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Stakeholders perception of attitudes towards major landscape changes held by the public: the case of greenhouse clusters in Flanders

INTRODUCTION

Structural adjustments of the agricultural sector have led to dramatic changes in the composition of the farming sector throughout Western Europe (Kristensen, 1999). Also in Flanders the number of farms declined while the average farm size increased (Calus et al., 2008). In recent years the greenhouse sector in particular has been confronted with this increase in scale. In the Netherlands, Spain and Canada commercial greenhouses have an average size of 3 ha and may stretch over 30 ha in a single development (Agüera and Liu, 2009; CBS, 2010; Statcan, 2010). Knowing that the current average size of a greenhouse holding in Flanders is 0,6 ha (NIS, 2005) we can get the grasp of such an evolution. If the Flemish horticulture sector wants to maintain or even strengthen its position on (inter)national markets, an increase in scale and a modernisation of the existing greenhouses are indispensable. In order to tackle this problem, the Flemish Agricultural Department set the goal of a renewal of about 100 hectares of greenhouses per year (which means 5 percent of the total greenhouse area) (Leterme, 2007; Ministerie van de Vlaamse Gemeenschap, 2003). However, the authorities responsible for spatial planning are, under pressure of the public opinion, very reluctant to give the necessary permits to build such large structures. A policy document

concerning the spatial planning of greenhouse horticulture in Flanders was written to deal with this problem (Ministerie van de Vlaamse Gemeenschap, 2003). In this document, several tracks are proposed to achieve the goal of renewing 5 percent greenhouses per year. One of these tracks is the development of 'industrial estates' or 'business parks', specifically destined for greenhouse horticulture. Such 'greenhouse clusters' would offer several benefits: multiple horticultural companies can group and share the required infrastructure (such as energy, water and gas facilities), allowing for cheaper production and less environmental damage; heavy traffic can be guided in such a way that it causes less trouble for the neighbourhood; and integration of the greenhouse park in the surrounding landscape can be established more professionally than when individual horticulturists are left to their own devices. In highly urbanised regions (such as Flanders) there is the additional advantage that more space can be safeguarded for other purposes (Rogge et al., 2008).

Despite these advantages the public attitude towards greenhouse clusters in Flanders does not seem to be very positive. Resistance against the construction of new, large-scale greenhouses has increased, with more and heavier protest actions occurring over the last couple of years (Figure 1). Public meetings are prompted, demonstrations are organised, objections are formulated and petitions are signed, all of this resulting in a strenuous and prolonged procedure to obtain building permits for a single development. To develop a greenhouse 'cluster' the situation is even more difficult. After 10 years of debate and planning, thus far not a single cluster has been realised or even approved.

52

53

57

Resistance to major landscape change

Studies in the field of landscape aesthetics have shown that residents and visitors frequently reject planned changes of the existing landscape (Sell and Zube, 1986; Staats and Van de Wardt, 1990; Willis and Garrod, 1992). Van den Berg and Vlek (1998) state that the evaluations of planned changes at the very least reflect a 'resistance to change' in general, rather than a resistance to the specific contents of the planned change.

Several authors have tried to explain people's resistance to change by pointing out that change implies perception of risk and people have a general aversion towards risk (Willis and Garrod, 1992; Schwartz, 1994). Importantly, risk aversion is a function of people's reference point at the time of choice (Kahneman and Tversky, 1979). Risk aversion is strongest when the status quo is viewed as a gain situation. Applied to landscapes, planned-change contexts may transform the landscape into a risky alternative to the status quo, that might lead to a less favourable landscape (van den Berg and Vlek, 1998). This effect may be particularly strong for rural landscapes as the status quo situation is often associated with values such as biodiversity, tranquillity and a traditional way of life (Strumse 1996). Van den Berg and Vlek (1998) suggest that the resistance against

78 change may be intensified by factors that increase the perceived threat

79 posed by the planned changes. Planned changes may be perceived as more

80 threatening if people are personally affected by the consequences of the

81 planned change of a landscape, for example because their daily live takes

82 place in this very landscape. Another important determinant of perceived

83 threat may be the degree of similarity between the status quo and planned

84 change. Plans that are more dissimilar to the status quo present a greater

85 threat and will therefore most probably evoke more resistance (Willis and

86 Garrod, 1992). As the construction of a greenhouse cluster in a rural area

87 generally presents a very dissimilar situation from the status quo a lot of

88 resistance can be expected.

89

90 Another argument that is often put forward when trying to explain the

91 opposition against major landscape changes is the NIMBY-syndrome.

92 Wolsink (2007) describes NIMBY as the fact that people have positive

93 attitudes towards something until they are actually confronted with it, and

94 that they then oppose it for selfish reasons. Although literature makes us

95 realize that the NIMBY-concept is not the correct theory to explain the

96 opposition against major landscape changes (Wolsink, 2007; van der Horst,

97 2007; Mannarini et al., 2009; Warren and McFayden, 2010) it still has

98 enormous popularity among planners, policy makers and investors who

99 prefer it as their scapegoat for oppositional behaviour against concrete

100 projects (Wolsink, 2007). Because of this popularity and the fact that the

101 NIMBY argument is frequently used in the case of greenhouse clusters, we

102 take a look at how the NIMBY idea is being used and elaborated in the

103 context of comparable landscape changes.

104 *Public attitude towards comparable landscape changes (wind energy*

105 *projects)*

106 In our search for comparable landscape changes we found little evidence of

107 changes that evoke such a controversy as the construction of large scale

108 greenhouses. Although in the media we found cases of local protest actions

109 against the construction of manure processing installations or biogas plants,

110 this resistance is not systematic and widespread. A comparable

111 development with which rural areas have been confronted in recent years

112 however, is the construction of wind farms.

113

114 Public attitudes anywhere in Europe show moderate to strong support for

115 the implementation of renewable energy. Nevertheless, planning wind

116 power developments appears to be a complicated matter in most countries

117 (Wolsink, 2007) and in some cases the construction of wind farms also

118 provokes considerable controversy (Woods, 2003). Visual evaluation of the

119 impact of wind power on the values of the landscape is one of the factors

120 explaining why some are opposed to wind power implementation and why

121 others support it (Wolsink, 2007). The case of protest against wind energy

122 is however quite complicated to unravel. Besides visual arguments there are

123 also more complicated issues at play related to livelihood, values and justice

124 (Gross, 2007). This confirms that NIMBY is a far too simple concept to

125 explain protest against wind farm developments or other unwanted land

126 uses. In recent years several theories have been put forward to explain

127 these protest movements.

128

129   Mannarini et al. (2009) use Klandermans' model on participation that uses

130   three key elements (collective identity, sense of injustice and collective

131   efficacy) to explain local collective action and protest against so-called

132   LULU's (locally unwanted land uses). Mannarini et al. (2009) found that

133   these three elements indeed play a role in the mobilization of people against

134   locally unwanted land uses. On the other hand she also found three

135   additional elements that can account for this mobilization namely; social

136   embeddedness, social pressure exerted by the majority and place

137   attachment.

138

139   van der Horst and Toke (2010) studied the relevance of concepts such as

140   environmental equity and social capital in the light of planning wind farm

141   developments in rural England. The question of environmental justice arises

142   when there is evidence of inequality in terms of exposure to negative

143   environmental impacts. They found that new wind farms are significantly

144   more likely to receive planning permission, and thus being built, in relatively

145   more vulnerable and deprived local areas. On the other hand in areas

146   populated by more politically active, older, private-sector oriented people

147   there will be greater recourses available to fight appeals by developers.

148   The availability of social and financial capital is therefore an important factor

149   in conflicts concerning a wind farm siting (van der Horst and Toke, 2010).

150

151   Warren and McFayden (2010) studied whether actively involving the

152   stakeholders through a system of community ownership can alter public

153   attitudes and downplay protest against wind farm developments. Their

154   study indeed suggests that the public support for wind farms in Scotland

155 and the UK could be increased by changing the development model as

156 ownership has been found to have a positive influence on the attitudes of

157 stakeholders towards wind energy projects.

158

159 Wolsink (2007) and Gross (2007) explore the validity of fairness and justice

160 instead of backyard motives when trying to explain the public attitude

161 toward wind farm developments. The concepts of fairness and justice can

162 be used interchangeably and in their most simple meaning refer to

163 "rightfulness; that what is deserved" (CCH Macquarie, 1996). Many types of

164 justice have been proposed, Gross (2007) discusses two major types.

165 *Distributive justice* focuses on the equitable distribution of outcomes, which

166 can either be public goods or public 'burdens'. In contrast *procedural justice*

167 is concerned with the process by which decisions are made. Important

168 elements in procedural justice include rights of participation, access to

169 information, and lack of bias on the part of the decision maker (Gross,

170 2007). Wolsink (2007) found that local protest against wind farm

171 developments is not founded in the egotist NIMBYism but is rather caused

172 by a perceived injustice. The perception of fairness in decision making about

173 siting facilities such as wind farms, are strongly connected with perceived

174 environmental risks, and also with strongly deviating core values about how

175 society should take decisions, not only within the public, but among all

176 stakeholders involved in such processes.

177

178 The afore mentioned authors have tried to understand and explain reasons

179 for local protest against wind farm developments, but they indicate that

180 their theoretical frameworks can also be used for comparable developments

181 in rural areas. We therefore keep these theoretical concepts in mind when

182 analysing the data of our own research.

183

184 *The process of planning and public involvement*

185 In order to guide planned landscape changes, planners and researchers

186 have developed local and regional landscape assessment methods. Typically

187 these methods focus on land cover and/or land use characteristics (Wang

188 and Moskovits, 2001; Alig et al., 2004; Palmer, 2004; Rogge et al. 2008).

189 These techniques (e.g. satellite coverage, aerial photographs, Geographic

190 Information Systems, land use and land cover characteristics such as shape

191 and form, etc.) and their sophisticated measurements enable researchers

192 and planners to define spatial and temporal changes in the landscape and

193 produce maps that help visualise dimensions of change that might

194 otherwise not be apparent. However, few such assessments are grounded in

195 the experiences and concerns of residents and other stakeholders (Wagner

196 and Gobster, 2007). More and more it is argued that public involvement is

197 crucial to a successful planning process (Rose and Suffling, 2001; Koontz,

198 2003). Brandenburg and Carrol (1995) also warn for the pitfalls of

199 oversimplifying stakeholders values in a process of public involvement and

200 suggest that qualitative methods of social analysis can provide a richer

201 understanding of these values. Van Eetvelde and Antrop (2004) and Rogge

202 (2009) also point out that for a full understanding of landscape change and

203 a sound planning process, measures from aerial photographs and census

204 data are insufficient. They suggest to combine these data with interviews

205 and oral history.

206

RESEARCH OBJECTIVES

When comparing the development of greenhouse clusters to that of wind farms, there are some important distinctions to be made. The most important difference is that for more than 20 years research has shown (Thayer and Freeman, 1987; Wolsink, 1988; Walker, 1995) that there is a strong general support for wind power as it is an important source of renewable energy and it can help fight climate change. Although greenhouse horticulture represents the value of safe and qualitative food of a local produce, it is not clear whether there is a general support for its development within the Flemish society. We therefore chose not to focus on a specific location where an actual greenhouse cluster is being developed but to probe for the acceptance of greenhouse clusters in general.

This research wants to challenge simplistic arguments (such as NIMBY) that the different actors that together constitute the agricultural sector use to explain the attitudes the public has towards the development of greenhouse clusters. Therefore this research has the objective to unravel the complex arguments of the general public vis à vis greenhouse clusters, as it is perceived by the agricultural sector.

METHODS

In order to grasp the heterogeneity of the perceptions and the nuanced opinions of the stakeholders involved, and given the absence of previous research that could reveal quantitatively measurable constructs, a qualitative research design was appropriate (Carson et al. 2001). Following

233   the grounded theory approach (Strauss and Corbin, 1998), the authors

234   allowed the theory to emerge from the data. As such they wanted to

235   understand the research situation, rather than to test an a priori outlined

236   hypothesis. Because they are drawn from data, grounded theories are likely

237   to offer insight and enhance understanding (Strauss and Corbin, 1998). This

238   fits the above mentioned research objectives.

239

240   *Data sampling*

241   The idea behind data sampling in grounded theory is to purposefully select

242   participants who will help the researcher understand the problem and the

243   research question at the best (Creswell, 2003). The aim is to choose a small

244   number of cases that will yield in-depth data for theory construction, rather

245   than a random selection of a large number of data points to give us

246   statistical information about the opinions of an entire population (Koontz,

247   2003). The selection of stakeholders was carried out according to the

248   methods of theoretical sampling (e.g. Glaser and Strauss, 1967; Glaser,

249   1978; Miles and Huberman, 1994) and snowball sampling (Hunziker, 2000).

250   The latter makes it possible to consider the whole range of thematically

251   relevant positions in the population (Soliva, 2007) (Table 1). The former is

252   an iterative process in which cycles of data collection and data analysis are

253   repeated until the data collection stops yielding additional relevant insight

254   into the research topic. In our research, over a period of 5 months, 24

255   respondents were interviewed in three such separate data collection phases.

256   The open interviews lasted approximately one hour and a half.

257

258   *Table 1. Professional background and number of respondents per category*

259

260 Table 1 indicates that we have tried to interview a wide range of

261 representatives of the agricultural sector ranging from horticulturists, to

262 civil servants and representatives of the farmers union.

263

264 *Data analysis and coding*

265 Subsequently, the approach and method of Strauss and Corbin (1998) was

266 followed for the analysis of the data gathered throughout the in-depth

267 interviews. The data of the first interview round (16 interviews, held from

268 January 3th till February 18th 2008) was analysed by **open coding**. As

269 described by Strauss and Corbin (1998) the data was broken down into

270 discrete incidents, ideas, events and acts. Each **phenomenon** that was

271 related to the public attitude towards the development of greenhouse

272 clusters was given a name. Whenever a certain phenomenon was

273 mentioned by two or more respondents we defined it as a **concept**. In total

274 63 such concepts could be distinguished, some of them being mentioned

275 only twice, and others mentioned by each of the 24 respondents. After the

276 open coding of the first 16 interviews the concepts that emerged were

277 analysed and grouped into distinct **categories**. This gave us a first

278 explanation as to what exactly is going on. After each additional interview

279 round (round 2, 6 interviews, March 11th – March 27th 2008; round 3, 2

280 interviews, May 6th – May 28th 2008) the concepts and categories were re-

281 evaluated. Eventually we ended up with 63 concepts and 12 categories

282 (Table 2).

283 *Table 2. Overview of the 12 categories and 63 concepts that determine the public*

284 *attitude towards the development of large-scale greenhouses*

285

286 In the following step of the analysis the data that was broken into concepts

287 and categories is reassembled by **axial coding**. When coding axially we try

288 to find out how categories link and crosscut in order to find more complete

289 and precise explanations about phenomena. Although we do need some

290 categories to start axial coding, it is not a separate process from open

291 coding. In reality both techniques are closely intertwined and sometimes

292 happen at the same time.

293

294 In the final analysis phase the categories were integrated and refined into a

295 larger theoretical scheme by **selective coding**. Based on all data gathered

296 in the interviews a 'grounded theory' was proposed. In this stage the data

297 of the interviews was also confronted, compared and integrated with the

298 data gathered from the analysis of press articles (next paragraph). The

299 processes of axial and selective coding relates the twelve distinguished

300 categories to each other. This results in a theoretical scheme that unravels

301 and visualises the key factors that stakeholders of the agricultural sector

302 believe to be at the basis of public resistance towards the development of

303 greenhouse clusters.

304

305 *Techniques used to ensure objectivity*

306 During the data collection and analysis we explicitly used four triangulation

307 techniques to ensure objectivity throughout the data gathering and analysis

308 (Straus and Corbin 1998, Golafshani 2003, Koro-Ljungberg 2008):

309 − An analysis was conducted on all articles concerning the development of

310   large-scaled greenhouses that were published by VILT (Flemish

311   Information Centre for Agriculture and Horticulture) in the past 6 years.

312   VILT spreads a daily e-letter of all articles concerning agriculture that are

313   published by the major newspapers in Flanders. The data found in these

314   articles was coded and analysed the same way as the interview data.

315   – Throughout the research process an attitude of scepticism must be

316   maintained. Theoretical explanations should be validated against data in

317   subsequent interviews or observations. After conducting about 16

318   interviews we did a first data-analysis round. In the subsequent

319   interviews the preliminary results of this analysis were presented at the

320   end of each interview. Respondents were asked whether this

321   interpretation matched their personal experiences. In this way the data

322   gathered in previous interviews was validated.

323   – The methodology and main results were presented to stakeholders on

324   two separate occasions. On a first occasion (June 4th 2008) a group of

325   four (three policy makers from the agricultural department and one

326   representative from the Farmers Union) was assembled to discuss the

327   resulting concepts, categories and theoretical scheme. On a second

328   occasion (June 19th 2008) 25 representatives of various organisations

329   discussed the results of the research. Within this group there were

330   leading horticulturists, representatives of the Farmers Union, directors of

331   the most important fruit and vegetable auctions in Flanders and civil

332   servants of the agricultural department. Within both these groups there

333   was a large consensus that the distinguished 63 concepts and 12

334   categories correspond with how they experience the public acceptance of

335   large-scale greenhouses on the field. Based on the discussion held on

336   these two occasions adaptations were made at the theoretical scheme.

337 – The process of axial and selective coding was performed by three

338 separate researchers who are familiar with the research situation. The

339 theoretical scheme was built after a lot of consideration and discussion

340 between these researchers. This approach was chosen in order to avoid

341 any possible bias that could stem out of working with a single

342 researcher.

343

344 **RESULTS**

345

346 The main results of the research are summarised in one theoretical scheme

347 (Figure 2).

348

349 *Figure 2. Theoretical scheme explaining the relationships between all factors that*

350 *representatives of the agricultural sector believe to have an influence on the public*

351 *attitude towards greenhouse clusters*

352

353 The concept of grouping greenhouses in a large-scaled cluster deviates

354 quite drastically from the present situation in the greenhouse horticultural

355 sector in Flanders today. When dealing with this subject we noticed that

356 people easily make a distinction between a general resistance to change on

357 the one hand and the concern for the specific risks such projects can involve

358 on the other hand. Furthermore, our results indicate that some key factors

359 defining the public attitude towards greenhouse clusters according to the

360 stakeholders in the agricultural sector can be attributed to societal **values**.

361 The influence of these values mainly relates to the aspects of general

362 resistance to change but to a certain extent also accounts for some of the

363 more specific risk perceptions people have towards the development of

364 greenhouse clusters.

365

366 Values are stable and long-lasting (van der Pligt and De Vries, 1995). When

367 we define them as 'activities, behaviours, qualities, beliefs, goals- that you

368 believe are important to do, follow or strive forward' (McClelland, 1991)', we

369 can assume that problems that arise with the public acceptance of

370 greenhouse clusters are to be seen against this very solid background of

371 values. Schwartz (1994) describes a set of ten basic values that include all

372 the core values that are recognised in cultures around the world. Some of

373 the scepticism and arguments against greenhouse clusters can be better

374 understood by placing them in this value structure. We found three core

375 values that we believe relate closely to some of the issues that were

376 mentioned by the respondents.

377 • The first value that can account for a lot of the resistance against the

378 development of greenhouse clusters is *tradition*. Schwartz (1994)

379 describes tradition as 'respect, commitment and acceptance of the

380 customs and ideas that traditional culture or religion provide the self'.

381 • The second value is *security* and is described by Schwartz (1994) as

382 'safety, harmony and stability of society, of relationships and of self'.

383 • Finally, some of the concepts can be related to the value of

384 *universalism*: ''understanding, appreciation, tolerance and protection

385 for the welfare of all people and for nature' (Schwartz, 1994)

386

387 When describing the different elements in our theoretical scheme we will

388 indicate which values are in play.

389 We first of all distinguish the categories that all have to do with a **general**

390 **resistance to change**. The idea of grouping greenhouses in one clusters is

391 new for the Flemish horticultural sector. This does not only has spatial

392 consequences but also influences the traditional way of working in this

393 sector. One of the most important traditions within the Belgian agricultural

394 sector is 'family farming'. More than 94 per cent of Belgian farms are

395 family-owned, farm succession in Belgium is from parent(s) to child(ren)

396 and is therefore an important issue in the farm life cycle (Calus et al.,

397 2008). The concept of large <u>scale</u> greenhouses, ranging up to 20 ha and

398 more, <u>clustered</u> in a form of cooperation deviates quite drastically from the

399 traditional family-owned greenhouse business. Stakeholders from the

400 agricultural sector state that the fact that the development of greenhouse

401 clusters is initiated by property developers, is hard to accept. The

402 involvement of property developers breaks the farm life cycle of succession

403 from parent to child and therefore breaks with an important part of

404 tradition.

405

406 *"The question is whether we want mega sized greenhouses in such a*

407 *cluster? Maybe it is better to group a few family businesses in such a park.*

408 *In this way we can offer them scale advantages large companies have*

409 *anyway." (agricultural policy department, province level)*

410

411 *"The fact that there is a property developer involved makes people presume*

412 *that other developments and constructions will follow." (Farmers Union)*

413

414 Another more general issue the stakeholders believe people are worried

415 about is the question of <u>sustainable energy use</u>. Respondents often referred

16

416 to the 'massive' energy use of greenhouses, questioning whether the public

417 will accept irresponsible energy use by horticulturists. This concern can be

418 linked to the value of 'universalism', where people are concerned about the

419 protection of people and nature.

420

421 *"Greenhouses may produce energy but they also use massive amounts of*

422 *energy. In advertisement campaigns the government tells us to use low-*

423 *energy light bulbs, but if we go out at night we see these greenhouses that*

424 *give light as if they were the sun" (local politician)*

425

426 Besides these general concerns people are clearly worried about the

427 **specific risks** the development of greenhouse clusters can have for them.

428 First of all, there are numerous issues linked to <u>health and environmental</u>

429 <u>concerns</u> people have when such a park would be constructed in their

430 neighbourhood. Examples are air and water pollution, sound, visual and

431 light pollution, traffic problems, etc. This clearly relates to the value of

432 universalism as people are concerned about their welfare and nature

433 protection (Schwartz, 1994).

434

435 *"Some of these horticulturists heat with heavy fuels or with wood residues.*

436 *People are concerned about the air quality…." (environmental organisation)*

437

438 A second category relates to the fact that some people are worried that

439 their <u>livelihood</u> will be affected by the development of such parks. We can

440 distinguish two different elements. First of all there is the element of space

441 that involves everything that has to do with the use, ownership and cost of

442 land on the one hand and all possible tensions, conflicts and worries that

17

443 result out of it on the other hand. One of the most brisk discussions

444 surrounding the category 'space' is the impact the development of a

445 greenhouse park will have on land prices. Especially farmers are worried

446 about a substantial increase in land prices, making it impossible for them to

447 purchase additional land if they want to expand their production area.

448

449   *"These large clusters have nothing to do with agriculture, this is industry in*

450   *which food is produced. The only reason why it has to be agriculture, is*

451   *because agricultural land costs nothing. By these developments the price of*

452   *agricultural land will become gigantic. Land speculation will be a certain*

453   *result."* (agricultural policy department, province level)

454

455 Another element related to livelihood is the effect the development of large

456 scale greenhouses will have on the market of the products grown in them.

457 Smaller greenhouse owners are worried about this evolution. They fear that

458 it will be impossible for them to compete with these clusters, especially if

459 the production cost is lowered by the use of cogeneration. Smaller

460 companies are also anxious for the clusters to step out of the auction circuit

461 and contact buyers themselves, which might allow them to influence prices.

462 They also fear that the development of clusters will become the standard

463 against which their performance (e.g. energy efficiency, use of pesticides,

464 use of nutrients) will be measured. These elements play an important role

465 in the attitude a part of the greenhouse sector has towards clustering,

466 causing disagreements and divisions within the sector itself.

467

468

469	*"People are very scared these clusters will cause a disruption of the market.*
470	*The majority of the production will then be realised by one or a few*
471	*companies. These clusters will surely compromise the viability of small*
472	*family-owned greenhouses"* (agricultural policy department)
473	
474	Another specific element of risk perception is the concern about the fact
475	that greenhouse holdings mainly employ immigrants. A lot of rural
476	communities are not used to the presence of foreigners and therefore have
477	a certain anxiety about them. This fear can be related to the value of
478	'security'. The stakeholders claim to notice that people are clearly worried
479	about the fact that the <u>population structure</u> in their neighbourhood would
480	change as a result of the development of clusters.
481	
482	*Talking about an area where there is a concentration of large greenhouses:*
483	*"Neighbours and local people call it the Congo-street"* (horticulturist)
484	
485	The category of the <u>initiator</u> of the project can also be related to this value
486	of security. In addition to the resistance to property developers, the sector
487	assumes that the people are very concerned when the initiator of a project
488	is from the Netherlands. There is some sort of fear that the immigration of
489	Dutch people in the border regions will change the population structure and
490	that this will cause a destabilisation of local society and of the market.
491	
492	*"There should be instruments to back up Flemish initiators and to keep off*
493	*Dutch initiators, people don't want Dutchmen to come over here, there*
494	*would be a lot less resistance if it were Flemish developers".* (civil servants
495	*of a border municipality)*

496

497 Finally the actors of the agricultural sector think that the general public is

498 very sensitive to <u>place attachment</u>. The fact that the outlook of the place

499 where people have been living or working for so long will drastically change

500 causes a problem for a lot of people. Concepts such as the loss of open

501 space, visual pollution and fragmentation of the landscape strongly relate to

502 this sense of place attachment.

503

504 *"More and more people are also concerned about the visual aspects. If you*

505 *are used to having a sight on pastures and cows and suddenly there is a*

506 *glass wall in front of you... that is a big change..." (environmental*

507 *organisation)*

508

509 The combination of a general form of resistance to change and some more

510 specific concerns results in the fact that the stakeholders included in this

511 research think that the general public will perceive this new development as

512 a threat.

513

514 Besides categories related to general resistance to change and specific risk

515 perception we can discern some categories that have to do with the

516 **structural difficulties** people are faced with when they try to develop a

517 greenhouse cluster. First of all there is a lot of frustration about the <u>policy</u>

518 <u>level</u> at which permits are granted. Currently, municipalities are responsible

519 for the final decision on the proposed project. A majority of the respondents

520 feels that this is not the appropriate level to take the final decision in

521 projects of such a scale. They state that local politicians often have a good

522 relationship with their residents and rely on them for electoral purposes.

523 Therefore they are not very likely to approve projects of such scale.

524 Furthermore, debates concerning the construction of large scale

525 greenhouses are often emotionally loaded and it is hard for local politicians

526 to take an objective stance in such a discussion. Local policy is also often

527 reproached a lack of vision and structure, because it is too dependent on

528 the goodwill and capability of individuals (civil servants, mayors etc.).

529

530   *"It is necessary that people at a higher policy level have the guts to take a*

531   *decision. The local level is way to close to the people, there is too much*

532   *emotion involved to make good decisions."* (agricultural union)

533

534 When the municipality rejects the application for the construction of a new

535 greenhouse, an appeal can be lodged against this decision. This appeal has

536 to be handled at the provincial level and eventually at the Flemish level.

537 This is a very time-consuming process and horticulturists complain that

538 their application is already out-dated and old-fashioned before it can even

539 be realised. They also blame the government for deliberately stretching this

540 decision procedure so that they would be discouraged and eventually give

541 up. Decision makers are also reproached an inadequate communication with

542 a lack of accurate information, which strengthens the negative public

543 attitude towards greenhouse clusters.

544

545   *"The project in 'X' is a question of political power. It was initiated by the*

546   *government and no matter what: it has to be realised. …. If you take*

547   *citizens seriously you have to involve them in the planning process. Policy*

548   *has to change entirely. We should evolve to a system of 'governance' where*

549   *we try to find solutions together with citizens." (agricultural policy*

550   *department)*

551

552   As appears from the quotes above, the interviewed stakeholders have the

553   feeling that they are not properly involved in the decision process. Some

554   respondents were even more harsh in their judgement and stated that they

555   have the feeling that the process of granting a permit is now unfair and

556   unjust. These three categories of policy level, bad communication and time

557   thus lead to a perception of procedural injustice.

558

559   The combination a perceived threat and a perceived procedural injustice

560   reflects on the public attitude of people involved. As described in the

561   introduction there is a rising number of protest groups, public meetings,

562   petitions, objections, etc... This negative attitude combined with a very

563   difficult formal procedure to obtain a permit adds to the fact that until today

564   not a single development has been realised in Flanders.

565

566   **DISCUSSION**

567

568   The theoretical scheme gives us insight in the reasons and underlying

569   motives that the stakeholders of the agricultural sector believe to be at the

570   basis of public resistance against the development of greenhouse clusters.

571   Based on this scheme we can immediately see that there is no monocausal

572   relationship between one specific factor and the public attitude. First of all

573   some of our societal values provide a basis for scepticism against these

574   large constructions. This corresponds with the findings of Gross (2007) who

575   states that conflicting perspectives on values are frequently at the basis of

576   divisions in local communities when dealing with problems of land use and

577   natural recourse management.

578

579   Besides the influence of values we distinguished several general or specific

580   concerns which make people perceive the development of greenhouse

581   clusters as a threat. Some of the elements that were mentioned by the

582   respondents correspond with findings in literature relating to protest against

583   certain unwanted land uses. Mannarini et al. (2009) for example also stress

584   the importance of environmental and health concerns where people are

585   worried about territorial ravage, water and atmospheric pollution. In our

586   research comparable concerns were abundantly mentioned by the

587   respondents. There is an apparent fear for water, air, light and sound

588   pollution caused by these large greenhouses.

589

590   Another important element that emerged was the concern people have

591   about their livelihood. People are afraid that these large greenhouses will

592   disrupt the market and will influence prices of products on the one hand and

593   prices of land on the other hand, making it hard for them to economically

594   survive. Gross (2007) also recognised the concern for ones livelihood as an

595   important driving factor in protest actions. Often the preservation of jobs is

596   placed against the preservation of some kind of natural recourse (for

597   example the preservation of forest).

598

599   The element of place attachment is also not unique to the case of

600   greenhouse clusters in Flanders. Lewicka (2005), Stedman (2002) and

601 Mannarini et al. (2009) all point out that place attachment largely

602 determines people's willingness to participate in local protest actions.

603

604 The combination of a general resistance to change with some specific risk

605 perceptions contributes to the increase of perceived threat of greenhouse

606 clusters. As van den Berg and Vlek (1998) state this perceived threat

607 causes an intensification of the public resistance.

608

609 In addition to this perceived threat there are also some structural difficulties

610 within the planning process that hamper the realisation of greenhouse

611 clusters. These problems are however quite pertinent as they lead to a

612 perception of injustice. Several authors have focused on the concepts of

613 fairness and justice when trying to explain local protest actions against all

614 sorts of developments. Mannarini et al. (2009) describe this as a democracy

615 concern where people have the feeling that they are not involved in the

616 decision process at all. Gross (2007) elaborates on the concept of

617 procedural injustice and refers to elements such as the right of

618 participation, and lack of bias on the part of the decision maker. Wolsink

619 (2007) also studied this phenomenon and states that the commitment to

620 fairness becomes clearly manifest. The crucial factor is not that residents

621 have a strong intention to shift burdens to others, but that they consider it

622 unfair that others, or the decision maker, shift the burden to them. This

623 suggests that the crucial factor in protest are not issues of egotism, but fair

624 decision making that does not cause any perceived injustice.

625

626   The theoretical scheme shows that these structural difficulties are not

627   isolated. There is definitely an interaction between the perceived public

628   attitude and these more practical problems. For example: one of the main

629   reasons planning procedures take so much time is because there is always

630   some sort of public objection against the proposed plans. On the other

631   hand, inadequate communication and time-consuming planning procedures

632   add to the general negative attitude held by the public towards these

633   developments.

634

635   The theoretical scheme gives us an idea of the complexity of the problem.

636   Clearly, there is more to the resistance than the fear for nuisance alone.

637   Oversimplifying the problem by stating that the reasons for protest solely

638   stem out of the NIMBY effect (as project developers, policy makers and

639   some actors of the agricultural sector often do) can be countered by the

640   results of this research. This largely corresponds with the results of Warren

641   and McFayden (2010), Wolsink (2006; 2007), van der Horst (2007) and

642   Krohn and Damborg (1999) who all state that the NIMBY idea is too

643   simplistic a concept to explain the multi-faceted reasons for oppositional

644   behaviour.

645

646

647   **CONCLUSION**

648

649   As suggested by several authors (Brandenburg and Carrol, 1995; Van

650   Eetvelde and Antrop, 2004; Wagner and Gobster, 2007) this research

651   confirms the fact that a qualitative research approach can contribute

652   valuable information to the process of a planned landscape change. The

653   resulting theoretical scheme not only gives a better insight in the way the

654   agricultural sector perceives the factors that determine the public attitude

655   towards green house clusters, but it also enhances the understanding of the

656   complexity of the situation. This knowledge and insight provides policy

657   makers with detailed information on the stance different stakeholders have

658   towards the development, enabling them to anticipate certain problems. It

659   is therefore our belief that the use of a grounded theory approach could

660   have an important added value in a spatial planning context.

661

662   This research has focused on the perceptions of the actors of the

663   agricultural sector. It is clear that these perceptions are not objective, as

664   they are coloured by their own interests, in the same way as the

665   perceptions of other actors will be influenced by their own interests. This

666   urges to investigate the perceptions of other stakeholder groups in future

667   research, as it may enrich and strengthen the policy implications of the

668   actual research.

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881 **Tables and Figures**

882

883 *Figure 1. Signpost with slogans against the development of large-scale*

884 *greenhouses. These signs can be found frequently in Northern region of the*

885 *province of Antwerp.*

886

887 *Table 1. Professional background and number of respondents per category*

888

889   *Table 2. Overview of the 12 categories and 63 concepts that determine the public*

890   *attitude towards the development of large-scale greenhouses*

891

892   *Figure 2. Theoretical scheme explaining the relationships between all factors that*

893   *representatives of the agricultural sector believe to have an influence on the public*

894   *attitude towards greenhouse clusters*

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896