Impact Assessment procedures as incentive for social learning

Signs of a "new Dutch polder model"

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- Paper aims at institutionalization of SEA.
- Key purpose of SEA to me is to contribute to sustainable development, whether through the government intervention to which it is formally linked or indirectly to future interventions. I explore indirect effects of SEA.
- Theoretical perspective is that of complexity theory / systems theory. I take the view that sustainable development of the world system is desirable and that system reforms (transitions) are needed to achieve that.

Abstract. Social learning before planning and formal decision-making is the best way to link knowledge to complex decision-making - i.e. achieving an alternative development rather than only mitigating and compensating adverse impacts. SEA helps as incentive for social learning. Impact assessment procedures make sectoral actors vulnerable and therefore create an incentive to come to an understanding with adversaries. The issue in 2005 is not so much improving SEA procedures, but creating trust so that adversaries can work together for the long term. The author believes that the Dutch polder model contributed to such trust in case examples. Transparency is needed to create interdependencies, but closedness is also needed for these networks to develop influential ideas that create sustainable breakthroughs.

Keywords: learning networks, interconnectivity, sustainable mobility, transition management, environmental policy, governance, and complexity theory.

1 Introduction

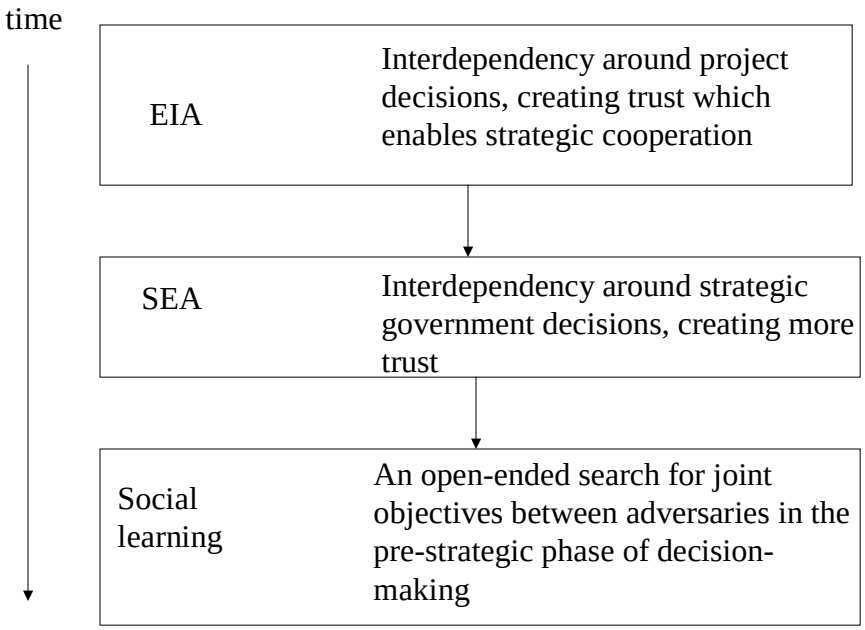
This paper is based on several papers. In one theoretical paper, Geert Teisman and I suggest that impact procedures in general cannot be expected to directly lead to social change (required for sustainable development). In a second (draft) paper (based on my draft PhD thesis) we argue that such procedures indirectly might contribute to a context for trust development. Such trust may lead to better learning skills and therefore more likelihood of sustainable breakthroughs. One force driving this evolution of trust and skills is the procedures that create interdependency between actors with seemingly opposing short-term interests, if only through the transparency they create and the associated power of environmentalists to delay decisions.

Many see Impact Assessment as an instrument for sustainable development (eg IAIA 2002). This is an expression of the idea that by creating (institutional) force, social change can be achieved. The Dutch (environmental) administration has already forgotten

about this force: it doesn't see impact assessment regulations in that way, certainly not SEA. This appears from the 4th National Environmental Policy NMP4 (Ministry of Housing, Spatial Planning and the Environment 2001). In stead, NMP4's hopes are set on the idea of "transition policies", an expression of the idea of the learning organization (the whole society seen as one big learning organization), where the same non governmental actors who quarrel in EIA and SEA procedures now work nicely together in a pre-strategic phase (if government strategies are considered the strategic phase). Taking that cooperation as an empirical example, it seems to be an excellent platform for (voluntary) assessment and account of environmental impacts. Transition policies, by the way, assume that major reforms are needed to achieve sustainable development, a point of view that I take as assumption in this paper as well.

It can be argued that EIA and (lesser) SEA, whereas taken for granted as useful procedures in terms of democratic rights, have been important and still are important to create interdependencies that stimulate participation in social learning. In that way, they contribute indirectly to sustainable development. Whereas in the relevant policy networks new types of interactions have emerged, people may forget how this new culture has emerged. New ways become taken for granted, and impact assessment becomes encapsulated: it exists but in the periphery of the attention of those involved in "real" process. Only when crisis develops, people may fall back to their old behavior of conflict centered on specific government decisions. (It should be remembered however that transition policies have not been studied on a large scale yet from point of view of sociological theories. Empirical evidence of its success is scarce.)

The general idea of this evolution in The Netherlands is summarized as follows. The only regulated interaction is, until recently, EIA. At the strategic level SEA has never been required, but political situation has demanded non-mandated consideration of the environment and involving environmental groups. A general level of transparency, with no specific focus on environment or sustainability, had always been mandated. The driving force of this evolutionary pattern consists of the Dutch "polder culture", supported by EIA procedures and the emergence of environmental organizations in and outside the government.



In the third evolutionary stage all three types of processes occur alongside. Because there is social learning, different strategies are proposed, and because different strategies are proposed, different projects are proposed. This seems in line with idea of Bina (2003) who studied the development of SEA.

However, at each level different people may be involved, and they may not be aware of what is going on at the other levels. Thus, the importance of EIA in terms of sustainable development is forgotten: the pre-strategic and the strategic stage have resulted in more acceptable projects in the first place.

On the other hand, there may be a preventive effect: people may be willing to engage in open-ended interaction with others in the pre-strategic stage, because they know they will meet each other again in SEA and EIA arenas. This probably is an important trust mechanism. However, more is needed to become an effective learning group – a skill of social learning. To develop that skill, new ideas that are initially politically dangerous must be developed and tested. That can happen in a semi-closed group, as Dutch case material (transition management) suggests.

To explain all this in more detail, this paper has the following sections:

- a section explaining our theoretical point of view of impact assessment in relation to complex decision-making, identifying a need for social learning (based on Teisman and Nooteboom)

- a section explaining the evolution of trust and social learning in the pre-strategic phase, in The Netherlands (illustrated through transition policies)

- a concluding section about desirable interactions in the pre-strategic phase and (semi-closedness) and the influence of institutional arrangements at the strategic phase (in particular SEA)

2 Impact Assessment and social learning

2.1 Why direct effectiveness of SEA and EIA is limited

2.1.1 The mechanism of impact assessment

Impact assessment is "the process of identifying the future consequences of a current or proposed action" (www.iaia.org). One of its intentions is to contribute to sustainable development (IAIA 2002). The impact assessment community believes that this works through the following mechanisms or "logic" (Nooteboom & Teisman 2003):

- Rationalisation: Impact Assessment assists rational decision-making that could lead to government interventions that aid in attaining sustainable development. It is assumed that Impact Assessment has agenda-setting abilities, since it adequately leads policy makers to adjust their policies in favor of sustainable development.

- Accountability through enforced transparency: Transparency of information gathering processes makes governmental decision-makers accountable. These decision-makers are therefore supposed to be willing to take the information into account. It is assumed that their need for public support and re-election encourages decision-makers to implement rational policies. It may be considered a variation of the 'polluter pays principle': 'the decision-maker is accountable'.

- Formal separation of relevant information: Through formal separation of responsibilities by means of checks –and balances in the information generating process, it is possible to generate information about impacts of decisions that can influence policy makers. Formalization is expected to improve decision-making because it corrects a (power) imbalance.

Empirical studies, however, are as yet not able to indicate results of Impact Assessment that go beyond the mitigation of negative environmental effects (e.g. Wood 2003). The fit between assessment logic and the logic of decision-making cannot be taken for granted. Decision-making is only partly based on rationality or sensitive for accountability, as classic theorists on this subject have clarified (Simon 1957, March & Olson 1976, March 1994). Decision-making is a multi-actor process in which there is no superior definition of the problem at stake, nor is there a superior decision-maker able to rule over others. Even the most powerful CEO or prime minister cannot order its subordinates to become creative and to create sustainable development. In governance networks, power is more evenly distributed over actors and changes over time. This is the context in which Assessments have to create impact.

In other words, impact assessment, also at strategic level, is more effective in softening the impacts of developed proposals than it is as a tool to develop other types of proposals. We argue that it is unlikely that this would happen in the context of a specific EIA or SEA process, for the following reasons.

2.1.2 There is no "knowable" rational complex decision

The competent decision-maker may be supposed to act in the interest of society. The first, rather philosophical, question that therefore must be asked is: "Is there in theory a criterion available to determine whether a complex decision is rational from the point of view of society as a whole"? Whereas traditional welfare theory usually gives a negative answer to this question (e.g. De Bruin *et al.* 1998), several social scientists try to deal with this question within a constructivist paradigm[1]. Under that paradigm, a belief in the rationality of certain decisions is constructed through social interaction processes. Different social groups have different rationalities. The question whether there is some yet unknown joint rationality of which social groups are unaware, and of which they might become aware through a social learning process, is theoretically unanswerable. If it is assumed that such rationality exists, it only can be constructed by way of that interaction process –a "social learning process".

Decision-making processes are clews of rows of decisions in which the interaction is crucial for the outcomes (Teisman 1992, 1995, 1998). There is no single decision-maker who can take a "rational decision". Rather, the 'decision' is a sequence of interactions between policy makers who represent stakeholders like businesses and governments. Each unilateral 'action' and 're-action' represents a small decision. These small decisions add up to joint views or decisions by larger, co-operating groups (or arenas). A number of competing or cooperating arenas try to influence decisions by a competent authority.

2.1.3 Holding an actor accountable through transparency does not help

Accounting a single actor for the outcomes does not cater to better decisions because. No single actor has the interactions fully under control. The implication is that the content of complex public decisions can only be evaluated from a mono-rational point of view, which obviously is insufficient. However, there might be more agreement about the most desirable process of decision-making rather than its result. For example, a decision that was prepared according to democratic rules might be acceptable to most groups in a certain society. This decision represents a *process rationality*. (Multi-rationalists adhering to Impact Assessment as a tool for making better decisions are thus process rationalists). We enter a paradox: the most influential 'small decisions' are not so much taken in the procedural steps, but rather in informal interactions that cannot be regulated. Therefore, the content of the resulting formal decision will mainly be rational from the viewpoint of those being able to make the most influential small decisions (e.g. In 't Veld 2000).

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[1] overview in: Jasanoff, S. and B. Wynne. 1998. "Science and decisionmaking." In *Human Choice and Climate Change*, Volume 1: *The Societal Framework.* S. Rayner and E. Malone, Eds. Pacific Northwest Labs: Batelle Press. Pages 1-88.

In reality, the social context of the personal networks of a policy maker is more important than any 'rational' information that is offered to him by others (March 1998) (such as the results of an Impact Assessment). Participants in the policy process will use assessment reports only if it helps them to explain to their own rank and file why they should support the outcomes of the assessment. If such policy maker has learned something through his interactions in the arena that has changed his rationality, he must be able to share this lesson with his own organization, or a mismatch with his short-term interests will result. However, the EIA and SEA procedures are the wrong context for such type of learning. Time is limited and a decision must be made. The cognitive learning abilities of people are limited, leading to a 'bounded rationality' (Simon 1957).

Despite intrinsic difficulties many governments have tried to organize a transparent and participative process, but unsuccessfully. As "game leader", the government might try to create new interdependencies between actor groups, so that they can negotiate about policies at early stages and possibly adjust their agendas. Policy arenas often request the government to undertake such action, which is then termed "interactive policy-making" (Edelenbos 2000, Healey 1997, Innes and Booher 1999).

Unfortunately, governments are usually not very successful in stimulating social learning that leads to a 'merging', or at least attuning, of discourses. The interdependencies are pervasive and asymmetric (one is more dependent on the other than vice versa). The more interests are linked in a negotiation package, the more difficult it becomes to develop joint action that satisfies all parties, whilst any single party can block a general agreement (Edelenbos 2000). There frequently is no single negotiation process, but a number of parallel and competing arenas trying to influence government decision-making. (These phenomena have been described in social psychology as social configurations (Weick 1979), and in political science as policy advocacy coalitions (Sabatier & Jenkins-Smith 1993).) Procedures also can be seen as a form of "negative coordination" that tries to avoid externalities between policy domains, whereas effective reform requires positive coordination, based on a common agreement regarding the overarching policy goals (Scharpf 1994, 1997). Systems thinking clarifies that in such a situation pushing and giving an overload of information will only provoke more countervailing power by those who defend their immediate interests (Galbraith, Senge). Actors may believe that there could be potential benefits, but the costs in terms of the time required to get to joint action are too high (Kickert 1997). In many cases, the actors do not agree on what the problem actually is, or on the type of knowledge that is useful to solve the problem (ill-structured or "wicked" problems (Hischemöller & Hoppe 1998)). Under such conditions, negotiating actors may fear that they will get no support for any progress made; i.e., the political cost of shifting positions will be too high (Kickert 1997).

2.1.4 Formalising complex decision-making processes is only possible to a certain extent

Under the framework of these larger formal processes, there are inevitably smaller informal arenas that may be dominated by influential actors where the 'real' decisions are made. Such arenas may be open to rational knowledge if that would fit with the rationality of all participants. What then will arenas do with 'rational' information that is offered to them by others (through Impact Assessment)? Can this offering of information

be ‘arranged’ or ‘managed’? In The Netherlands, this is true to a limited extend. The most successful cases may be characterized as “Joint fact finding”. If the participants in an arena succeed in developing a joint view of reality to some extent, they may jointly interpret any ‘rational’ information that is offered to them, by asking further questions and learning together. This process is sometimes called ‘joint fact finding’ (e.g. Deelstra *et al.* 2003). Deelstra *et al.* describe two efforts to employ joint fact-finding: the extension of Rotterdam port through land reclamation (“PMR”), and the extension of Amsterdam airport with an extra runway. In both cases, the opposing parties joined up in order to develop an influential recommendation to the formal decision-maker. In such arenas, a “game manager” (or facilitator) may employ practical tools such as covenanting and reframing (e.g. Kickert *et al.* 1997). Through such a process, actors may become aware of joint opportunities that may require a shift of positions.

The “rules of the game” determine whether actors accept knowledge that does not support their previous positions: somehow actors should be rewarded for shifting positions and be prepared to learn to seek solutions that are mutually beneficial. Actors develop perceptions of reality through knowledge that all participants consider useful to underpin joint action. Such knowledge is termed a “serviceable truth” or “negotiated knowledge” (Jasanoff 1990, Susskind *et al. 2*001, Ten Heuvelhof 2000, In ‘t Veld 2000). Such joint learning processes are driven by the benefits of co-operation between interdependent actors, whereas the participants also have other interests that often conflict. In these ‘co-opetitive’ relationships the acceptance of knowledge as useful for decision-making becomes part of the deal (see about coopetition: Nalebuff & Brandenburg 1996). On the other hand in policy games that are relatively ineffective in developing joint interpretations, knowledge is only used to strengthen the positions already taken, a situation that leads at best to political compromises.

2.1.5 The need for learning

An overview comparison of the assumptions of Impact Assessment and the reality of complex decision-making is shown in Table 1. From the analysis, it becomes clear that there is a mismatch between the expectations of the Impact Assessment community and what is known in the social sciences about complex decision-making processes. This mismatch may explain the barriers experienced by Impact Assessment practitioners.

Table 1: The contradictions between assumptions about and logic of complex decision-making (adapted from Nooteboom & Teisman 2003)

	Assumptions used in IA	**Logic of complex decision-making**
Rationality	Decisions should be rational	There is no single decision-maker or decision, so what should be defined as “rational”?
Relevant information offered to the	Gathering information should be formal and checked separately in order	Information is only relevant if it becomes part of complex, relatively unorganized processes of

process	to become reliable and useful	interpretation
The concept of accountability through transparency	Information should be explicit and transparent, creating a check through the election cycle	Information leads to joint action if it is transformed into a joint understanding of reality, which is bounded by cognitive limitations.

If the idea is accepted that joint perceptions are constructed by way of interaction, it also becomes clear that environmental information has to be intertwined with the policy process earlier than the stage where a concrete decision is under preparation. Social learning should become an activity that gets attention in its own right, not just in the sidelines of procedures. The past 10 – 15 years considerable literature has been published of this subject, under names like "policy oriented learning" (Sabatier), "communities of practice" (Werner) , "learning organization" (Senge), "knowledge management" (Tatshuita, Von Krogh & Roos), "total quality management" (..), "active learning" (Von Krogh & Roos 1998). The core of social learning, on which most of these authors agree, is that actors should be prepared to (jointly) learn through "systems thinking" and (jointly) make use of windows of opportunity to push through to formal interventions (Kingdon 1995). If "environment" or "sustainability" is a significant interest, represented by organized stakeholders (or a part of the government), it can have a place in that process.

Learning groups can develop a joint 'what-if?' strategy, orienting themselves toward context changes, e.g. by interacting with large groups through market research, trend watching and by interacting with smaller groups through joint evaluation or joint fact finding. Descriptions of possible futures are central to motivating joint action, and should consist of easily understood narratives (e.g. Mintzberg 1998, Schwarz 1991, Rotmans *et al.* 2001). The actors can ask Impact Assessment professionals to participate directly in network meetings in order to answer substantial questions and to retain the cognitive basis of political progress made. The likelihood of success is highest if the participants have the freedom to play and experiment, in a sense comparable with children's play (Senge 1990).

It is not likely that this occurs in the context of a specific major governmental decision-under-preparation, since these are usually the subjects of conflict. This is hardly a favorable context for social learning: that needs more time to develop trust in a joint competence of doing dangerous work for the common benefit.

3 Social learning and trust

3.1.1 Evolution of social learning and trust in The Netherlands

In order to develop an idea of what I mean with "trust in joint competence for doing dangerous work", I go back to the way decisions about large projects have been made in The Netherlands, and even further to the so-called "Dutch polder model".

The well-known Dutch "polder model" stands since the 1980s for cooperation between employer's and workers unions to keep wage negotiations and other social policy negotiations from getting out of hand (Hemerijck?). Its success has led to a proclaimed "green polder model", where environmental groups in the 1990s sometimes successfully joined in development of large new infrastructure (…). In these processes, trust between opposing groups was crucial to come to an agreement (Weggeman?). In the early 200s the Dutch economy was less successful and the polder model was accused of being paralyzing since consensus was needed before major change could be implemented; it was advocated that those in power should simply be given the means to carry out their plans, which meant an abolishment of the polder model (…).

However, people involved in the green polder model believed that both the polder model and its abolishment were not enough for a sustainable development of The Netherlands. In the 2000s a new kind of cooperation emerged that was aimed at solving complex economic, social and environmental problems without any specific kind of solution initially on the agenda. This was a step further, because in the polder model the solution was mainly sought in adjusting fixed parameters like wage levels, and in the green polder model, it was sought in guiding a development through investments that were not inherently sustainable but that were considered inevitable and acceptable at the short term. At the long term, however, it was not thought by people from many backgrounds, that such interventions create a sustainable development.

In the early 2000s, representatives from such opposing groups put a sustainable development at the heart of their process, which we audaciously term "new polder model", since it is has evolved out of the better known polder model. We claim that the efforts under the new polder model were possible and sometimes successful because deeper levels of trust could develop in influential networks, where first trust in each other's intentions developed and later an individual and collective competence to identify and implement sustainable interventions. At the deepest level, this success has to be explained through a mixture of a context of trust (the heritage of the polder model) and a personal commitment of a group of individuals (Pygmalion effect).

Such processes are in the behavioral sciences sometimes termed learning teams (Senge, Wenger 1998), communities of practice (..), or action learning (Krogh & Roos). Such groups are characterized by a common purpose and a high degree of trust required for the social risks involved in joint action ("testing innovative ideas", "piloting", "prototyping"). They use systems thinking and they search for levers to influence development as Senge proposes. Such a lever could be any intervention that creates a chain reaction. One example is strategic regulation, as proposed by innovation scientists Volberda & vd Berg 2004, who refer eg to regulations that create high environmental ambitions and might form an incentive for innovation[2]. However, how does support for such interventions emerge when the system itself feels no need to reduce environmental

[2] Rethinking the Dutch innovation agenda. Management and organization matter most. Essay for the ministry of economic affairs' innovation lecture 2004.

problems? Effectiveness is in our view limited by the influence these learning groups can have on the formal decisions needed to apply the levers (ranging from governmental interventions to allocating internal study budgets).

Our point of view is that trust develops in policy networks that exist for a longer period, and have their own "culture". Trust is part of that culture, and any empirical study of trust therefore has to take the prevailing culture as starting point, after which longitudinal research is possible, revealing the stages of trust. More important than generalizing these stages, we find it to develop a theory about observable characteristics of trust that may evolve, as well as characteristics of process context, which enables transversal research. What is "new" in the new polder model compared to other learning groups is the largeness of the social gaps that the group bridges and the radical ness of innovations sought after. On example is the environment movement working together on sustainable transport with the mobilists' union and large oil companies. The involved people are close to their highest management and known to be influential, and at the same time they combine knowledge and skills needed to make a case for high-leverage interventions that their highest management can support.

3.2 Conceptualizing trust

"Trust in competence" is a component of general theories on trust. Because it is important to understand effective social learning, we conceptualize this term in more detail. We build this section mainly on B. Nooteboom (2002) and WRR (2003). Both publications present an overview of theories on trust.

Trust shows as a characteristic of conduct in the relationship between social entities, say people. These may depend on each other to achieve mutual benefits. If someone acts for the joint benefit, he anticipates getting something in return from the other. Since he cannot control the other he takes the risk that the other defects (opportunistic behaviour). One definition is therefore: "trust is a bet about future contingent actions of others" (Sztompa, 1999). The object of trust can be a person or any social group that is perceived as a unity in terms of conduct. One may trust organizations or complete subsystems. For example, a consumer may have trust in the economic performance of a country. The object of trust could also be a physical system, e.g. trust in a stable climate.

According to WRR (2003) trust can be studied from the theoretical points of view of "rational choice" (e.g. transaction cost economics, game theory[3]), "relationships" (sociology, psychology[4]) , "institutions" (law, contracts, networks of organizations[5]) and "social-cultural patterns" (sociology[6]). A review of the literature about social learning

[3] Main authors: Williamson, Gambetta, Williams

[4] Main authors: Sztompka, Giddens, Hemerijck (satisficing – acc to Simon), Nooteboom

[5] Main authors: next to mainstream law and network literature: e.g Luhmann, Hirschman

[6] Main authors: Sztompka, Goudsblom, Putnam, Fukuyama

(e.g. Senge), knowledge management (eg Roos) and innovation (eg Lester and Piore[7]) doesn't reveal additional views on trust, although these schools implicitly consider trust to be important. Lester & Piore (2004), eg, argue that the current emphasis on expanding the reach of market competition risks choking off the economy's vital "public spaces", which are invaluable since here ideas from different subsystems can merge. Indirectly they indicate that due to a weak general understanding of the innovation process there is insufficient trust that such spaces are effective.

In a situation of interdependency, trust may gradually develop. When cooperation goes well, trust may increase. Trust is therefore caused by as well as the cause of successful cooperation without opportunistic defection. In a system of positive feedback the question becomes which condition limits growth of trust. When a necessary resource (such as time before the next elections) becomes depleted, an incident may be enough to enter a steep negative spiral again. (Trust comes on foot and goes on horseback – Thorbecke quoted by Nooteboom).

The literature distinguishes different trust mechanisms, defined as: "frequently occurring causal patterns that offer a plausible explanation for emergence and continuation of trust in bilateral and collective inter-human relations" (Hemerijck 2002). At the system level such trust mechanisms create several "layers", with a main distinction between local "pockets" of trust in groups of acquainted people, embedded in the general culture of trust in the larger system[8]. It is such pockets of trust, specifically those that aim at radical innovations, that are of particular interest in this paper, and about which least is known in the literature about trust. In the pockets, there are small-scale dynamics of trust development, and in the less embedded levels there can be large-scale changes (which may sometimes move very quickly as well). What happens at the more embedded levels depends on the context formed by the less embedded levels. In the Dutch context, the polder model could emerge. Ultimately physical conditions may be of influence like joint battle against water (Dutch), little interdependency due to mountainous or desert conditions, need for joint planning due to long winter season, etc.

Nooteboom (2002: 50) proposes the following semi-conscious "forms of trust":

1) Trust in an actor as such (behavioral trust)

2) Trust in means and inputs the actor whom you trust can dispose of (material trust)

3) Trust the competences of an actor (skill, languages, knowledge, ..) (competence trust)

4) Trust in the aims of an actor in several degrees (intentional trust)

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[7] Richhard K. Lester & Michael J. Piore, 2005, Innovation. The missing Dimension.

[8] A theoretical study: James Moody & D. White. Social cohesion and embeddedness: a hierarchical conception of social groups. American Journal of Sociology 2001?

5) Trust in outside enablers (conditional trust)

6) Trust in role models or methods that have been successful in the past (exemplar trust)

7) Trust in the information on which we base our trust (information trust)

In larger groups trust is more enigmatic and may be split in trust in politicians or in politics in general, consumer trust, trust in bureaucracy, trust in the police or in employees, etc. (For pockets of trust to emerge, the general trust in good intentions of others is perhaps most critical.) Such trust itself also depends on the context, like time available for developing social relations, previous failure. Trust mechanisms are embedded in several contextual layers, like (in order of embedded ness:) genetic development of the human race where people depended on each other in the struggle for life, deeper cultural characteristics (social capital), childhood development where children depend on their family for survival but when less is at stake also learn from their siblings not to trust blindly, cooperation in a production process where added value is created in production and consumption chains, and finally cooperation in complex innovations. Zucker summarizes this in characteristics-based (eg family values), institutions-based (laws), and process-based trust (the personal experiences people have had; which is critical to complex innovations, acc to Nooteboom 2002: 87).

Process-based trust in large groups can change quickly in non-linear processes, for example after a catastrophe. However, in particular characteristics-based trust is less dynamic. The more deeply embedded trust mechanisms may lead to altruistic behavior when studied from the point of view of less embedded mechanisms with quick cycles of feedback. However, even genetically rooted altruism can be traced down to selfish genes that live longer than the bodies that carry them (Dawkins 1976). The essential idea is that behavior at one context level develops under the conditions posed at higher levels, but the higher contexts depend on continued reproduction of behavior at the lower level. Such a system has a natural resistance against change.

The new polder model is aimed at major social change, and it seems likely that all major social change is somehow related to changes of trust. Theorists claim that this is so, but there is controversy about the nature of such changes.

Eg Thomson, Ellis and Wildawsky (1990) present the following view in their Cultural Theory: the joint mind map functions as a constantly renewed vision to legitimize joint action. In these terms, a local culture emerges, that tries to resonate with its social context through visible action in the home organizations; as this succeeds, there is a Droste-effect in change patterns, moving in waves[9]. Peter Hall (Policy Paradigms, Social Learning and The State 2003) proposes the idea of policy paradigms in the study of social change. His theory is useful in describing large-scale changes when they become visible, indicates the

[9] Similar story in: R. Jenner, 2000. Globalization, Cultural Symbols, and Group Consiousness: culture as an adaptive complex system. In World Futures. Refers to Jung, Senge, Schein.

importance of ideas that emerge in a context of puzzling and powering and the openness of policy networks, but largely ignores the driving forces of that change or the role of trust.

Looking at this question from the side of trust mechanisms, the more embedded, shallow mechanisms have quicker feedback loops: learning (and disappointment) move faster. However, since the least embedded layers don't adjust as quickly, the actors have to adjust to their context or life conditions. They also may trust that conditions will remain the same, although this is not always true. Larger scale social change may influence life conditions at the level of smaller interactions. At the root of any social system is the physical system on which it thrives, and also here changes may occur. A social system that trusts that physical conditions will always be the same might be naive. On the other hand, smaller groups of individuals in the system who advocate proactive joint action may not be trusted by the larger community: there is a difference between believing the warning signals and believing that proposed joint actions are in the benefit of the whole system. The system learns more slowly than smaller groups, and small groups can only implement small actions. They depend on a small but effective lever, which is difficult to find – they need to invest a lot of personal time together, for which they are not rewarded.

Theorists indicate that a social system may increase its learning capacity if the number of knowledgeable and influential people throughout the system prepared to invest their personal time in a shared process increases (eg Senge). Others (spiral dynamics) argue that there is (as long as the larger system exceeds no critical thresholds in resources use) a natural development toward more complexity and fulfillment of basic needs, after which people may become interested in contributing to holistic causes. This is consistent with the mainstream complexity theory (Heylighen, 200?[10])

When the time is ripe, pockets of change emerge throughout the system until one finds a lever that changes the system so that more needs are fulfilled – and more people can participate in the social learning process. However: each pocket has to do pioneering work. There is no guarantee for success, and even in case of success there may be no reward. The beginning of change may therefore be personal mastery (Senge), creative tension (Fritz) or the Pygmalion effect (Van Twist?) – enabled by conditions created by the ongoing trends in the larger system: more people can and will afford to reserve some of their "energy" for learning processes in favor of the whole system rather than their personal benefit (material or social reward). There is also the biological metaphor of natural variation and selection: trusting individuals with great ideas simply emerge by accident and cluster into innovative groups at their own expense[11].

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[10] Heylighen F. (2000): "Evolutionary Transitions: how do levels of complexity emerge?", Complexity 6 (1)

[11] Eve Middleton-Kelly. Ten principles of complexity & enabling infrastructures. In: complex and evolutionary perspectives of organizations. The application of complexity theory to organizations. Elsevier, 2003.

3.3 History of transition management

The Innovation Board Sustainable Mobility was spinoff of the 4th Dutch National Environmental Policy (NMP4). NMP4 made a plea for "transition management", a new role of the government to bring together people from business, NGOs and academics to develop and implement views of sustainable development in a social learning process. The government would initiate and facilitate the process, not only by organizing a platform but also by legal or financial interventions[12].

The idea of transition management, born in the academic world and elaborated in the government, was from the beginning supported by people from organizations involved in the NMP4 development, like Foundation for Nature and Environment (SNM), mobilists union (ANWB), and businesses in the energy system. Many of these organizations had their roots in the Dutch "greenpolder model". This term was used in a motion in Parliament in the late 1990s, where the government was asked to involve stakeholder organizations in the planning of major infrastructure. One particular case was the Project Mainport Rotterdam (PMR), which dealt with the extension of Rotterdam Port by means of land reclamation in the North Sea. SNM and ANWB, at their highest level, with about 15 other organizations including labor unions and employer's associations, developed a shared vision for the future of Rotterdam port, linked to an advice about the land reclamation. Cabinet had asked them to do that, and had followed their process closely and indicated its own wishes, and finally accepted their advice. The process among "non cabinet partners" had had the character of a learning and negotiation process. Breakthroughs in understanding between people from opposing organizations had become possible in this context. A feeling began to rise among some of them that the case of PMR was not enough for a sustainable mobility development, but it would be possible to cooperate more closely on policies to achieve that.

Around the same time, businesses in the energy system (oil companies, power supply companies) started indicating that the single focus in the energy policies of Cabinet on the liberalization of the energy system was going to have adverse side effects. The increased competition in the sector was expected to reduce possibilities for developing a sustainable energy system. People in the energy ministry (EZ) were open to their suggestions for a new role of government, which they coordinated with the environment ministry's NMP4 (VROM). This led to the first ideas about transition management, which were well received by many of those involved in the green polder model, and then applied to the mobility system and other systems as well. These were societal systems with "difficult environmental problems", which were supposed to need a transition in order to become sustainable. The ministry of transport (V&W), partner to the NMP4, initiated a transition process (learning group, later to be called Innovation Board), and EZ initiated several transition arenas for sustainable energy. Within the context at that time, it was not difficult to find influential and knowledgeable participants for these groups.

[12] Similarity with public space as acc to Lester & Piore?

Transition policies formed a breakthrough in two ways. Primarily, it was a break with traditional environmental policy because it acknowledged that environmental policy by itself couldn't reach its own ambitions. The usual way was to set clear measurable (pollution) targets and to impose measures from the sectors to achieve those targets (much like what is happening in the so-called Kyoto process). A general agreement had developed that the urgency of change is not sufficiently felt in these sectors for such targets to achieve the necessary transition. Proposals for action from the government always met countervailing powers, so no decisions were possible. Environmental targets in themselves don't create the required pressure on the (social) system. Transition management was therefore seen as the next generation of environmental policies.

The second breakthrough was that there was a recognition that the government depended on strategic cooperation between "forerunning" businesses and civil society organizations to develop the creativity and support for measures that may push the system into a more sustainable direction. Such measures could be anything, although it was generally expected that the government itself would have to play a facilitating role. It had been learned from processes like PMR that such processes were possible if Cabinet asked for an advice from such organizations and facilitated their learning process. That request had to be credible, which meant that all main stakeholding parts of the government would have to be participating as "client" of the advice. NMP4 had created a context for the necessary (initial) cooperation in Cabinet. A limited number of people in the involved ministries had developed a strong network succeeding into an arrangement where each system transition would be "managed" by the ministry having responsibility for that system (EZ for energy, V&W for mobility, etc.). VROM (environment) would report overall progress to Parliament.

The difference between transition policies and PMR was that in the case of transition management there was no specific decision to be taken by government. The learning groups would have to develop such proposals by themselves. The question then became, how ambitious should transition management be? There were many open-ended questions. Yet, hundreds of people from relevant organizations have participated in the transition management process as of 2001 until today (2005). Short-term gains for them were almost absent. There was a general feeling that by bringing together the right knowledge and influence, there was a chance of achieving breakthrough proposals that would be politically acceptable.

The Innovation Board Sustainable Mobility (IB) was a group of about 20, with three ministries participating at the level of directors. They took a considerable time (years) to develop a working method to discuss sustainable mobility, and decided to focus at first on fuel types and vehicle propulsion systems. Here they had most knowledge and influence. When The Netherlands was presiding the EU, they organized (through the participating ministries) a conference that was attended by 25 Director-Generals of transport, environment and energy ministries from the EU. The IB had significant influence on the conference through the four directors in the IB from the three participating ministries. The IB effectively used the preparation of this conference to test and adjust their ideas in Europe. The NGOs in the IB activated their counterparts in Europe. At the conference, it appeared clearly that the IB's analysis of the problem and

challenges were widely shared in Europe. This freed the minds in Dutch Cabinet (there was an active group of Director General discussing progress of transition management) to raise the profile of the transition processes again. This again enabled to activate several (competing) major oil industries and car industries to talk at the highest level about future fuel and propulsion systems and possible required government interventions. Concrete ideas developed by people from the IB could be piloted here and given their wide support were more likely to be seen as sustainable and politically acceptable.

Among the most influential persons in this process, there was a constant dialogue about the levels of ambition, the influence and knowledge required for successful interventions, the preparedness of industries and the government to seriously consider change, how to achieve an enforcing feedback in the interaction between these two groups of forerunners in their "branch", where would the first step most likely be made, which change processes elsewhere could be linked to their own ambitions, etc. The bottom line in their analysis was that there actually was a genuine and wide concern about unsustainable mobility, in particular in relation to sustainable energy (climate change and dependency on unstable world regions; later also ambient air quality), and this concern was a recognized component of each organization's policies. The participation of the highest level in the transition process was therefore seen as a mixture between personal ambitions (these people stepped in first, like the CEO of Shell) and credibility of the organization (followers who had proclaimed their commitment with sustainable development).

3.4 Development of trust in transition management

Despite the fact that a sustainable transition has not happened yet, most involved people, certainly in the IB, evaluate these processes as successful. They have a feeling that their personal desire to contribute to sustainable development has become more likely to be fulfilled. Whether this actually will occur is a matter of unforeseeable contingencies, but in their terms trust has grown to a level where more shared vision and more joint action has become possible. The challenge would be to consolidate this process until an opportunity arrives to push through with some high-leverage measure. There were also notions that the IB served as media for flow of knowledge that prevented unnecessary conflict about conventional policies, which evolved without notice of the IB's influence behind the scenes. Such notions were difficult to support with clear facts, however.

"Characteristic based trust" (Zucker) was not an issue in the transition process: it was simply there. Through the general "polder" culture in The Netherlands (and in particular in these systems), people trusted that cooperation with others – even with opposing parties – was theoretically possible.

"Institutions based trust" was important and consisted of at least two components. First, the expectations that the organizations that were really influential in The Netherlands would largely remain the same (in fact the group of traditional polder partners had been expanded with environmental organizations in the 1990s under the green polder model; these organizations were rooted in the wider civil society). Second, according to traditions the NMP4 should be implemented seriously and progress monitored by

Parliament. This context created the expectation that Cabinet would be taking the implementation seriously.

The most interesting factor was perhaps process-based trust. Important persons spent much personal time and business time (which they had to defend before their superiors) in an uncertain and highly ambitious activity. They did that because they had hope of success, based on the favorable context of characteristics based and institutional trust, but more crucially on the expectation that "this group could get somewhere". A core group had met before in the green polder model and other processes, and respected each other for their intentions (sustainable mobility and energy) and for their competency to look for creative solutions and to assess the feasibility of concrete proposals. Yet, years were needed to develop a joint competency that could lead to steps that were somewhat visible to the outside world.

Implicitly, the IB and the energy transition groups applied the idea of "satisficing" (Teisman, Hemerijck): they met regularly to discuss shared vision and action, and each time each participant decided for himself whether a satisfactory step had been made (bringing the group closer to visible success) and if he wanted to continue his participation. In the IB, when the crucial (because influential) main representative of V&W started missing meetings, the persons who had taken a facilitating role immediately started repair works, identifying what was the matter.

Intentional trust was constantly verified in the IB. For example when a representative of an auto industry showed less commitment with the course a discussion was taken ("this does not fit our strategies"), someone from an oil industry immediately jumped in and started looking, with the other, for possible scenarios in which the interests would come together. In the larger transition process (mobility and energy) a discourse had developed that each person should contribute to the process at his own expenses: no paid consultants – which served to verify intentional trust. There was a delicate balance between personal commitment with sustainable development and the influence one could possibly have "at home". The search was constantly for arguments that could be expected to keep one's own superiors interested, main uncertainty was the reaction of the organizations, and therefore the limiting condition for development of trust in the process was not so much the intentions of participants but their capacity to keep key people in their organizations interested, and the joint capacity to help each person find the arguments for that.

The group was able to make use of opportunities like the EU presidency of The Netherlands to strengthen their communication with the outside world. They were consciously and constantly looking for levers (interventions) that would be politically acceptable and contribute to their vision of sustainable mobility. From interviews it becomes clear that the quality of the dialogues (thanks to the participants who were close to politics) was high, promising and unique in the eyes of the participants, which gave confidence of success. It was almost a feeling of conspiracy– but in a positive way, including "forerunners" from most parts of the system – and therefore more likely to lead to sustainable ideas.

The trust in joint success was based on joint trust in competence. This idea is crucial to the idea of semi-closedness and the paradoxical link with impact assessment, analyzed in the next section. Competence trust consisted of certain elements among which:

- Belief that the group could create a "spirit that will escape the bottle" (a saying based on stories by Grimm brothers and 1001 nights). The people investing personal time in transition management believed that with others they would create a space (a "bottle") where such a spirit could develop.

- High-level participation of influential businesses and NGOs representing large parts of the system. Neither the government nor businesses were thought to be able without the other to escape their own prisoner's dilemma.

- The belief that the group had enough joint influence to make a difference in the social system that governs mobility and energy. Political leaders and CEOs trusted their "right hands" who were in the IB precisely because they believed that the IB would create good ideas and take their political risks into consideration, by constantly verifying the behavior of the other leaders, and when necessary to organize summits where leaders can agree about main lines, giving joint signals what further initiatives they would appreciate. The object of trust between politicians was first the sustained legitimacy to allow their people time to learn, and as ideas develop further and piloting is successful, leaders commit increasingly by making innovative public statements, reallocating resources and supporting interventions (cf Verbart 2004). The trust between leaders spiraled up, as they took turns in showing their commitment in public.

They were eventually capable of creating a process context where European and Japanese auto-industries started working together in coopetition – a breakthrough. The condition for that breakthrough was in itself a breakthrough: a project, shared between three ministries, was started in 2005. It was considered unique by involved people from all ministries, in terms of trust that the project would lead to benefits for all. This type of systems thinking – how to "rock" a social system to resonate and create a political context favorable for change by means of countervailing powers and gradual risk sharing in linked arenas – created more trust.

4 How impact assessment may help to create conditions for learning

4.1 Impact assessment develops institutions-based trust which may become encapsulated as characteristics-based trust

EIA and (non-mandatory) SEA have certainly helped enhance the trust and understanding between adversaries in the Dutch decision-making arena. Through the transparent and participative processes it created, interdependencies developed, the government could not get away with single-minded decisions and trust started to build up.

This again has clearly helped to get support for the NMP4 and successive social learning. However, many other forces have been in play, and it is difficult to tell what would have

happened without the existence of EIA or SEA. It may also be that EIA, SEA and social learning have a common, cultural driving force (cf Thompson et al). However, at least some influential respondents from NGOs have indicated that they and their opponents became tired of playing the same game over and over in EIA and SEA. EIA and transparent procedures for strategic decision-making (mandatory SEA is too recent) may therefore probably be seen as institutional source of trust (Zucker), enhancing social learning.

Whereas EIA and SEA are institutions, the trust they stimulate is institutions-based. However, after a while trust may become internalized in the culture and people loose their awareness that their trust is based on the fallback scenario of struggle under EIA and SEA. This trust is then characteristics based rather than institutions-based. What happens when EIA and SEA are abolished is uncertain. It is possible that in times of crisis the system could fall back to a much lower trust level in the absence of EIA and SEA. (That would be similar to neglecting the primary (agricultural) sector in an economy where the tertiary sector (services) is the motor, in the belief that food always can be imported.)

EIA and SEA are not the only likely institutional sources of trust. It is striking that so many who strive for policy integration, sustainability etc. advocate institutional change as if creating more force would help solve complex problems (e.g. European Environmental Agency, 2005. Environmental Policy Integration in Europe. State of Play and Evaluation Framework). Systems thinking clearly suggests that more force will provoke more counterforce, as sure as action = reaction, unless acceptable creative ideas can be found (Senge, but the idea of countervailing power originally stems from Galbraith). The question on the other hand is, will extra force only lead to a pressure cooker where people become disappointed? There may also be an evolution: transition management has emerged after many years of frustration caused by “environmental pushing” in vain. It is my idea that environmental institutions are helpful to create just enough pressure on the economic sectors so that they feel the tension. However, this tension should be transformed to a creative tension (Robert Fritz) that can be used in social learning, rather than become a ritual fight in EIA and SEA procedures.

4.2 Limiting conditions: “bridging social capital” and semi-permeability

According tot systems thinking, every process of positive feedback (as trust development) is limited by one ore more limiting conditions (Senge). In the IB the limiting condition became complexity itself: which degree of complexity can a group handle in view of their limited intellectual capacity (bounded rationality). Whilst tolerance levels may grow in a relationship, there is a point where the story cannot be told any more, and leaders will start making mistakes or mistrusting the coherence created. The complexity of coalitions is limited by the cognitive ability of overseeing the system, the risk that the market does not accept the experiment, and the increased chance that someone will defect as the network becomes larger.

It is not only intellectual capabilities, but also social capacities that were critical. Were people skilled in dialogues and social learning? Could they separate their two roles: fighting the fights their organizations were still in at the project and strategic level, whilst

cooperating at the pre-strategic level? Did they have a perfect feeling for political risks of their leaders? Could they find words to express these risks? Did they have the personal motivation to wait with breakthrough actions until a window of opportunity emerges? Will they be able to convince their CEO at the right moment? Most people in the IB were aware that his group consisted of the most capable people to be found in The Netherlands (in the mobility / energy system). They did not invite people whom they did not trust, and consciously kept the group below about 20. This was a condition for effective change management, to "form a bottle where a sustainable spirit can develop".

This brings me to the idea of semi-closedness. In the shadow of transparent procedures at the strategic level, semi-closed social learning processes emerge, and, paradoxically, both are needed for a sustainable development. "Semi-closed" means: all relevant stakeholder and innovator groups are allowed to be represented, but only by people who have social learning skills. The "environmental pushers" (of which there are many) are not allowable, since they themselves are not "open" for learning, as they are dominated by political thinking on the short term (whilst they sometimes can be aware that this is not in their own long-term interest!).

The IB sought extra people with the criterion of bridging many gaps in the (social) mobility system and acquiring maximum knowledge and influence, which all were thought to contribute to the joint learning skills. (These were sometimes called the forerunners or transition managers.) The "casing of the bottle" therefore was a like semi-permeable membrane[13], stopping only people with insufficient learning skills, and not for political reasons. The question arises how this is linked with the idea that the polder model is consensus-seeking. The answer is that it still is, but a deeper (learning) level in social processes has developed, which necessarily is hidden to most people simply because they have no relevant knowledge, influence and learning skills: one person can only participate in so many learning groups, if they have the ability at all. At this deeper level, cases for interventions are developed in communication with outside. Effectiveness depends on the joint skill of involving forerunners from as many subsystems as possible, convincing the leadership in each subsystem, but not on convincing the laggards.

In this way, social learning can achieve the highest degree of "bridging social capital" as Putnam puts it. Obviously, social learning in the mobility system was not limited to the IB, but the IB functioned as nucleus for a wider learning process. Here the civil society at large is important. Civil society groups can be quite influential if they work together behind the scenes, but their general supporter groups may not be ready for the ideas they

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[13] This metaphor suggests that semi-closedness of learning groups may be a major driving force for social change, in comparison with semi-closed membranes in biological organisms: "Membranes are so important to life that all of cellular metabolism may legitimately be divided into that which occurs within the boundaries of a membrane (i.e., inside of cells), that which occurs outside of cells (i.e., extracellulary), and that which occurs across membranes. In fact, intracellular conditions and extracellular conditions often do not resemble each other because of the controlled movement of materials from one side of a membrane to the other. "Understanding how these movements occur is essential to understanding how a cell functions." (Stephen T. Ebedon on http://www.mansfield.ohio-state.edu/~sabedon/biol1050.htm#black_1996)

discuss (which is why trust is so important: there is ample opportunity for opportunism). The involved interest groups did their best to involve their supporters in the transition process by means of communicating in line with the more strategic ideas developed in the learning group, testing concreter new ideas to find out reactions, without going too far. The distinction between larger stakeholder groups and active supporters was important: active supporters generally were more polarized (or thinking one-sidedly) than larger interest groups who have more than one stake, but who don't oversee system complexity and therefore are sensitive for populism. An important limiting factor is therefore the trust with leaders in civil society, who easily might alienate a part of their supporters from them. To manage this risk, the IB experimented with mass communication and focus groups.

Transition partners see globalization and related social complexity as another clear limit to their effectiveness. As one person from EZ said, breakthroughs in sustainable energy would benefit from price corrections by the government, but our room is limited due to EU rules, and internationalizing Dutch transition policies is difficult. Also the EU probably cannot do a lot without jeopardizing its position in the world economy. On the other hand, there are many localized circumstances. Perhaps The Netherlands is a perfect place for experimentation with new energy systems if the crucial only thing these systems need is infrastructure. Also, The Netherlands has no auto industries of its own, which is why its government can take strategic initiatives that are more credible in the eyes of the auto industries.

4.3 Where does this leave SEA?

SEA is invaluable as family name for voluntary (environmental) tools to be used in social learning and in inter-active policy-making. However, every context requires its own tool. Comparing SEA over systems, let alone regions or countries, is like comparing languages. This is probably the explanation why the "SEA Performance Criteria" (www.IAIA.org) are so enigmatic: they have to fit all purposes.

The author believes that SEA as a legal procedure may have relatively little added benefit over EIA, in terms of sustainable development and major projects in the Netherlands. This country already has well-developed transparent procedures and (environmental, social) civil society. Transition management had developed before SEA came into force. However it may also be expected that SEA may take the role of EIA in especially regional policy networks, where EIA may have less structuring impact on interactions. These policy networks still have to learn, develop trust, and the evolutionary path still has to be followed.

In The Netherlands there is debate whether the current European SEA procedures should be more than a coagulation of already existing practice. The environment ministry clearly believes so; it has said that an SEA report should be quite easy to make with available information. Many civil servants pick SEA up more seriously than that, however. SEA seems to streamline practices that are not taken for granted by their political leaders (mostly the provincial boards). Whereas civil society may have gone through a learning process, many politicians are inexperienced with the "polder model". Here, SEA may

serve as continued learning incentive. However, there is always a risk of pushing too hard, in analogy with a ship's rudder: turning the rudder too far (90 degrees) causes mainly turbulence and slowing down with a risk of complete standstill – in which case a rudder is worthless. Turning the rudder gradually and adjusting to the turning of the ship creates the best steering effect and the least slowing down. After the ship has found its new course, the rudder must still be used to keep the course stable.

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