Cultural theory and aircraft noise policy in the Netherlands

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In this paper we apply cultural theory to understand the constitution of aircraft noise policy at Amsterdam Schiphol, the largest airport in the Netherlands. In line with Smit and Van Gunsteren (1997) this constitution is identified as an alliance between the hierarchical and egalitarian way of life. We show that this alliance has several weaknesses, in part, because it marginalizes the individualistic way of life. Given the nature of human response to aircraft noise the individualistic way of life can make a positive contribution to aircraft noise policy. Based on an empirical study into the ways actors around the airport respond to a concrete operationalization of the individualistic way of life we identify several explanations for its marginalization.

1. Introduction

Aviation is a global industry with a global economic impact. Yet, it also has several negative impacts, like air pollution, risks and noise. In this paper we focus on the (local) problem of aircraft noise in residential areas close to the airports.

For Schiphol airport, the largest airport in the Netherlands, the problem of aircraft noise was first identified in the 1950s (Bröer, 2006). In the decades to follow a particular constitution of aircraft noise policy has developed. Policy makers have selectively used concepts to shape the problem of aircraft noise and deal with it accordingly. The resulting 'bias' has been characterized by Smit and Van Gunsteren (1997) using cultural theory. In their view the present constitution of aircraft noise policy can be classified as an alliance between the *hierarchical* and *egalitarian* way of life. Biased towards these ways of life, they argue, the *individualistic* way of life is presently marginalized.

Being in essence a normative theory, cultural theory holds that variety is necessary for the successful management of (environmental) problems (Schwartz and Thompson, 1990). Stated in the words of Thompson et al. (1990, p. 96) 'those regimes that have largely excluded a particular cultural bias lose the wisdom attached to that bias, and thus inevitably pile up trouble for themselves.' As for the case of Schiphol troubles have indeed seemed to be piling up: the policy debate is characterized by strong controversy (Van Eeten, 2001a, Teisman et al., 2008), large-scale deliberative processes fail to leave a recognizable imprint on the policy (Van Eeten, 2001b) and distrust is widely spread among political actors (Derksen et al., 2006) as well as the general public living in the vicinity of the airport (Interview NSS, 2006). Stallen and Van Gunsteren (2002) have argued that the individualistic way of life is able to successfully deal with the particular problems of polarization and distrust. In addition, they argue that the individualistic way of life 'suits' the problem of aircraft noise in a more general sense, because human response to aircraft noise is not uniform nor passive.

Can the individualistic way of life indeed make a serious contribution to aircraft noise policy? And, if so, why is it still marginalized? Our aim is to answer these questions. For this purpose we take the following steps. First, in line with Smit and Van Gunsteren (1997) we introduce cultural theory and show how the problems of polarization and distrust came about. Next, we discuss how the individualistic way of life can tackle these problems and elaborate on the reasons why it constitutes an appropriate bias to deal with aircraft noise. The results of these two steps provide us with an answer to the first question. To answer our second

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question, we focus on a particular operationalisation of the individualistic way of life, namely the one of Stallen et al. (2004), entitled 'fundament in the region'. We will concentrate on policy actors' response towards this operationalisation and use Q-methodology to reveal the subjective backgrounds of these responses. Based on the results we can provide two specific reasons for the present marginalization of the individualistic way of life.

2. Aircraft noise policy at Schiphol airport

2.1 Cultural Theory

Cultural theory contends that there are four morally defensible ways of life. These four arise from the ways we choose to organize our social life. The dimensions of 'grid' and 'group' have been introduced by Mary Douglas to identify these viable ways of organizing (Douglas, 1978). According to her these two dimensions adequately capture the variability of an individual's involvement in social life. The group dimension "refers to the extent to which an individual is incorporated into bounded units. The greater the incorporation, the more individualistic choice is subject to group determination" (Thompson et al., 1990, p. 5). The grid dimension, on the other hand, "denotes the degree to which an individual's life is circumscribed by externally imposed prescriptions. The more binding and extensive the scope of the prescriptions, the less of life that is open to individual negotiation" (Thompson et al., 1990, p. 5).

Table 1. The four ways of life

Dimensions of sociality	**Group**	
Grid	**Low**	**High**
High (prescribed)	Fatalistic *View on nature*: nature is capricious *Idea of fairness*: none *Allocation of blame*: fate *Preferred form of governance*: no consistent preference (opportunistic) *Safeguarded object*: personal survival	Hierarchical *View on nature*: nature is perverse/tolerant, nature has limits *Idea of fairness*: equality before the law *Allocation of blame*: blame those who violate the rules (avoid system blame by diffusing responsibility) *Preferred form of governance*: command and control, decision making by representation *Safeguarded object*: order
Low (prescribing)	Individualistic *View on nature*: nature is benign/robust *Idea of fairness*: equality of opportunity *Allocation of blame*: blame incompetent individuals *Preferred form of governance*: market, majority vote *Safeguarded object*: freedom of exchange	Egalitarian *View on nature*: nature is fragile *Idea of fairness*: equality of condition *Allocation of blame*: blame the system, us versus the "bad guys" *Preferred form of governance*: decision making by consensus, small is beautiful. *Safeguarded object*: survival of the group

The combination of these two dimensions (high/low) results in four viable ways of life: fatalistic, hierarchical, individualistic and egalitarian (see Table 1). To preserve their respective way of life, each develops a distinctive cultural bias, i.e. a coherent set of preferences, values and beliefs. According to the compatibility condition the viability of a

way of life depends upon the mutually supportive relationships between these cultural biases and the respective patterns of social relations. For example, in Risk and Culture Douglas and Wildasky (1982) show how egalitarians accomplish to maintain group cohesion (high group) without behavioural rules, coercion or overt leadership (low grid), through adoption of beliefs about external threats like global warming and pollution ('outside evils'). In similar vain other preferences, attitudes and behaviors are deduced from the four types of social organization. In line with Smit and Van Gunsteren (1997) Table 1 shows five of these: view on natures, ideas of fairness, allocations of blame, preferred forms of governance and safeguarded objects.

In the following we will discuss the ways of life and directly link them to the aircraft noise policy at Schiphol.

2.2 The hierarchical way of life and its role in aircraft noise policy

The encompassing goal of the hierarchical way of life is to create and maintain social order; a society in which all parts are oriented towards the whole. Every member has his or her place, securely bounded and stratified with many grid constraints to guide behavior. In a hierarchy nobody's knows personal glory (for such personal rewards would tear it apart) nor personal blame (blame is diffused so the integrity of the system as a whole remains unquestioned). The hierarchy has the tendency to turn political problems into administrative ones. In this, it always faces the paradox of having to incorporate new laws, which arise out of unsystematized interaction among living forces, as if these were mere extensions of the original system. In all, the implicit political strategy is one of compromise. To ensure that each part has a place in (and remains subjected to) the whole goals are multiple and ambiguous, no overriding objective is defined. This also ensures that goals can be retrospectively rationalized whenever one happens to be accomplished or de-rationalized when one lies beyond its reach (to avoid system blame). To secure its long term future the hierarchy is committed to rules and traditions. As a result, it fails to appreciate dangers that stem from the environment. The hierarchy takes risks because it cannot see them (Douglas & Wildavsky, 1982).

The hierarchical way of life is clearly discernable in aircraft noise policy at Schiphol. Here, ever since the 1950s, the Dutch central government has positioned itself as the exclusive caretaker for the problem of aircraft noise. Supported by a strong belief in the malleability of society the political problem of aircraft noise was transformed into a technical problem: the prevailing belief was that, given the right (spatial/technical) interventions, aircraft noise (annoyance) could be controlled. Maps were used to draw noise contours and acceptable limits were set by experts, effectively masking the normative decisions being made (Bröer, 2007). To ensure the necessity for order those exposed to aircraft noise were conceptualized as passive and weak. Procedural planning (i.e. centralistic control), in which acoustic experts played a dominant role, was subsequently brought forward as the best way to protect these people (Stallen & Van Gunsteren, 2002).

In sum, aircraft noise policy is strongly hierarchical. The political problem was turned into an administrative one. The view on nature as being generally tolerant but not without limits, supports the argument that specialized experts ("the right man in the right place") are necessary to find and define these limits. Still, if the sole political culture of aircraft noise policy would be effectively captured by the hierarchical one, it would be unexplainable why the policy focused on this (long-term) environmental risk in the first place (since it would not be congruent with anything in its codified past). As mentioned previously, egalitarians *are* able to perceive long-term environmental dangers. Their role in the constitution of the noise policy is also clearly visible and will be turned to next.

2.3 The egalitarian way of life and its role in aircraft noise policy

The egalitarian way of life is self-defined in its opposition to larger social systems (e.g. hierarchies), thereby also maintaining a strong group boundary. Yet, in contrast to the hierarchical way of life, the egalitarian one does not impose restrictions on behavior. Participation in this organization is voluntary and decisions are reached via consensus; every member is equal. This way of life does not use internal prescriptions, but recruits and keeps members within its group boundaries through the identification of external pressures. Hence, for its survival a morality distinct from society's mainstream morality needs to be upheld. Therefore, whereas the hierarchical way of life tries to evade system blame, egalitarians try to emphasize it. Nature conceptualized as fragile helps to point an incriminating finger at established authorities (government and businesses) who exploit nature for their self-interest and increase inequality (Douglas & Wildavsky, 1982).

Risks associated with (large-scale) technological development are typically underappreciated by established institutions (i.e. the bureaucracy and the market) and therefore provide a fertile breeding ground for egalitarian groups to capitalize upon (Stallen & Van Gunsteren, 2002). As a symbol of modernity an airport becomes an easy target for activists. This can also be observed in the history of Schiphol. Between 1960 and 1990 the development of the Schiphol airport went along with fierce opposition of small and radical local groups (Bröer, 2006).

A hierarchy has little concern over which goals eventually make it to the policy agenda (just as long as they support a need to create order). Hence, a typical hierarchical response is to incorporate the egalitarian goals into its system of thought, thereby avoiding system blame, and devise procedures and rules to handle them, subjecting them to order. However, faced with the contradictory goals of economic growth and environmental protection, a convincing story was needed to allow their co-existence on one agenda. The storyline of ecological modernization (Hajer, 1995; Mol & Spaargaren, 1993), introduced in the 1990s, proved to be convincingly enough to (temporarily) resolve the tension. This story replaced the zero-sum logic by a positive-sum logic, i.e. the belief that (through technological innovation) economic and environmental goals could be simultaneously achieved. The result has been termed the "mainport and environmental discourse" by Bröer (2006)[3]. In effect, the 'sting' from the environmentalists discourse was taken out (Hajer, 1995) and a strong alliance between the hierarchical and egalitarian way of life was created. Left without a clear external pressure (environmental goals were explicitly incorporated by the central government), small local groups lost their momentum. Instead, a place at the table was created for national (more hierarchical) environmental groups like Friends of the Earth.

In sum, the central government appropriated the care for environment by subjecting it to rules and norms (hierarchy) based on the egalitarian motive of equality of condition (protection of the weak). The view of nature underlying this strategy is also a mix of the hierarchical and egalitarian way of life: the present environmental load (i.e. the amount of aircraft noise) is conceptualized as balancing on the edge of what is acceptable. In addition, noise policy strongly relies on science to draw the line between what is and what is not acceptable. Both the hierarchical and the egalitarian worldview support this dependency (Smit & Van Gunsteren, 1997). In the hierarchical worldview the expert is the one who holds the authority to make this decision, he is 'the right man in the right place'. Within the egalitarian

[3] The term mainport was introduced in the political field in the 1980's and initially applied to the port of Rotterdam. Later it was also applied to Schiphol airport, since it aligned well with the, already used, concepts of 'hub' and 'gateway'. The mainportdiscourse combines the identification of several external forces (internationalization, liberalization and the development of hub-and-spoke networks) with the necessity of a strong national strategy (concentration and large infrastructure development) in order to bring about national economic prosperity (or, in other words, to create 'engines of the economy') (Bröer, 2006).

worldview science also plays a key role, not as the monopolistic keeper of knowledge, but as bringer of bad news (the 'shaggy prophet').

2.4 Results of aircraft noise policy: polarization and distrust

The coalition between the hierarchical and egalitarian way of life proved to be convincingly enough for both proponents and adversaries of the airport. However, given that it concerns a marriage between two different (and partly opposing) ways of life, the coalition is not without its internal contradictions and failures.

An important internal contradiction relates to the view on nature. The hierarchical ways of life can tolerate aircraft noise, while any amount of noise is already too much for the egalitarian way of life. Given that both views are legitimate in the policy discourse there is a strong base for *potential* polarization. This risk for polarization materializes when the central government institutionalizes the conflicting views. Driven by the hierarchical spirit to create order the opposing views are rigidly encoded in rules and procedures to manage the airport (e.g. an elaborate technical system to control aircraft noise). As a result, since there is no room left to maneuver, the outcome is always a point on a predefined one-dimensional scale (growth/no growth, more/less noise), resulting in a win-lose situation. Since the 'game' is perceived as such, actors are encouraged to take extreme positions. The result is strong controversy and polarization (Van Eeten, 1999; 2001a).[4]

Another weakness of the coalition results from its strong reliance on science. The institutions of the coalition are based on anticipation (under the principle of "better safe than sorry") and therefore assume complete knowledge (Smit and Van Gunsteren, 1997). For example, the zoning system to control aircraft noise is based on forecasts for the demand for air travel. However, on multiple occasions, the future proved to be more uncertain than the forecasts would account for on beforehand. As a result, failing to anticipate the future, the system became exposed to critique. Egalitarians stand ready to blame it: the institutions are corrupt. (The love-hate affair between the hierarchical and egalitarian way of life becomes apparent when egalitarians subsequently plea for more rules and regulations to prevent future failures.) When the institutions fail, for example those that are put in place to control noise, accountability is lost and trust in the policy declines (Stallen en Van Gunsteren, 2002). As is observed in (recent) publications distrust is widely spread among political actors (Derksen et al., 2006) as well as the general public (Interview NSS, 2006).

In sum, starting out as a powerful story to unify actors around the airport the hierarchical-egalitarian alliance has instead led to *polarization* and repeated system failures, which fostered *distrust* among the involved actors.

2.5 The individualistic way of life and its possible role in aircraft noise policy

The individualistic way of life is the last of the three active ways of life.[5] The individualistic social context is one in which every person is an entrepreneur whose aim is to optimize profit. To pursue his best strategies the individual desires a measure of autonomy, he needs to be neither restricted by group boundaries nor guided by specific rules of behavior.

[4] Van Eeten (1999; 2001a) previously investigated the arguments in relation to the future development of Schiphol airport. He revealed two diametrically opposed policy arguments, one pro-growth and the other anti-growth. Van Eeten showed that the resulting polarization suppressed three other policy arguments that could possibly enrich the policy agenda: (1) societal integration of a growing airport, (2) ecological modernization of the aviation sector and (3) sustainable solutions to a growing demand for mobility.

[5] The fatalistic way of life is inactive; it does not try to control or manipulate the other ways of life. Instead, it is being controlled by the other ways of life (Thomson et al., 1990). Since the fatalistic way of life has no explicit agenda it is not considered as a way of life that can enrich the noise policy constitution.

The individual is his own lord and master, free to negotiate and make bargains with others. Competition is his preferred social model and equality of opportunity the accompanying social ethic. Blame is allocated to those who are incompetent. A view of nature as benign provides a moral justification for the individual's desire for freedom and experimentation. Risks are conceptualized as opportunities. Without the danger of loss, there would be no prospect of personal reward and hence no scope for entrepreneurs (Douglas & Wildavsky, 1982).

Within the constitution of aircraft noise policy the individualistic way of life is marginalized. Bargaining about the environment is considered immoral; e.g. loss of environmental quality is not to be exchanged for (monetary) compensation. Another manifestation of the marginalization can be found in the negligible impacts of deliberative efforts around the airport. The popularization of interactive policy making in the Netherlands during the 1990s (Mayer et al., 2005) did not leave the policy process at Schiphol airport untouched. In all, three major 'rounds' have been organized and were concluded in 1995, 1999 and 2006 (Huys, 2006). Yet, even tough much variety is generated during these interactive processes the ideas do not find their ways into policy. Van Eeten (2001b) has identified this problem as the 'missing link' between such deliberative efforts and established institutional lines. With cultural theory we can particularize this conclusion and explain the negligible impact as the marginalization of the individualistic way of life by the hierarchical-egalitarian coalition. The 'prescribing' variety of individual entrepreneurs cannot be incorporated into a hierarchical system which is already prescribed. This tension is also visible in the experiences of the Regional Consultation Committee Schiphol (CROS), in which regional governments, citizens and the aviation industry participate. This institution is unable to accomplish its aim to reduce noise annoyance because it has to operate within the small bandwidth left by the (central) rules and regulations to control noise (Stallen, 2006).

Since each way of life has the ability to see things differently it holds that the key to good governance is to find an appropriate balance between the different political cultures. Below, we first discuss how the individualistic way of life can provide answers in relation to the problems of polarization and distrust. Next, we discuss how the individualistic way of life is also inherently well-suited to deal with the particular problem of aircraft noise

The present noise policy institutionalizes the two conflicting views, i.e. that aircraft noise is acceptable and that aircraft noise is not acceptable, at the same time. Through these institutions the hierarchical-egalitarian coalition emphasizes the legitimacy of both viewpoints, but at the same time, tries to keep the (political) conflict under the surface. Within the individualistic orientation this one-dimensional conflict would preferably be out in the open and have, not one, but multiple dimensions. Hence, instead of institutionalizing (and denying) a single conflict, multiple conflicts should be generated and, subsequently, be played out against each other. This would create a fertile breeding ground for entrepreneurs (individualists) to form and formulate (multiple) interests and exchange them against those of other actors.

The second problem was related to the overreliance on science to support the anticipatory mode of policy making. Although the individualistic orientation will not be able to predict the future any better than the hierarchical-egalitarian coalition, it is superior in knowing when to cut its losses. Hence, while the hierarchical-egalitarian coalition is constantly concerned with updating the system and implementing 'patches' to prevent future failures, the individual would only be concerned with 'the bottom line', i.e. which result are actually achieved? Opposed to the anticipatory mode of policy making the individual's mode is one of trail-and-error. If one thing does not work, try another, but continually learn along the way. While the hierarchical-egalitarian alliance is ashamed of its system failures, the individual would celebrate them as being key learning moments. Eventually, the

individualistic way of life can lead to the buildup of a collective policy repertoire, which can be effectively used to tackle new and unexpected situations. In effect, actors' faith in the effective management of the problem of aircraft noise could be renewed.

Hence, the individualistic way of life seems well-suited to deal with the negative 'side-effects' of hierarchical-egalitarian coalition. Yet, given the nature of human response to aircraft noise the individualistic way of life is also inherently a suitable approach to deal with this problem. Human response is not a mere function of acoustic factors, such as the number of aircraft overflights, the decibel levels or the time of day of noise occurrences, but is also influenced by so-called *non-acoustic factors* which are social-psychological in nature (typically acoustic indicators can only explain 9-29% of the variation in the subjective reaction to noise, (Job, 1988)). For example, an important factor is the perceived control an individual has over aircraft noise (Glass & Singer, 1972; Kroesen et al., 2008; Stallen, 1999). To have a choice about one's own (past, present or future) exposure to noise seems to increase an individual's capacity to effectively cope with the noise environment. Other researchers have drawn attention to the social relationship between the noise source and the noise receiver. In two laboratory experiments Maris et al. (2007a; 2007b) have shown that the fairness of the procedures preceding the actual exposure to certain sounds influenced individual's subjective response to the noise. Within these controlled environments causality can be firmly established.

Beliefs about *individual* and *social* control thus seem to have a large impact on the human perception and appraisal of aircraft sounds in their residential environment. The hierarchical-egalitarian coalition blunders in both respects. The coalition conceptualizes receivers of aircraft noise as passive, weak and in need of protection, but the institutions it has put into place to provide this protection consistently fail. These repeated failures of the anticipatory system to control aircraft noise have eroded residents' faith in these institutions. In other words, people distrust noise policy. The psychological link between the lack of social control and noise annoyance subsequently informs us that the hierarchical-egalitarian system is therefore a *direct cause* behind the noise annoyance experienced among residents around the airport (Stallen & Van Gunsteren, 2002).

Second, the hierarchical-egalitarian coalition leaves no room for individual control. Smit and Van Gunsteren (1997) discuss the noise insulation program to illustrate this. This program is also strongly hierarchical in nature. When residents are considered eligible for insulation measures (based on a strict acoustic criterion) they have no say in how and to which extent the measures are applied. They have to submit themselves to the system. An individualistic way of life would instead emphasize individual autonomy (i.e. 'perceived control'). In this respect, Stallen and Van Gunsteren (2002) have advocated for more tailored noise policies, offering residents a range of options that, if necessary, can be designed to accommodate specific individual wishes. The mere 'option value' of these measures would already have a positive impact on aircraft noise perception and appraisal.

2.6 An operationalization of the individual life of way: 'fundament in the region'

The previous section discussed the potential benefits of including the individualistic orientation into the constitution of aircraft noise policy at Schiphol. But how can these benefits be realized in practice? This question has been addressed previously (Smit & Van Gunsteren, 1997; Stallen and Smit, 1999a; Stallen and Smit, 1999b, Stallen & Van Gunsteren, 2002). Here, we summarize the latest attempt by Stallen et al. (2004) entitled 'fundament in the region'.

Emphasizing the role of non-acoustic factors Stallen et al. (2004) stress the need for self-regulation. Residents around the airport should not be conceptualized as weak and

passive, but as active agents who should be given opportunities to influence their exposure to noise. For this to work, the hierarchical system must take a step back, i.e. not everything must be pre-defined. Specifically, Stallen et al. (2004) propose to change the central government's role from being an administrator (unilaterally defining the public interest) to that of being a facilitator, creating room for regional actors (i.e. local governments and residents) and the aviation sector to articulate their interests in multiform ways (instead of two opposing interests growth/no-growth)[6] and facilitating a process of giving-and-taking between the formulated objectives via a multitude of mutual transactions.[7] Within this model regional actors and the aviation sector must be able to hold each other accountable. To facilitate these transactions Stallen et al. (2004) advocate the creation of regional institution, i.e. a *regional transaction model*, which has a formal administrative mandate. In addition, based on the principle of trail-and-error (the individualistic mode of learning), room must be provided for experimentation. Hence, the rules and produces should be flexible enough to accommodate these experiments. Within these conditions shaped by the central government a self-governing regional body can develop which has the main function of providing resilience (Wildavsky, 1988). The idea is that resilience creates the necessary capacity to cope with the inevitable (unexpected) complexities associated with a large socio-technical system such as a major international airport.

In sum, the proposal of Stallen et al. (2004) relies on the argument that the relevance of non-acoustic factors (i.e. individual and social control) supports the inclusion of the individualistic way of life in the constitution of aircraft noise policy. To achieve this in practice, Stallen et al. (2004) propose a regional transaction model, an institution which is able to facilitate transactions between the aviation industry and the region.

Smit and Van Gunsteren (1997) contend that the inclusion of the individualistic way of life goes along with certain risks and uncertainties for those involved. Within the individualistic way of life one should accept that one does not always know what is going on, that meanings are still open and that the best way forward is undefined. Many would feel uncertain without the stable policy base provided by the central government. Yet, Smit and Van Gunsteren (1997) believe that the 'risks' of the individualistic way of life are to be preferred above the (long-term) risks of the hierarchical-egalitarian coalition. In the end, the future cannot completely be anticipated and open conflicts are indispensable to secure an optimal living environment. In addition, Smit and Van Gunsteren (1997) emphasize that numerous shades are possible between the different political cultures, without violating the criterion of sufficient stability and order of the hierarchical government.

In the next paragraph we will reveal policy actors' viewpoints on future aircraft noise policy at Schiphol. Our main interest lies in knowing how participants' beliefs interacted with the insights in non-acoustic factors and Stallen et al.'s (2004) regional transaction model, the concrete manifestations of the individualistic way of life within Schiphol's noise policy debate.

3. Q-Method

[6] This idea is also advanced by Wildavsky (1985) who contends that in the face of polarization (as is also the case the policy debate of Schiphol) schools of public policy should move from a one-sided emphasis on the realization of given objectives (treating them as exogenous) to an equivalent concentration on their formulation (treating them as endogenous).

[7] Transactions can be made on all kinds of issues, e.g. land-use policies, the determination of flight paths, the peak hour capacity of the airport, noise insulation policies, the night-time regime of the airport, house moving schemes, policies that enhance the overall environmental quality in the region of Schiphol, policies for complaint registration and handling, information provision (also for those who are moving into the affected area), etc.

How do policy actors, involved in the policy processes surrounding Schiphol, respond to the insight in the relevance of non-acoustic factors in general, and to Stallen et al.'s (2004) critique and alternative proposal in particular?

To reveal actors' responses to these matters we applied Q-methodology.[8] Q-methodology is well suited as a means to analyze the meaning of actors' responses, because it can reveal the respective subjective contexts of the reactions. In other words, it allows the researcher to assess actors' holistic 'frames of mind' on particular issues (Brown, 1980). Another advantage of using this method is that we can assess whether the dichotomy in arguments as observed by Van Eeten (1999; 2001a), who also used Q-methodology to reveal these arguments, still persists.

In the following we discuss the selection of statements, the selection of participants and the (analysis) procedures.

3.1 Q-sample

To satisfy the aim of our study, we did not sample from subjects' own communications about Schiphol policy, but instead developed a quasi-naturalistic Q-sample (McKeown & Thomas, 1988). More specifically, we choose to sample statements from conclusions and recommendations formulated in (research) reports which were published within the framework of Schiphol's policy evaluation (2004-2006). Before elaborating on the reason for this quasi-naturalistic sample we briefly describe the background of this evaluation.

In 1995 the decision was made to build Schiphol's fifth runway, which came into use in 2003. In 1998 the Cabinet also decided that the Schiphol policy, which was laid down in the Key Planning Decision (PKB) Schiphol and Surroundings of 1995 had to be replaced with a new policy framework, the Schiphol Act (detailed in two Airport Decrees). This Act came into force with the opening of the fifth runway in 2003. The mainport ambition and the regulations for aircraft noise, safety risks, air pollution and spatial planning for Schiphol are recorded therein. With the introduction of the Schiphol Act concerns where expressed by the Upper House whether the environmental (read: aircraft noise) protection provided by the new policy framework was equivalent to that of the PKB 1995. These concerns were expressed in the motion Baarda et al., which stipulated that within three years after the Schiphol Act came into force a "test for equivalence" needed to be performed.

In line with this demand the Cabinet decided to organize a broader evaluation, which included a policy effectiveness test and an exploration of possibilities to improve the policy. To satisfy these aims research was commissioned on a broad range of topics, covering studies of experiences from actors in the field, best practices from abroad, ways to measure aircraft noise in practice, policy effects on aircraft noise exposure and external safety and also a study investigating the social-psychological determinants of human response to aircraft noise. In addition, all involved actors were invited to submit proposals to improve the policy. In total 682 improvement proposals were submitted by 138 petitioners, including local governments, professional organizations, residents, environmental organizations, anti-noise platforms, aviation industry and CROS. These proposals covered issues like the use of runways and flight paths, communication, the mainport strategy, standards for environmental effects, spatial planning and the institutional and legal framework.

Schiphol's policy evaluation was finalized in 2006. The published reports on the three themes (i.e. test for equivalence, effectiveness and improvement proposals) of Schiphol's policy evaluation are presented in Table 4 in the appendix. Several other reports are added to

[8] The Q-method has been successful in revealing perspectives on a range of public policy topics (Ellis, 2004; Ellis et al., 2007; Pelletier et al., 1999; Steelman & Maguire, 1999) and, in the field of policy analysis, comes recommended as a method to gain an in-depth understanding of policy issues (Durning, 1999).

this list: (1) the final report of the process commission, which was set up to guarantee the neutrality/objectiveness of the evaluation, (2) policy advises of independent research councils (think tanks) and (3) research reports from parallel projects.

The variation present in these reports is taken as the communicative context of the present Q-study. This variation sufficiently covered statements related to the insight in non-acoustic factors and Stallen et al.'s (2004) alternative model, thereby forcing actors to take a stance in relation to these ideas. In addition, the variation in these research reports is 'unbiased' by the actors in the field, but still related to the specificities of Schiphol's policy context.

In total 190 conclusions and recommendations are sampled from the included documents. Next, this sample is structured into five themes: social-psychological, economic, technical/acoustical, legal/institutional and political-administrative. From each theme statements are selected until each is adequately represented. The final Q-sample consists of 41 statements and can be found in Table 1. Statements 2, 3, 8 and 9 relate to the insights in non-acoustic factors and statements 20 and 35 relate to Stallen et al.'s (2004) proposal for more regional cooperation and the creation of a regional transaction model.

3.2 P-sample and procedures

Given constraints on the available resources the choice was made to administer the Q-sorting task via the internet. The application Flash-Q was used for this purpose (Hackert & Braehler, 2007). Based on the authors' network of relations complemented with contact information of relevant stakeholders gathered via the internet a list of 310 e-mail addresses was composed. An e-mail with an invitation to participate in the Q-study was send to the selected actors. In all, 45 actors performed the Q-sorting task and filled in a small questionnaire afterwards.

Although the response rate was relatively low, 14.5%, all relevant actor groups were sufficiently represented in the final sample, as shown in Table 1. Based on the assumption that this is the most relevant variable influencing actors' viewpoints (as captured in the theorem "where you stand depends on where you sit"), we were fairly confident that all existing viewpoints would be revealed.

Table 1. Actors groups, selection and response

Actor group	Selection	Response	Response rate (%)
National governments (Ministry of Transport (V&W), Ministry of Environment (VROM) and Ministry of Economic Affairs (EZ))	31	4	12.9
Regional governments (municipalities and provinces)	50	7	14.0
Aviation industry (Schiphol Airport, Royal Dutch Airlines, Martinair, Air Traffic Control, Airport Coordination Netherlands)	41	7	17.1
Universities	60	10	16.7
Regional Consultation Committee Schiphol (CROS)	27	3	11.1
Interest groups (Friends of the Earth, Dutch Aviation Platform)	9	2	22.2
Research institutes (consultancy groups, research councils and planning agencies)	70	7	10.0
Other	22	5	22.7
Total	*310*	*45*	*14.5*

We wanted to give actors the opportunity to evaluate the different insights on their own merits as much as possible. We therefore choose to formulate the condition of instruction such that it was focused on Schiphol's long-term future, i.e. a context not constrained by present institutions. The exact formulation was: "Given the following conclusions and recommendations from (scientific) research reports and policy advises, which do you think are most relevant for Schiphol's aircraft noise policy on the long-term?" Subjects sorted the 41 statements on a scale from -5 (least important) to +5 (most important).

In the interview after the Q-sorting task, subjects were asked to motivate the extreme positions (+/-5) and provide information on their background.

3.3 Analysis

Factor analysis (centroid extraction method) and varimax rotation[9] revealed that eight factors satisfied the criterion of having two or more significant loadings (Brown, 1980). Table 2 shows the proportions of explained variance and number of factor exemplars. The Q-sorts of the factor exemplars, i.e. those persons that solely and significantly loaded on a factor, were merged into factor arrays. The factor arrays, presented in Table 3, can be regarded as the idealized Q-sorts of fictive persons loading 100% on the respective factors.

Table 2. Proportions of explained variance and number of factor exemplars

Factor	EV (%)	Factor exemplars
A	14	12
B	10	6
C	8	5
D	9	5
E	4	2
F	4	2
G	4	2
H	4	2
≥ 2 sign. loadings		7
Zero sign. loadings		2
Total		*45*

4. Results

Table 3 presents the factors arrays of the first four factors (A through D). Because these four represent the most dominant positions in the total set of eight perspectives, the discussion is limited to these only. In the following an interpretation of the perspectives is provided, which especially focuses on the response to the insights into non-acoustic factors and the regional transaction model proposed by Stallen et al. (2004).

[9] The PQmethod software was used for this purpose (Schmolck, 2002).

Table 3. Factor arrays

No.	Statement	Factor A	B	C	D
1	The choice for a mainport inevitably leads to noise annoyance, pollution and risks.	3	-2	2	-2
2	Noise annoyance increases when people's expectations differ from actual developments.	3	3	1	3
3	Lack of trust and recognition play a role in the experience of noise.	3	1	-1	5
4	Based on the "test for equivalence" it can be concluded that the Schiphol legislation satisfies the criterion of equivalence.	-2	-2	-4	-4
5	The levels of noise and risk in the vicinity of Schiphol stayed within the set maxima stated in the transition articles.	-1	-2	-3	-5
6	The portion highly annoyed is considerably higher than predicted from the EU dose-response curves for environmental noise.	-2	3	-3	-2
7	It is conceivable that due to constantly changing flight patterns there is also a constant over-reaction to the noise.	-1	0	-1	0
8	Non-acoustic factors add significantly to the degree of annoyance.	1	-3	-2	5
9	Investing in the restoration of trust could contribute to reducing the degree of annoyance.	1	-3	-1	4
10	A clear and comprehensible future vision of the central government, including clarity about the consequences for residents around Schiphol, is very important.	5	-1	3	4
11	More than 75% of the residents is positive towards Schiphol and 50% is positive towards further expansion of Schiphol.	2	-4	0	-3
12	The majority of the residents finds that the norms and regulations provide little guarantees for protection against noise.	0	3	-2	3
13	The current legal system is experienced as technocratic, which according to some parties contributes to the creation of distrust among residents around Schiphol.	1	-1	0	4
14	An important disadvantage of the Schiphol act is the deficient legal protection for residents.	-4	4	-3	1
15	The noise norms set in the control points will provide the protection envisioned in the Schiphol act, now and in the future.	-2	4	-4	-5
16	Continuous Descent Approach (CDA) could reduce the level of aircraft noise, especially in residential areas further away from Schiphol.	2	1	2	0
17	There does not seem to be a sustainable balance between the space for the mainport Schiphol and the negative effects of aircrafts operations on the environment.	-3	4	-1	1
18	The instruments of the Schiphol policy provide insufficient possibilities to optimize the use of Schiphol.	2	0	1	-1
19	It is of great importance that a legal system is developed that more directly controls the effects of air traffic to and from Schiphol..	-3	5	1	2
20	A regional transaction model in the form of a public-private contract or a functional administration at the regional level could provide a structural contribution to the restoration of trust.	-5	-4	1	1
21	Research into policy for the mid-long term future of Schiphol is important and should be focused on a structural revision of Schiphol's policy and the related legal framework.	3	0	3	2
22	Concentration of the effects of air traffic can contribute to enlargement of the capacity of Schiphol and more predictable air traffic.	0	0	0	0
23	Not allowing Schiphol to grow any further would lead to a competition disadvantage for airliners operating from Schiphol which, in turn, would cause the Netherlands to become a less attractive environment for corporations.	4	-5	0	-4
24	The legal framework for the noise norms should provide space for further development of the airport and challenge the aviation sector to reduce noise through innovation.	4	-3	4	-1
25	Concerning the capacity of the airport the noise norms are most restrictive .	4	-3	-5	-2
26	Because the aviation sector grew little in the period of the evaluation of the Schiphol policy, little can be said about the effectiveness of the Schiphol legislation.	-4	-2	-4	-3
27	Research into a sub-hub scenario in which Schiphol assumes a smaller size is of great importance.	-5	2	2	1
28	It is a good option to strengthen the current noise norm system based on calculations with actual measurements of noise.	-1	2	-3	-2
29	Air traffic which is not essential for the mainport function of Schiphol should be displaced to other airports.	-4	2	5	1
30	In favor of a strong economy Schiphol should be allowed to grow at the current location within the limits of noise and risk.	5	-5	2	-1
31	Strict and legally enforceable noise norms provide the best guarantee for residents to prevent exposure to too much noise.	-2	5	-1	-1
32	Currently the calculated noise levels structurally underestimate the actual noise levels, creating a wrong picture about noise exposure in the environment of Schiphol .	-3	3	-2	-1
33	We should constantly look for ways to reduce noise exposure from aircrafts (e.g. quieter flight procedures). A knowledge center can play an important role in this.	1	-1	4	0
34	The slot coordinator should be given more power to maximize its capability to selectively allocate slots.	-1	1	4	-3
35	The policy of the national government should be focused on enhancing the cooperation between Schiphol and regional actors (citizens and local municipalities).	0	-1	1	3
36	When innovations are implemented it should be clear how the gains are distributed in terms of improved environment and increased capacity.	0	1	5	2
37	Growth of Schiphol should not come from messing around with the noise norms. Growth should arise from innovation.	-1	2	3	3
38	The developments to which Schiphol airport and its home carrier are exposed are global and can hardly be influenced by the Dutch national government.	1	-4	0	-4
39	A factor that makes the work of CROS so difficult is that the given margins in which CROS has to operate are very small.	-3	0	-5	0
40	A painful fact about the distrust among residents is that nobody wants to believe that the double-sided goal has proven to be tenable in the last years	0	1	-2	2
41	With a better mutual adjustment of air traffic and land-use a substantial reduction of noise annoyance is possible, even with a continued growth to 600.000 aircraft movements in 2020	2	-1	3	-3

4.1 Perspective A: Government, live up to your choice for the mainport Schiphol!

Within this perspective actors believe that the future policy should provide room for growth of the airport (statement 30) and actors emphasize the necessity of this growth for the Netherlands in terms of its attractiveness for international corporations (23). It is therefore important for future policy that this growth is not restricted by the noise norms (24). Growth within the limits for noise and risks remains an important principle (30).

Options like a sub-hub scenario, in which Schiphol would function as a regional airport instead of a major hub (27), or relocation of air traffic to other airports (29), are strongly ruled out. To address the noise problem spatial-technical solutions like Continuous Descent Approach (16) and an optimized configuration of flights paths vis-à-vis land-use (41) are considered moderately relevant.

Within this perspective great importance is attached to a clear vision on Schiphol from the national government. Since the choice for a mainport inevitably leads to annoyance, pollution and risks (1) it is important that such consequences are clearly communicated towards residents (10). Actors in this perspective do not believe in the importance of strict and enforceable noise limits for future noise policy (31), nor in the ability of such limits to optimize the use of Schiphol (18). On the contrary, they value the conclusion that research on policy for the mid-long term is important and that it should be focused on a structural revision of Schiphol's policy and the related legal framework (21).

In sum, actors in this perspective strongly value conclusions that stress the importance of Schiphol for the national economy and the necessity of growth. They do not appreciate statements that accentuate the effectiveness of noise limits. Instead, since the choice for a mainport has already been made on a national level, actors in this perspective believe that the main solution is to clearly communicate this choice to residents.

Non-acoustic factors

Perspective A acknowledges the relevance of non-acoustic factors related to the experience of aircraft noise (2 and 8) and of trust in particular (3). The following remark of a subject subscribing to this perspective is illustrative:

(related to statement 3) "The biggest problem with aircraft noise around Schiphol is perception. The amount of noise is the same or less compared to other mainports in Europe, but this is experienced differently by those living in the vicinity of the airport. This is probably due to the distrust and/or bad news coverage, through which the perception of noise is much higher than the actual noise."

Although actors acknowledge the 'non-acoustic factors' insight they interpret it strategically. They use it to emphasize that efforts of the aviation industry in the Netherlands have been more then sufficient and that the relatively high portion of complainants is caused by bad news coverage/distrust. In other words, residents' response is irrational given the objective noise levels.

Even tough the non-acoustic factors are acknowledged enhanced cooperation between Schiphol and its environment (i.e. citizens and municipalities) (35) or the installation of a regional transaction model (20) as means to address the lack of trust are not valued as important strategies:

(related to statement 20) "I do not belief deliberative models are the solution. In my experience the syrupy of the present policy (and the lack of policy) is a direct consequence of the current deliberative models."

(related to statement 20) “The restoration of trust does not come about by creating an additional regional administrative organ or something like that, it results from being consistent in saying what you do and doing what you say.”

(related to statement 39) “Not the small margins of CROS are the problem, but the absence of a clear underlying policy is the problem. […] In my opinion citizens are sufficiently represented and protected via our democratic polity.”

The last two remarks clearly show that actors within this perspective believe distrust is best dealt with by making clear choices on a national level and acting accordingly. This belief is strengthened by their bad experiences with regional deliberative efforts.

4.2 Perspective B: Government, live up to your choice for environmental protection!

Concerning future policy this perspective does not attach importance to statements stressing the economic benefits of Schiphol nor to those stressing the necessity of growth in favor of a strong economy (23, 24 and 30). In this respect perspective B is opposite to perspective A.

According to this perspective strict and enforceable noise norms remain important (15) and provide the best guarantee to protect residents against too much aircraft noise exposure (31). However, actors do underline the importance of a new legal system that controls the environmental effects of aviation more directly (19). The actual measurement of aircraft noise, in addition to the current practice of calculation, is also considered relevant for improving the present legal system (28 and 32). A possible negative outcome of a technical/hierarchical system, i.e. distrust among residents, is not considered relevant (13).

Research into a sub-hub scenario (27) and displacement of air traffic to regional airports (29) are options that are considered mildly relevant. Overall, actors in this perspective are indifferent about the importance of research focused on a structural revision of Schiphol’s policy (21).

Within this perspective great importance is attached to the conclusion that presently there is no sustainable balance between the mainport and the environment (4). The conclusion that the global developments to which Schiphol airport and its home carrier are exposed can hardly be influenced by the Dutch national government is considered irrelevant (38).

In sum, this perspective does not consider the economic benefits of aviation as a relevant point of departure for future policy. In addition, the present legal system can be improved (e.g. by measuring noise), but its core (i.e. strict and legally enforceable noise norms) should be retained. Strict enforcement of the aircraft noise norms is necessary to secure a sustainable balance between economy and environment.

Non-acoustic factors

This perspective does not belief that the non-acoustic factors are relevant (8 and 9). On the contrary, several actors subscribing to this perspective express downright criticism, as illustrated by the following remark:

(related to statement 8) “This is chatter of professor Stallen. He thinks the experience of noise is ‘all in the head’, in other words, it is all due to residents. […] He does not live under a flight path.”

Actors feel attacked by the notion that noise annoyance is a social-psychological construct, as if they do not experience real (objective) nuisance. They have internalized the objectivism and technocracy of the policy and reject a problem definition in which residents’ subjectivity also plays a role. In their view, such a problem definition would relief the

government (and the aviation industry) from their task to protect residents against 'real' aircraft noise.

In line with the mainport perspective (A) a regional transaction model is not regarded as a relevant element of future policy (20). The same goes for government policies to enhance cooperation between Schiphol and its environment (35). This position can be explained by the low importance actors attach to non-acoustic factors, but also by their strong belief in the central administrative model:

(related to statement 31) "This is the only thing we can hold on to. Otherwise, they can do what they want."

The criticism towards the hierarchical model expressed by other actors is fenced off by the following response:

(related to statement 13) "A noise norm system does not have to be understood by everybody, if only it works."

In sum, actors expect little from a regional approach. Within their perspective the technical administrative model is viewed as the only thing they can hold on to, a necessary evil.

5.3 Perspective C: mainport and environment: a solvable problem (innovation and selectivity)

In this perspective some importance is attached to the conclusion that Schiphol should be able to grow in favor of a strong economy (30), yet it is indifferent about the implied causality between development of Schiphol and the Dutch settlement climate for businesses (23).

Within the perspective (technological) innovation is an important element to achieve both economical and environmental goals. The recommendations that the noise norm system should challenge the aviation sector to innovate (24), that growth of Schiphol should not come from messing around with the noise norms but arise from innovation (37) and that we should continuously search for options to reduce the noise production of aircrafts (33) are considered important. Actors in this perspective are optimistic about the abilities of technology to reduce the negative effects of aviation. In addition, it should be clear how gains from innovations are allocated to either side of the dichotomy (i.e. economy versus environment) (36).

This perspective also underlines the importance of selectivity measures. Emphasis is placed on the recommendations that air traffic unrelated to the mainport function should be displaced to regional airports (29) and that the slot coordinator should be given more possibilities to selectively allocate slots (34).

Within this perspective little importance is attached to the conclusion that the present noise norms function effectively to protect residents against noise (15). Instead, it stresses the relevancy of research focused on a structural revision of Schiphol's policy (21).

In sum, to reconcile the tension between economy and environment this perspective seeks the future of Schiphol's policy in possibilities to promote technological innovation and selectivity.

Non-acoustic factors

This perspective is indifferent about the relevancy of non-acoustic factors for future policy (3, 8 and 9). However, unlike perspective B, this does not relate to their unwillingness

to subscribe to a subjective problem definition, but is derived from a position that human subjectivity lies outside public policy's reach, as illustrated by the following remark:

(related to statement 8) "This is indeed true, but in terms of policy useless knowledge."

Hence, actors' emphasis on the technocratic logic to resolve the tension between economy and environment creates a context in which human subjective variation is irrelevant. In line with this belief, actors are also indifferent about more regional cooperation (35) or a regional transaction model (20).

4.4 Perspective D: Aircraft noise as a social problem (trust and transparency)

In accordance with perspective B this perspective attaches little importance to the conclusion that a growth stop would lead to a degradation of the Dutch settlement climate (23).

This perspective is build around the insight into the role of non-acoustic factors (7). Acknowledgement of the relation between trust and noise annoyance (3) and efforts to restore trust (9) are seen as important elements of future policy. As one actor describes:

(related to statement 3) "This "soft" side of annoyance is more and more supported by empirical research. Listen to people, do something with their input, be honest and transparent, and then trust will slowly return."

This perspective expects little from the existing norms to control aircraft noise (15). On the contrary, it stresses the relevancy of the conclusion that the technocratic system might be the very driver behind the creation of distrust among citizens (13). As another actor remarks:

(related to statement 3) "People do not trust Schiphol, the aviation sector or the policy. By definition, this causes stress, the feeling of not be taken seriously. Without trust there can be no healthy policy."

The emphasis on the non-acoustic factors also manifests itself in the importance this perspective attaches to the recommendation that the government should stimulate the cooperation between Schiphol and the regional actors (35). However, even in this perspective actors are not convinced about the added value of a regional transaction model for future noise policy (20). In addition, also in this perspective a tendency towards centrality can be observed: a clear vision of the national government is considered a relevant element for future policy (10).

The conclusion that growth should originate from innovation instead of adjusting the noise norms is considered moderately relevant (37), as is the conclusion that is should be clear how gains from innovations are distributed over the two sides of the dichotomy (36).

In sum, this perspective places the social side of aircraft noise in the core of the future policy. Trust, transparency (in communication) and cooperation are keywords. The present technocratic system forms an obstacle to realize these principles. Yet, the regional transaction model of Stallen et al. (2004) is not regarded as a promising alternative.

5. Discussion

We can conclude that perspectives A and B reproduce the dichotomy between pro-growth (mainport) versus anti-growth (environment) of the airport. Although we did not find two diametrically opposed (i.e. bipolar) arguments as the study of Van Eeten (1999) revealed, the correlation between the factor scores of perspectives A and B, -.052, still indicates the

presence of strong opposition. Hence, a decade after the study of Van Eeten (1999), Schiphol's policy debate is still characterized by opposing viewpoints, providing quantitative evidence for the existence of continued polarization.

In terms of cultural theory we can conclude that perspectives A and B are strongly rooted in the hierarchical-egalitarian coalition. For perspective A aircraft noise is tolerable, for perspective B aircraft noise is intolerable, both views are legitimated by the hierarchical and egalitarian part of the coalition respectively. In addition, both perspectives have hierarchical tendencies. From an individualistic viewpoint (emphasizing that the collective decision for a mainport has already been made by majority vote) Factor A argues for more leadership of the central government: the government should emphasize that aircraft noise is acceptable. From an egalitarian viewpoint (emphasizing the need for more protection of residents) perspective B argues that the government should retain (and improve) the rules and regulations to control noise. These centralistic institutions are necessary evils to control the profit seeking (self-centered) behavior of the aviation industry. Hence, both sides call upon the central government (the hierarchy) to act according to their respective viewpoints. In turn, the government can only respond by capturing the opposing wishes in more rules and procedures, which reinforce the hierarchical-egalitarian conceptualization.

Given the resulting polarization we can see why the insight in non-acoustic factors is underutilized in the present policy. The insights are used instrumentally to fit and perpetuate the opposing arguments. For perspective A the non-acoustic factors confirm that Dutch people, compared to other Europeans, are somehow more sensitive to noise. Hence, even though the Dutch aviation industry performs well in terms of actual noise exposure levels, residents' response is irrational. It confirms the belief that they have to satisfy opponents that can never be satisfied enough. For actors in perspective B, it proves that the government and the aviation industry are trying to find ways to relief themselves from efforts to reduce actual noise levels. They interpret perspective A's emphasis on perception as the result of the belief that the noise problem is not real, that it is all in people's heads. Actors adhering to perspective B are offended by this notion, and advocate control over actual aircraft noise instead of the clever management of people's perceptions.

From actors' viewpoints the instrumental response towards the insights in non-acoustic factors is rational. Within the hierarchical-egalitarian tradition the physical noise load always figured as the key indicator, which needed to be controlled. Subjective variation or the factors behind this variation are considered irrelevant. To stress the importance of non-acoustic factors is easily interpreted as a way to cover up the failure of policy to control acoustic factors. So although emphasizing the role of non-acoustic factors is necessary to show the suitability of the individualistic way of life in relation to the problem of aircraft noise, the prevailing acoustic tradition (along with the resulting polarization) led to the dismissal of the alternative model.

Actors' response towards Stallen et al.'s (2004) regional transaction model is relatively invariant; none of the four perspectives attaches great importance to these solutions. For perspectives A and B, the regional transaction model is considered least important for future policy. Off course, these responses can be explained based on perspective's A tendency towards centrality (i.e. the central government should assume a leading role) and perspective's B tendency towards rules and procedures (i.e. the noise zoning system should be enforced), respectively. Yet, this reasoning cannot account for perspective's D response. Given that this argument revolves around the insight in non-acoustic factors, its indifference towards a regional transaction model is unexpected. A plausible explanation of this response might be the poor results of previous deliberative efforts in Schiphol's policy history. Empirical evidence for this explanation is present in the line of reasoning expressed in perspective A. Here, the negative experiences with participatory processes, arising from the

poor reconciliation of the outcomes with the prescribed hierarchical system, resulted in a critical attitude towards regional deliberation. Hence, because the outcomes fail to leave an imprint on policy, actors dismiss the regional transaction model. The marginalization of the individualistic way of life leads actors to conclude that a regional transaction model is just another forum for talk.

Overall, we can draw the following conclusions. First, actors on either side of the dichotomy (arguments A and B) are creative in molding the insight in non-acoustic factors to fit and perpetuate their respective arguments. Ironically, instead of resolving the polarization, it has led to the exact opposite result; it became part of (and strengthened) the controversy. The instrumental interpretation hinders a substantive one. Obsessed with the 'tug-of-war' between growth versus no growth - a social construction created by the actors in the field - actors fail to recognize that the insights in non-acoustic factors can pave the way towards a more individualistic orientation underlying the noise policy, which could resolve the strong polarization. On the contrary, the insight in non-acoustic factors becomes part of the game, as just another controversial issue. In addition, a 'paradigm shift' is not only hindered by the controversy created around the insights in non-acoustic factors, but also by actors' emphasis on centrality and technocracy, the main principles of the hierarchical-egalitarian coalition. Within this context, a regional transaction model as envisioned by Stallen et al. (2004) has no place. This belief is also strengthened by the negative experiences of previous deliberative efforts, which, in turn, can be explained by the marginalization of the individualistic way of life by the hierarchical-egalitarian coalition. In Figure 1 the two feedback loops that indirectly reinforce the hierarchical-egalitarian coalition are schematized.

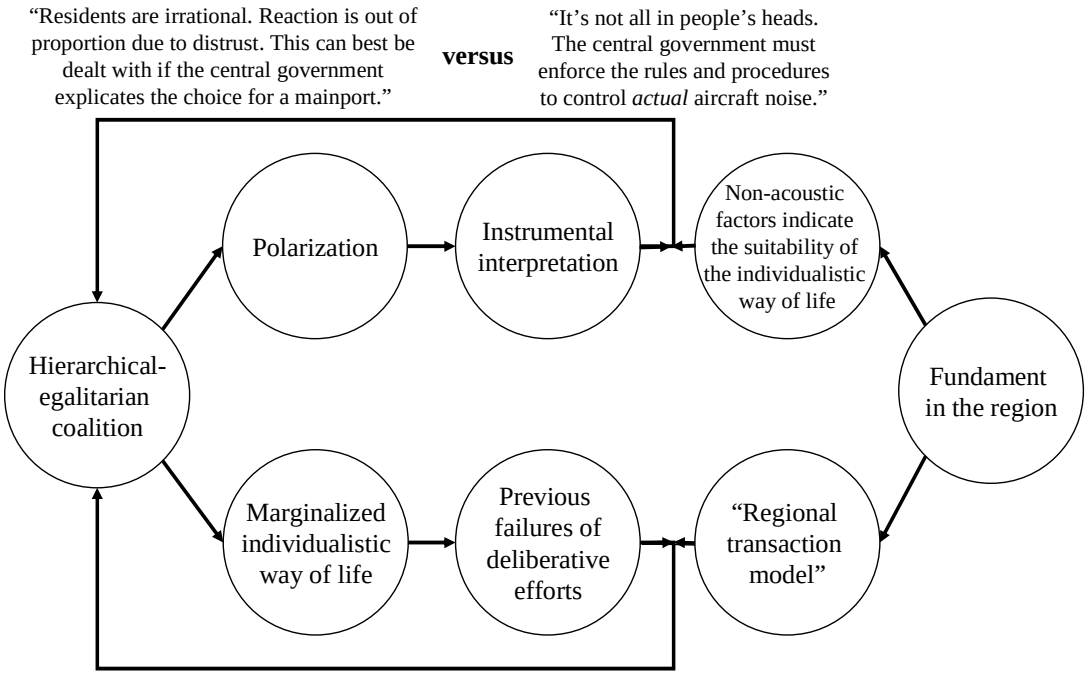

Figure 1. Two feedback-loops that reinforce the hierarchical-egalitarian coalition

6. Conclusion

In this study cultural theory is applied to show the potential benefits of the individualistic way of life in the constitution of aircraft noise policy. These benefits are twofold. In the first place, it can effectively deal with the negative side-effects of the hierarchical-egalitarian alliance, i.e. polarization and distrust. And secondly, due to the role of non-acoustic factor in aircraft noise appraisal, it is also inherently effective to deal with the phenomenon of aircraft noise annoyance. However, due to the polarization the insight in non-acoustic factors, used to indicate the suitability of the individualistic way of life, becomes part of the controversy as another issue on which the polarization crystallizes. Our research therefore suggests that strong controversy can have a detrimental effect on the cognitive learning capacity of actors. In addition, we have shown that the hierarchical-egalitarian coalition is not only directly self-reinforcing (promoting the principles of centrality and technocracy), but also indirectly through its marginalization of the individualistic way of life. Due to this marginalization the potential gains of regional deliberative processes have never been realized. In effect, actors do not consider a regional transaction model as proposed by Stallen et al. (2004) as a viable way forward.

We attempted to show that how a deadlocked policy tradition is able to reinforce itself in the face of a concrete alternative. Our research indicates that in addition to the general and direct structuring effect of the policy discourse two specific and indirect causes behind the reinforcement should be taken into account. These results show the importance of paying careful attention to the way an alternative discourse is operationalised by taking into account the prevailing dominant discourse and its effects. We believe this conclusion has implications for anyone trying to accomplish social change in a policy domain.

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Appendix

Table 4. Research documents used to derive the Q-sample

Main documents	Author	Year
Research approach policy evaluation Schiphol	Ministry of Transport, Public Works and Water Management and Ministry of Housing, Spatial Planning and Environment	2004
Evaluation of the Schiphol policy - final report*	Ministry of Transport, Public Works and Water Management and Ministry of Housing, Spatial Planning and Environment	2006
Theme: Equal protection		
Test for equivalence old versus new legislation (motion Baarda et al.)	Advanced Decision Systems Airinfra Ltd., DHV Group, and National Aerospace Laboratory	2006
Opinion of the Environmental Impact Assessment Committee on test for equal protection	Environmental Impact Assessment Committee	2006
Opinion of the Aircraft Noise Expect Committee on test for equal protection	Aircraft Noise Expert Committee (Eversdijk et al.)	2006
Theme: Effectiveness of the Schiphol policy		
Schiphol experienced by residents	National Institute for Public Health and the Environment and RIGO Research and Advice	2006
Residents about Schiphol	Interview NSS	2006
Two years experience with Schiphol policy	Bijnsdorp Communication Projects (BCP)	2006
Cleaner air, cleaner aircrafts, more aircraft emissions	Advanced Decision Systems Airinfra Ltd.	2006
Schiphol act and two airport decrees a good solution for the objections and a suitable system?	NovioConsult Van Spaendonck Ltd.	2006
Mainport development in the framework of the policy evaluation Schiphol	SEO Economic Research	2006
The effect of policy on noise annoyance and external safety	National Aerospace Laboratory	2006
Learning experiences from abroad	ADSE and Strategem	2006
Growth possibilities of Schiphol within the environmental limits	To70 - Aviation and Environment	2006
Response Council for Housing, Spatial Planning and Environment: "more market for the mainport"	Council for Housing, Spatial Planning and Environment	2006
Response Council for Transport, Public Works and Water Management: "thunderstorms clear the sky"	Council for Transport, Public Works and Water Management	2006
Theme: Improvement proposals for the Schiphol policy		
Improvement proposals - initial exploration	To70 - Aviation and Environment	2006
Assessment and weighting of improvement proposals	Ministry of Transport, Public Works and Water Management and Ministry of Housing, Spatial Planning and Environment	2006
Research into the effects of the improvement proposals	To70 - Aviation and Environment	2006
Process committee for the evaluation of the Schiphol policy		
Process committee evaluation Schiphol policy - final report	Process committee (Derksen et al.)	2006
Policy advices		
Advice Transport, Public Works and Water Management Inspectorate	Transport, Public Works and Water Management Inspectorate	2006
Advice Housing, Spatial Planning and Environment Inspectorate	Housing, Spatial Planning and Environment Inspectorate	2006
Advice Environmental Impact Assessment Committee	Environmental Impact Assessment Committee	2006
Advice Council for Transport, Public Works and Water Management: "it's no use hiding…"	Council for Transport, Public Works and Water Management	2005
Results from parallel/associated research projects		
Trends in noise exposure around Schiphol over the period 1990-2004 in KE and LAeq	Advanced Decision Systems Airinfra Ltd., DHV Group, and National Aerospace Laboratory	2005
Antecedents of the experience of Schiphol - a qualitative study among residents around Schiphol	RIGO Research and Advice	2005
Loud; but clear! (enforcement system for the outer area around Schiphol and noise measurements for enforcement and information provision)	Aircraft Noise Expect Committee (Eversdijk et al.)	2006
Noise capacity within the noise enforcement points	To70 - Aviation and Environment	2006
The environmental around Schiphol 1990-2010, facts and numbers	Netherlands Environmental Assessment Agency	2005
Effectiveness of the spatial planning policy instruments	Advanced Decision Systems Airinfra Ltd.	2005
Mainport Schiphol - background document	Ministry of Transport, Public Works and Water Management, Ministry of Housing, Spatial Planning and Environment and Ministry of Economic Affairs	2005
Four perspectives on Schiphol - policy scenario assessment	Ministry of Transport, Public Works and Water Management, Ministry of Housing, Spatial Planning and Environment and Ministry of Economic Affairs	2006
Mainport Schiphol: selectivity in aviation – background and options	Ministry of Transport, Public Works and Water Management and Ministry of Housing, Spatial Planning and Environment	2006

* Document available in English (contact corresponding author)