sustainability.
- **Impacts:** these are the long-term or indirect effects of the outcomes/results.

Impacts are often difficult to quantify because they may or may not happen. Impact is what we hope for, whereas results are what we work for. To illustrate the difference between results and impact: In sustainable business practices aimed at nature-inclusive agriculture, farmers work to make a living (result), and with biodiversity measures (also result) they hope for the restoration of biodiversity (impact). When creating green spaces or water collection facilities in the city (result), residents and other parties hope for improved air quality and better protection against flooding (impact).

It is also important to consider unintended side effects, as it is possible for policy to achieve its intended goals while also leading to a large number of adverse side effects (Biermann et al. 2007). The introduction of phosphate rights in the Netherlands, for instance, had unintended negative side effects, such as the irresponsible increase in milk production per cow and the significant growth of dairy farms without using extra land.

5.2 Power and Network Analysis

Because social innovation is a process that involves several groups, each of which have their own norms, values and interests, issues of distribution and power are inevitable (Meadowcroft 2009; Cattacin and Zimmer 2016; Karré 2018). However, the balance of power and the interests that play a role in social innovation often remain underexposed, while the question of how to deal with competing interests and values—and how to use this competition to prompt co-creation—plays a crucial role in the success or failure of cooperative efforts. As such, it is important to pay

attention to the role of power and what influence it has on the decision-making process.

A power analysis or network analysis (see, for example, Wielinga and Robijn 2018) is therefore an indispensable instrument in order to better understand and facilitate social innovation and effective cooperation. A power or network analysis is preferably carried out together with the actors involved, with participatory analysis thus contributing to mutual understanding and the process of social learning and co-creation.

According to the philosopher Nagel (1975), power is a causal link between a party's wishes for a result and the result itself. It is distinct from sources of power, from which power can be drawn. Power comes in all sorts of shapes and sizes, including potential power, latent power, implicit power, and manifest power. Most often, power is exercised implicitly: the most powerful player does not make a threat, but others still take the threat they may pose into account. Other types of power include process power, structural power, and coercive power, the latter of which leans on persuasion and has the potential to harm others. Powers and influences are two sides of the same coin: influencing the behaviour of others.

The work of Partzsch (2017) informed us on three ideal type concepts: 'power with' (learning and cooperation), 'power to' (resistance and empowerment), and 'power over' (coercion and manipulation). Furthermore, the multi-level power framework offered by Arts and Van Tatenhove (2004, based on Clegg, 1989) distinguishes between relational, dispositional, and structural power. Avelino and Wittmayer (2016) argue 'that besides such a vertical typology of power, as offered by Arts and Van Tatenhove (2004), we also need a horizontal understanding which allows to analyse who exercises relational power (in a specific action situation), and also, how the dispositional power embodied in actor configurations is configured across different actors'.

The following explains how the TSEI-framework (see Sect. 5.1) can be used to analyse the role of power within transformative social-ecological innovations (TSEI). To this end, a distinction is made between three forms of power that can play a part in the process of TSEI at different levels: relational, dispositional, and structural power (based on Arts and Van Tatenhove 2004):

- **Relational power:** an actor's capacity to achieve its goals in interaction with other actors. Power can only be expressed in social relationships, and at this level, actors and their motivations, resources, interaction, and outputs are central. In a process of social innovation, relational power can be expressed in an actor's capacity to put certain problems on the agenda and framing them, or their ability to mobilize resources to achieve the desired change. Actors can have various motives for innovation, such as changing circumstances and shifting perceptions, shock events, and problems with existing policies. Professors Bas Arts and Jan van Tatenhove (Arts and Van Tatenhove 2004) do, however, qualify this by adding that human behaviour is shaped to a large extent by routines, path dependence resulting from choices made in the past and institutional structures (Arts and Van Tatenhove 2004).
- **Dispositional power:** an actor's capacity to act. Actors are positioned in organizational structures which give them a certain degree of access to resources, but informal norms and formal rules can also affect an actor's freedom of action and behaviour. Dispositional power is expressed by seemingly 'fixed' organizations or institutions but is certainly not static. After all, actors form institutions just as much as they are affected by them. According to renowned sociologist Anthony Giddens (1984) and political scientist Alexander Wendt (1987), actors have preferences that they cannot realize without collective action. Based on these preferences, they form and reform certain social structures over time, affected partially by unintended consequences (see Grin 2010). Once these social structures are in place, they begin to give direction to actors themselves and their preferences. Actors are capable of changing the organizations they work in, but due to their duration these processes transcend daily politics (Arts and Van Tatenhove 2004).
- **Structural power:** refers to the nature of signification, legitimation, and distribution of power in a society and constitutes how macro-social structures, such as discourses and institutions, influence actors. Structural power stimulates certain outcomes of interactions or processes while hampering alternatives that conflict with prevailing discourses/institutions. Structures are not actors, of course, but they are reflected in the behaviour of actors, which is why structural power can also be identified when researching the motivations of individual actors. Structural power is subject to change, but these processes are slow and often last longer than a human lifetime (Arts and Van Tatenhove 2004).

Grin (2011) has translated these three forms of power into the *multi-level perspective* of transition science, describing relational power, for instance, as an actor's capacity to use the regime to their advantage. Dispositional power is represented in the regime and its formal rules, access to resources, configurations of actors and dominant norms or ideas. Structural power is expressed at the landscape level and influences what is desirable and legitimate.

Power is therefore an inherently dynamic and layered concept (Avelino and Rotmans 2009, p. 559; Grin 2016, p. 112). These three distinct forms of power make up a vertical typology of power, in which the different kinds of power correspond to different degrees of aggregation (actors, structures, systems). Avelino

Fig. 5.2 Using the TSEI-framework for power analysis

and Wittmayer (2016) argue ‘that in addition to a vertical typology of power, we also need a horizontal approach, distinguishing between three types of power relations between actors: (1) A has power over B, (2) A has more/less power than B to do x, and (3) A and B have different kinds of power’. In essence, Avelino and Wittmayer (2016) ask ‘how different actors exercise different kinds of power at different times in different roles’ (cf. Avelino and Wittmayer 2016). Both the vertical and horizontal typology of power presented here have been included in the power analysis within the TSEI-framework (see Fig. 5.2). As such, the TSEI analytical framework can also be applied to analyse shifts in power dynamics, by investigating a series or cluster of closely related action situations and mapping how power dynamics change.

5.3 Framework for Analysing Different Levels of Collective Learning¹

In order to distinguish different learning processes and how to classify them according to the triple loop concept it is useful to start with some definitions (based on Hargrove 2002):

¹This section is based on Huntjens et al. (2011a).

Table 5.2 Collective learning framework (Huntjens 2011; Huntjens et al. 2011a)

Type	Indicators
Single loop learning	<ol style="list-style-type: none"> 1. Small changes are made to specific practices or behaviours, based on what has or has not worked in the past. Things are done better without necessarily examining or challenging underlying beliefs and assumptions (Kahane 2004). Goals, values, plans, and rules are operationalized rather than questioned (Argyris and Schön 1974) 2. Goals, values, frameworks and, to a significant extent, strategies are taken for granted. The emphasis is on techniques and making techniques more efficient (Usher and Bryant 1989, 87).
Double loop learning	<ol style="list-style-type: none"> 1. Modifications (as the result of learning) are occurring, or have occurred, in personnel, programs, and legal and organizational structures that incorporate new information (including policy feedback) and causal understandings that yield more intellectually perceptive processes, a wider range of capabilities, and more effective policy (Brown 2000, 3). 2. Actor networks are changed by including new stakeholders, supporting reflection on assumptions, and showing new possibilities. The social network of stakeholders is seen as the basis for learning and dealing with change (Folke et al. 2005; Geels et al. 2004). 3. Uncertainties are identified as a first step to find solutions (Brugnach et al. 2008), and then taken into account in policymaking (Huntjens et al. 2010).
Triple loop learning	<ol style="list-style-type: none"> 1. Horizons of possibility are expanded (Hargrove 2002, 118). 2. A paradigm shift takes place that alters our way of thinking and behaviour (Hargrove 2002, 119; Pahl-Wostl 2009). 3. A major structural change takes place in the regulatory framework.

- **Single loop learning (SLL)** is a refinement of established actions to improve performance without changing guiding assumptions or taking alternative actions into account.
- **Double loop learning (DLL)** is a change in frame of reference and guiding assumptions.
- **Triple loop learning (TLL)** is a transformation of context to change factors that determine the frame of reference. It refers to transitions of the entire regime in which values and norms are shaped and stabilized by structural context.

The concept of multi-loop learning has been further operationalized into an analytical framework, summarized in Table 5.2 (Huntjens 2011; Huntjens et al. 2011a).

5.4 Collaborative Action Research²

For research into social phenomena there is increasing interest in ‘action research’ in various forms. In this process the researcher enters a real-world situation and aims both to improve it and to acquire knowledge (Checkland and Holwell 1998). Since

²This section is based on Huntjens et al. (2011b).

the 1990s it became more and more difficult to identify the main thrust of action research, since there have been a number of different interpretations of the term action research, but also a variety of different terms, such as action learning, action research, action inquiry, participatory action research, and collaborative action research (Eden and Huxham 1996). All of them share the aim of building ‘theories within the practice context itself and test them through intervention experiments’ (Argyris and Schön 1978; Argyris 1985).

The need for practical, useful research that informs management practice is well established. For a number of reasons, action research is well suited to provide actionable knowledge (Coghlan and Brannick 2002). Action research provides relevant knowledge due to the involvement of practitioners and because the research is carried out in the relevant context itself. Due to the involvement of practitioners, rich data can be gathered relatively easily. It provides rich data due to the involvement of practitioners. Because data are gathered in context, the research results are valid in that context. The involvement of practitioners enhances the development of actionable knowledge, while scientific researchers in action research tend to guard the development of theoretical knowledge. Action research projects often use both qualitative and quantitative methods, and can provide both theoretical and practical insights (Reason and Bradbury 2005).

Action research aims to contribute both to the practical concerns of people in an immediate problematic situation and to further the goals of social science simultaneously (Gilmore et al. 1986). In other words, there is a dual commitment in action research to study a system and concurrently to collaborate with members of the system in changing it in what is together regarded as a desirable direction. The twofold ambition of developing practically relevant and scientifically sound knowledge requires the active collaboration of researcher and client, and thus it stresses the importance of co-learning as a primary aspect of the research process (Gilmore et al. 1986). Action research involves utilizing a systematic cyclical method of planning, taking action, observing, evaluating (including self-evaluation), and critical reflecting prior to planning the next cycle (O’Brien 2001). Of course, not all problems and research topics require the same standard approach. Each action research programme requires tailor made arrangements, which take—amongst others—into account situational conditions regarding the content of the issues, relationships, and commitments.

The principle of actively involving stakeholders in our research on Transformative Social-Ecological Innovation is important for several reasons. The first reason is that stakeholder involvement and ‘buy-in’, or ownership, is crucial for identifying acceptable trade-offs, for negotiating distributions of costs and benefits and for reaching consensus about the research findings and recommendations (Ashby 2003). During processes of Transformative Social-Ecological Innovation, the understanding needed for consensus and compliance requires new knowledge to be generated by research in order to achieve stakeholder ‘buy-in’ and often needs to include expertise drawn from other stakeholder groups (Irwin 1995). This form of ownership often needs to be established across a range of institutions and levels of decision-making (Martin and Sutherland 2003).

A second reason for involving stakeholders in research is that their involvement is a key to coping with the complexities and uncertainties related to Transformative Social-Ecological Innovation, by bringing in a wider range of perspectives on needs, impacts, and options, and having them deliberated openly. At the same time, by engaging with complex governance systems, researchers are better able to understand their dynamics.

The issue of great complexity and uncertainty poses important challenges to governments, particularly in finding their most appropriate role in the governance of sustainability transitions. They try to find answers on questions like: which instruments can we use, which policy options are available, how do we have to organize governance processes and which legal room for manoeuvre do we have? Instead of studying these considerations themselves, collaborative action research can be an approach to help officials by finding the right answers.

A third reason is to use collaborative action research in the emerging field of governance of sustainability transitions is that this field is still in its infancy. Many stakeholders are still thinking about what they have to do and how they have to do this. Hence, there is not so much opportunity for reconstructive research, for in-depth surveys or multiple case-study research when we want to know more about the Transformative Social-Ecological Innovation. We have to focus our research on practices which are emerging.

Fourth, because the theory of a Natural Social Contract and related Transformative Social-Ecological Innovation is under construction, it is very helpful to organize short, iterative cycles of observation, analysis, and adjustment. Action research is highly useful to combine initial theory testing and theory development. It provides in recurring learning cycles in which empirical fieldwork and theoretical reflection follow each other.

It is not the case, however, that intensive, time-consuming participation processes must be organized for each and every problem. Within complex transition challenges, such as the sustainability transition, stakeholder participation, and collaborative action research are needed when:

1. different stakeholders depend on each other to achieve their goals.
2. there is no agreement about the problems at hand or the solutions to these problems.
3. information is incomplete or disputed, with the necessary knowledge and experience being distributed among different parties.
4. the issues at hand are sufficiently important for stakeholders to invest the necessary time (and therefore money) in solving them.

Huntjens (2011) observed that parties involved in complex social problems in practice make only limited use of the broad range of methods in which diverse stakeholders can learn from each other or utilize each other's knowledge and experience. Choosing for an appropriate method for social learning and stakeholder participation can make the difference between confrontation or cooperation between parties. In practice, an enormous number of workshops, inspiration workshops,

round-table discussions, and brainstorming sessions are organized, but it is often questionable to what extent the right method or approach has been chosen in order to achieve social learning, effective cooperation, and mutual trust. For each phase and aspect of the cooperation process, many different methods are available to bring parties together, to facilitate social learning, and to realize collective action. In addition to the chosen method, the facilitation style and required competencies are of great importance.

Broad stakeholder participation generally provides a diverse and more nuanced set of measures needed to address complex issues, which also promotes a social system's capacity to learn (Huntjens 2011). However, social learning does not happen by itself and requires effort on the part of all those involved, adequate facilitation and reliable information on issues being discussed. The most suitable method has to be chosen on the basis of the phase in the planning or implementation process, the composition of the group, the context, the objective, the ambitions, and the desired outcome of a meeting.

There are dozens of proven methods to stimulate and facilitate interaction, participation, social learning, and co-creation. Below illustrations are only a small selection of the available methods:

- **Vision development:** a method for reformulating substantive objectives when common ground is lacking and the planning is fragmented (Hajer and Poorter 2005).
- **Role-playing:** gamified simulations can be used to experiment with real-life processes in a somewhat controlled environment (Cook and Campbell 1979; Vissers et al. 1995), and involves people playing various roles in order to imitate the social system. By way of illustration, role-playing helped De Stichtse Rijnlanden water board develop the area plan for the Kromme Rijn (Change Magazine 2009). More space was needed to collect water and ditches had to be widened, which would force the horticultural and agricultural sector to surrender land. When the board proposed its plan, it met with considerable dissent. In a role-playing game, farmers and citizens were asked to take a seat in the water board's boardroom to follow the same decision-making process, which led to a tumultuous meeting that finished with the participants coming up with the same plan as the water board. In the end, the role-playing process increased mutual understanding and trust (ibid.).
- **Group model building:** this method can help identify interdependencies and define a common problem and solutions. All parties sit around the same table and are given an equal opportunity to explain why they believe the policy in question to be successful or unsuccessful, writing it on a large sheet of paper charting the relationships between various factors. This process allows for everyone to be heard, including different ministries, municipalities, provinces, businesses and environmental organizations, as well as individual citizens, fishermen, and farmers. This method therefore creates an understanding of each other's interests while broadening the horizons of all parties involved and giving the entire process

more depth. There is often no such thing as a simple solution (Huntjens et al. 2014a, b, c).

- **Backcasting:** this is a commonly used method in spatial planning that involves imagining a successful future outcome, after which the participants ask themselves what must be done today to achieve this situation (Quist and Vergragt 2006).
- **Reflexive monitoring:** this method involves mapping learning processes and helping project participants reflect in order to help strengthen system innovation projects (Van Mierlo et al. 2010).
- **Learning history/timeline method:** different stakeholders will come to different evaluations of the same project or programme. Exchanging and discussing these evaluations contributes to deeper learning and developing a common perspective on innovation (Willems and Roelofs 2009).
- **Dynamic learning agenda:** this method is used to formulate, record, and keep track of long-term challenges and concrete action perspectives (Regeer et al. 2009; Van Mierlo et al. 2010).

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