

Industry and Housing: Clash or Match?

A qualitative study into residents' experience of living close to industry and how this affects their perception of nuisance and satisfaction.

Introduction

Literature Study

Conceptual Model

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Research Method

Data Collection

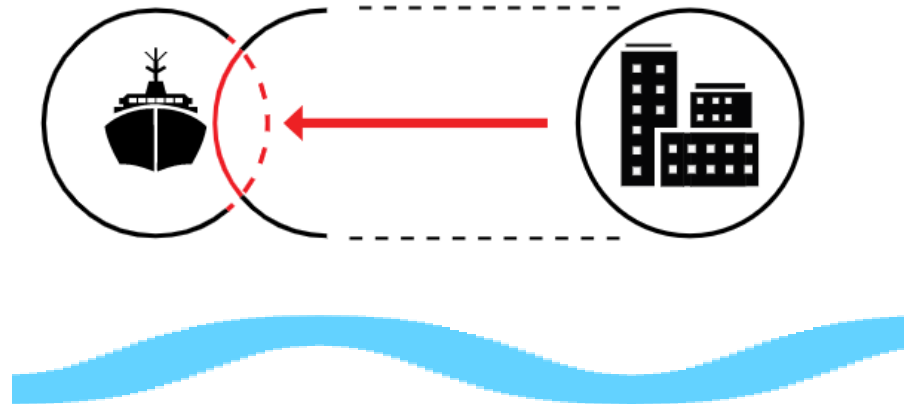
Research Findings

Conclusion

PORT CITIES

Port and city different ideas about how space around waterfronts should be planned.

- Urban planning of Port Cities: A **slow, costly** and sometimes **conflictual** process

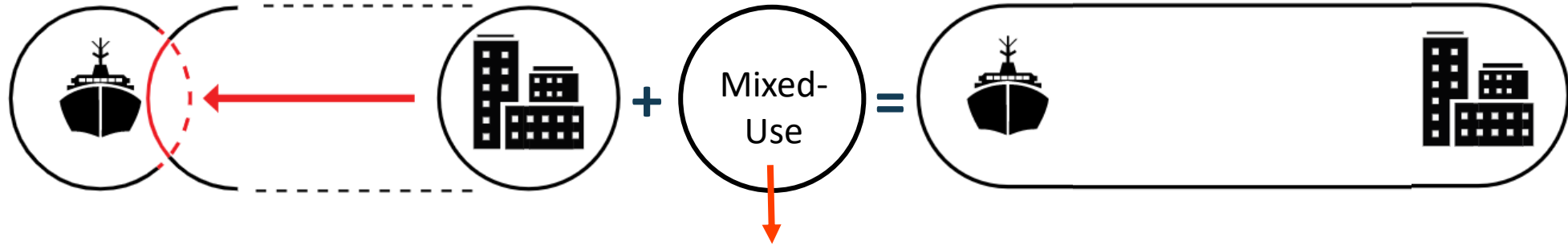


Introduction

PORT CITIES

Mixed-use as outcome:

- A **collaborative** way of urban planning
- Space designed for **all users**



Literature study:

- **Mixed-Use** concept
- Focus on **industry and housing**

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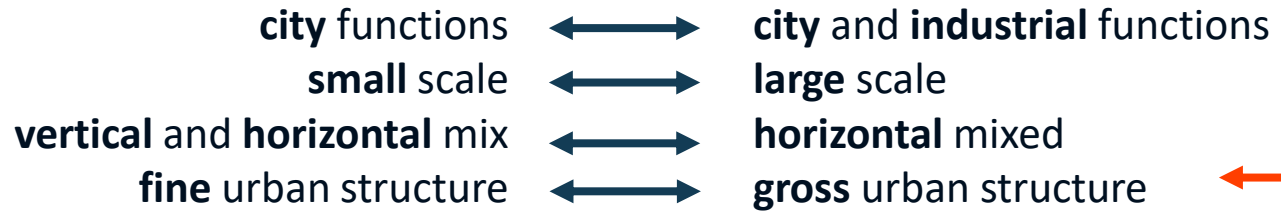
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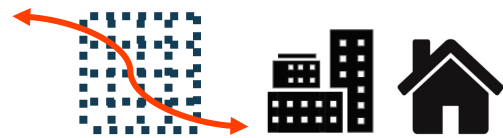
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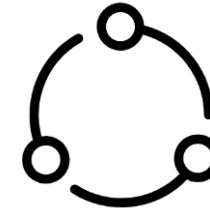
FINE GRAINED MIXED-USE

Literature study shows:

- Commonly used in practice
- **Much focus on benefits**
- Limited focus on drawbacks



sustainability



synergy



liveliness

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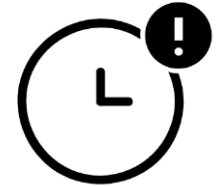
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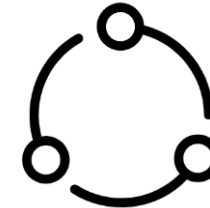
- Commonly used in practice
- Much focus on benefits
- **Limited focus on drawbacks**



sustainability



Development
time overruns



synergy



Development
cost overruns



liveliness



low residential
satisfaction

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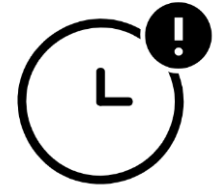
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FINE GRAINED MIXED-USE

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- **Limited focus on drawbacks**



Development time overruns



Development cost overruns



low residential satisfaction

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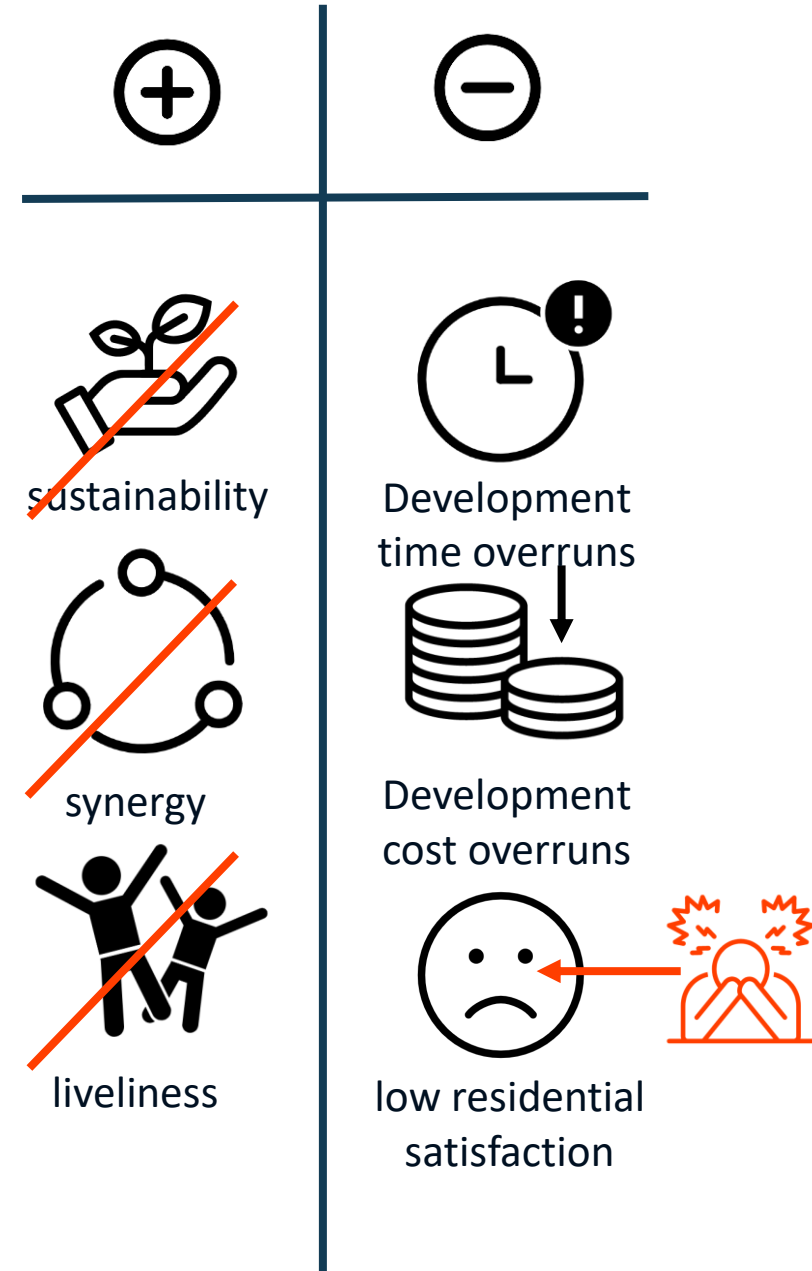
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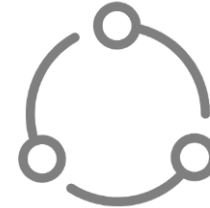
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GROSS GRAINED MIXED-USE

Literature study shows:

- Typically avoided in practice
- **Much focus on drawbacks**
- **Limited focus on benefits**
- Mix industry and housing usually doesn't last long



synergy



Knowledge
exchange



innovation



safety-and-
health risks



legal complexity



spatial
mismatch

Introduction

GROSS GRAINED MIXED-USE

Literature Study

Literature study shows:

- Typically avoided in practice
- Much focus on potential drawbacks
- Limited focus on benefits
- **Mix industry and housing usually doesn't last long**

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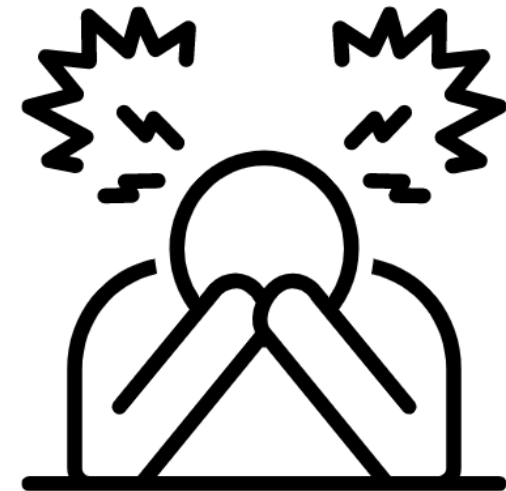
RESIDENTIAL NUISANCE



low residential satisfaction



mix industry housing doesn't last long



Managing **residential nuisance** is key!

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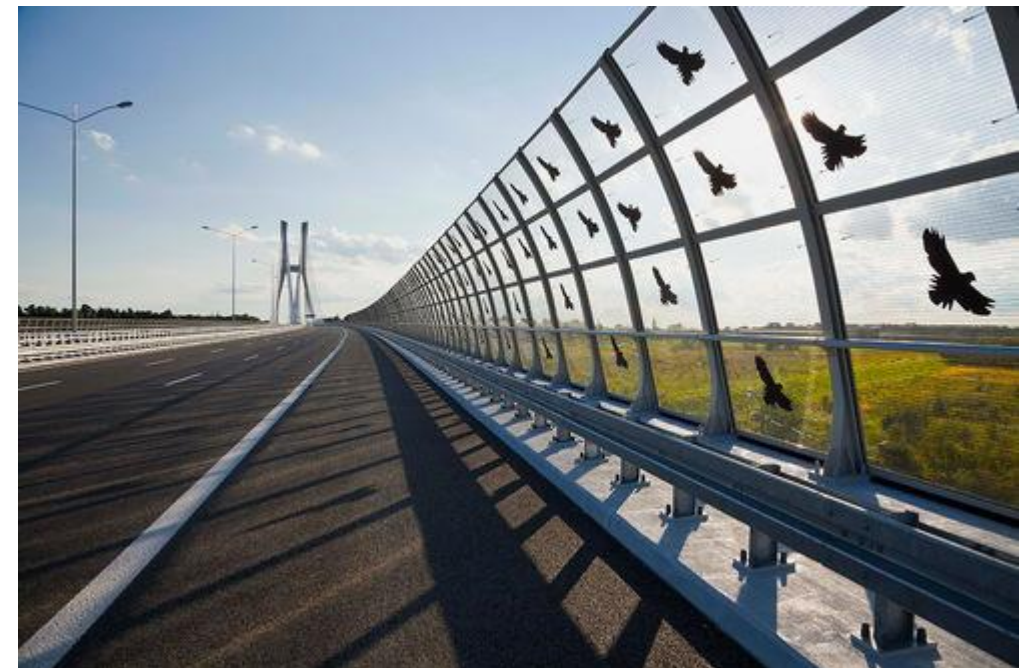
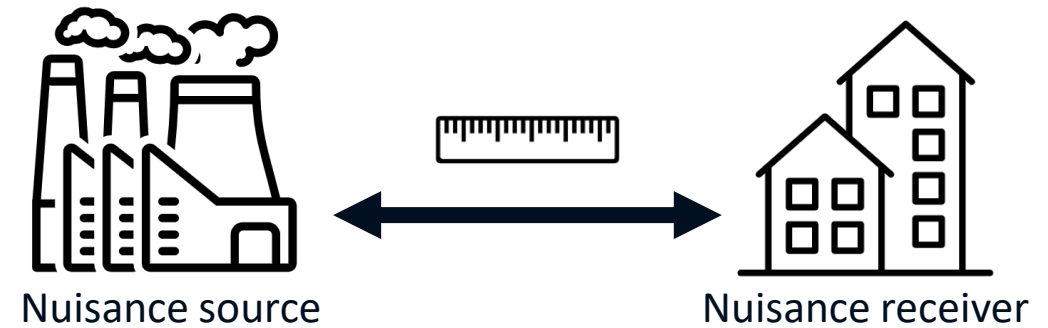
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RESIDENTIAL NUISANCE

Objective approach:

- **Calculation** environmental load
- Compliance environmental **norms**
- At-source **interventions**
- Protective **measures**



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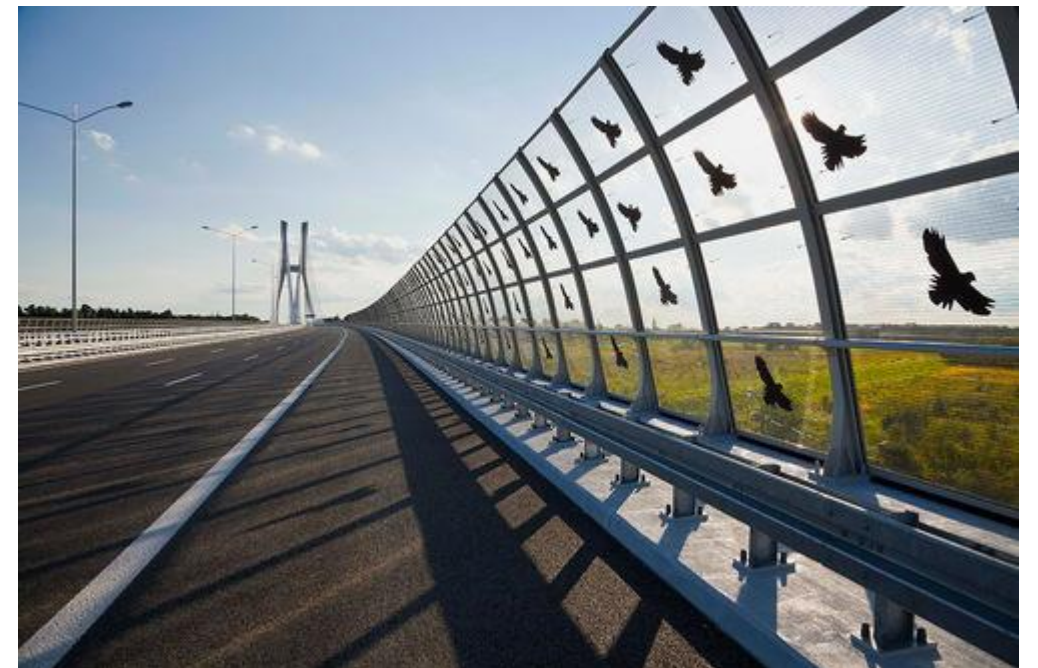
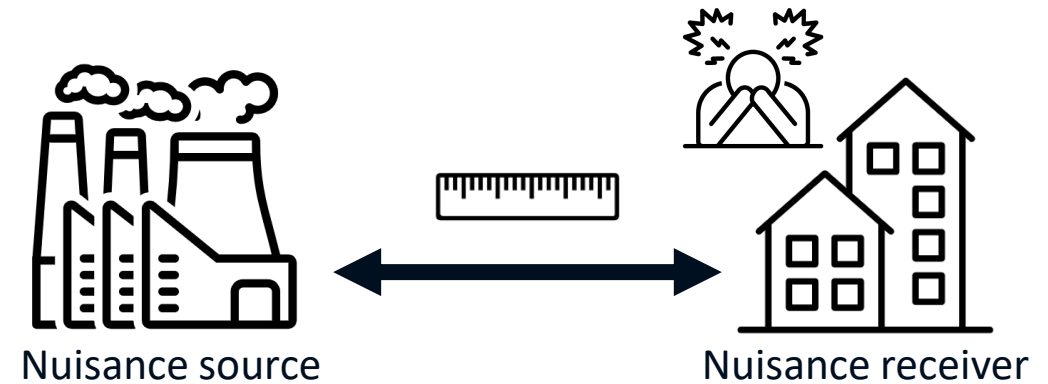
RESIDENTIAL NUISANCE

Objective approach:

- **Calculation** environmental load
- Compliance environmental **norms**
- At-source **interventions**
- Protective **measures**

Critique on approach:

- Receiver's **experience** underexposed
- **Annoyance** and **health risks** overlooked



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RESIDENTIAL NUISANCE

Actual nuisance: **objective** level of nuisance actually **exposed** to the receiver

Perceived nuisance: **subjective** level of nuisance **perceived** by the receiver



actual nuisance



perceived nuisance

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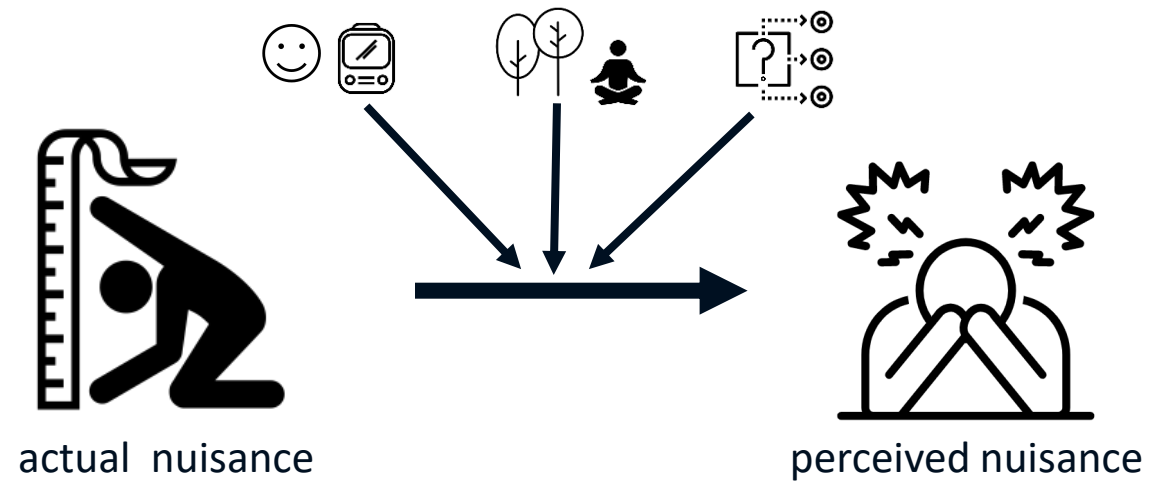
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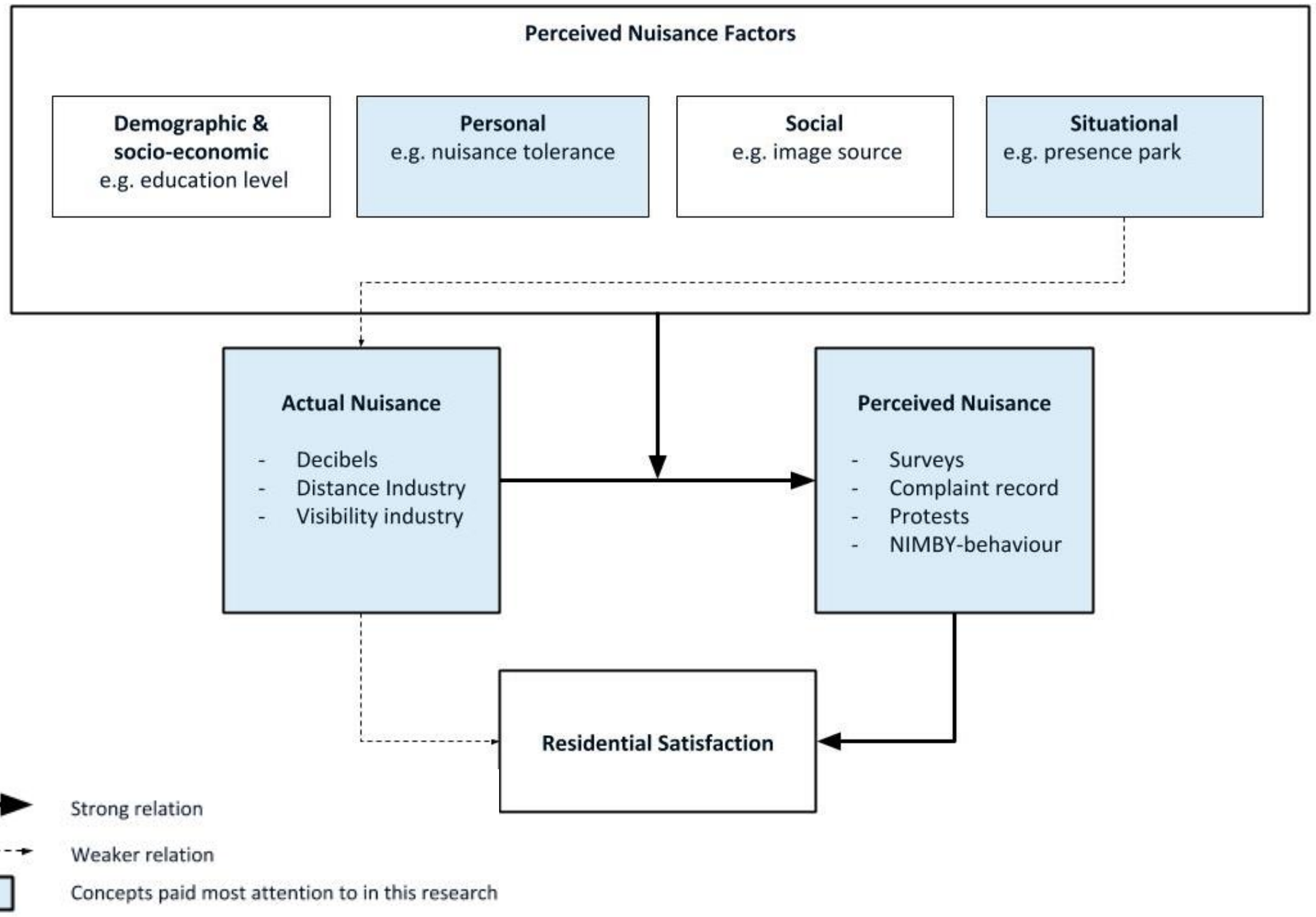
RESIDENTIAL NUISANCE

Actual nuisance: objective level of nuisance actually exposed to the receiver

Perceived nuisance: subjective level of nuisance perceived by the receiver



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RESEARCH QUESTION

Main Research Question:

*“How do **residents**, living in an area close to industry, experience their **living environment** regarding **industrial nuisance**,*

*what **personal and situational factors** could influence their perceived nuisance caused by industry,*

*and, what does this mean for the **urban planning context**?”*

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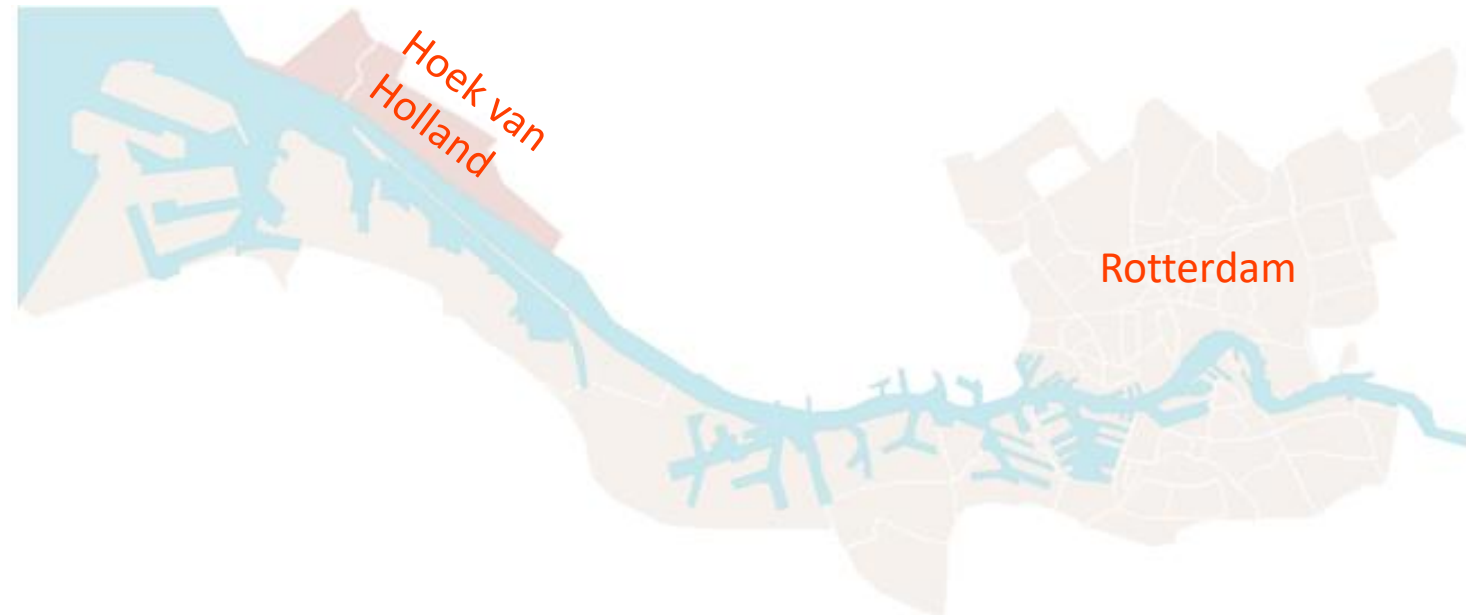
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CASE: HOEK VAN HOLLAND

Hoek van Holland:

- At the end of **De Nieuwe Waterweg**
- Part municipality of **Rotterdam**
- 10.000 inhabitants, 14 km²
- Wide sandy beach
- Residential area close to industry



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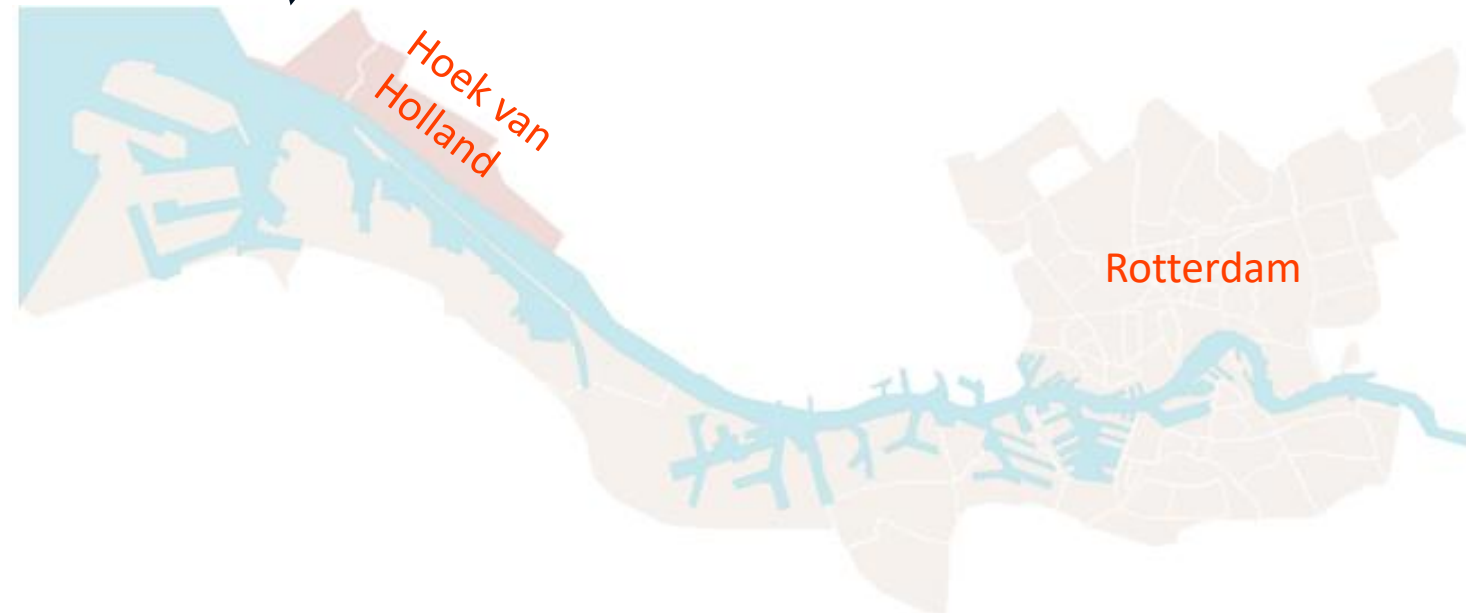
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Sandy beach



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Sandy beach



greenhousing



Stenaline
(international
shipping transport)



Tweede Maasvlakte



Renewi
(waste composting)

Hoek van
Holland

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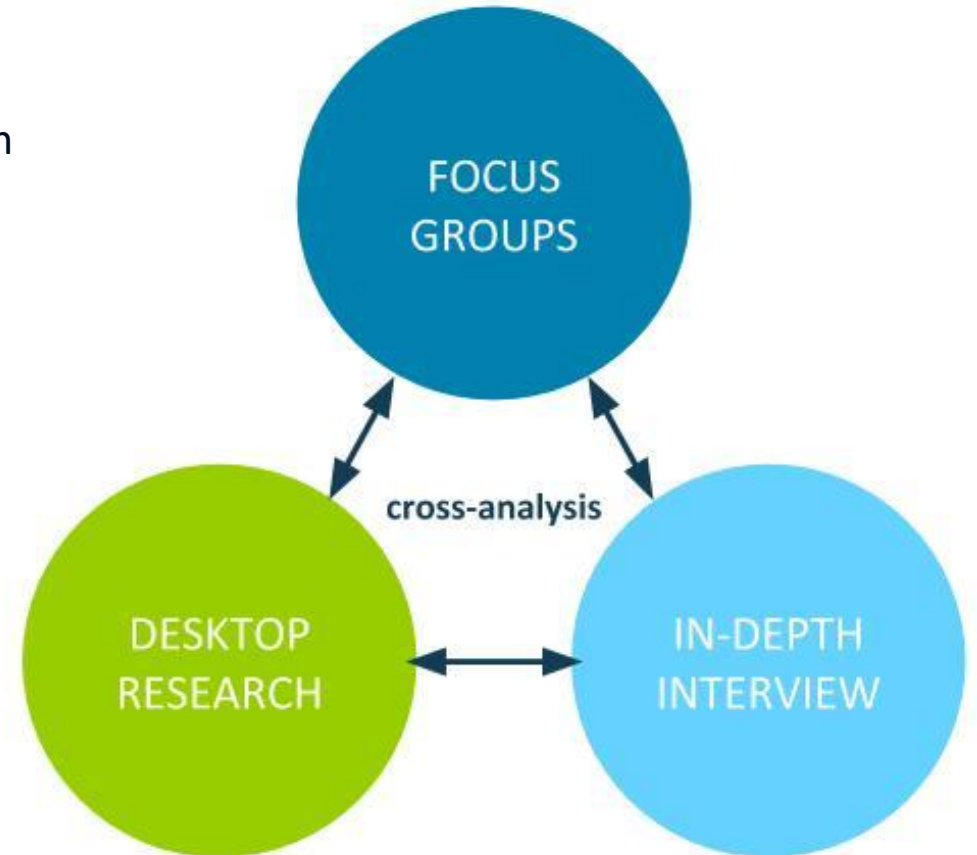
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RESEARCH DESIGN

Qualitative Study Methods:

- **2 focus groups with residents** in Hoek van Holland
- **1 in-depth interview urban planner** Rotterdam
- continuous desk-top research
- **Validation and complementation**



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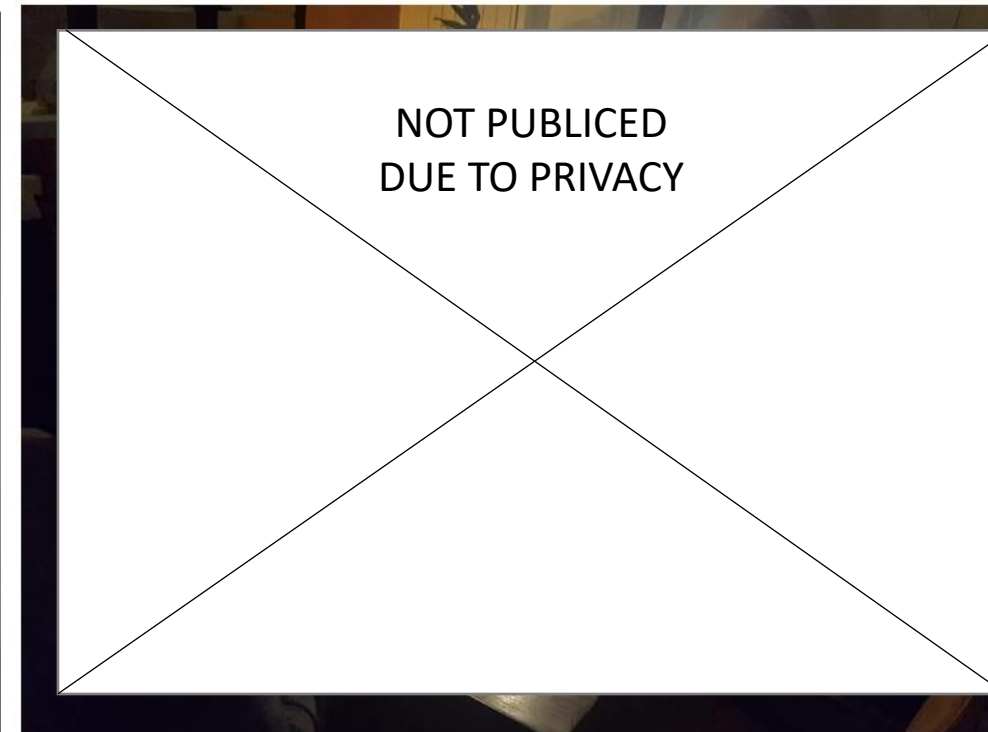
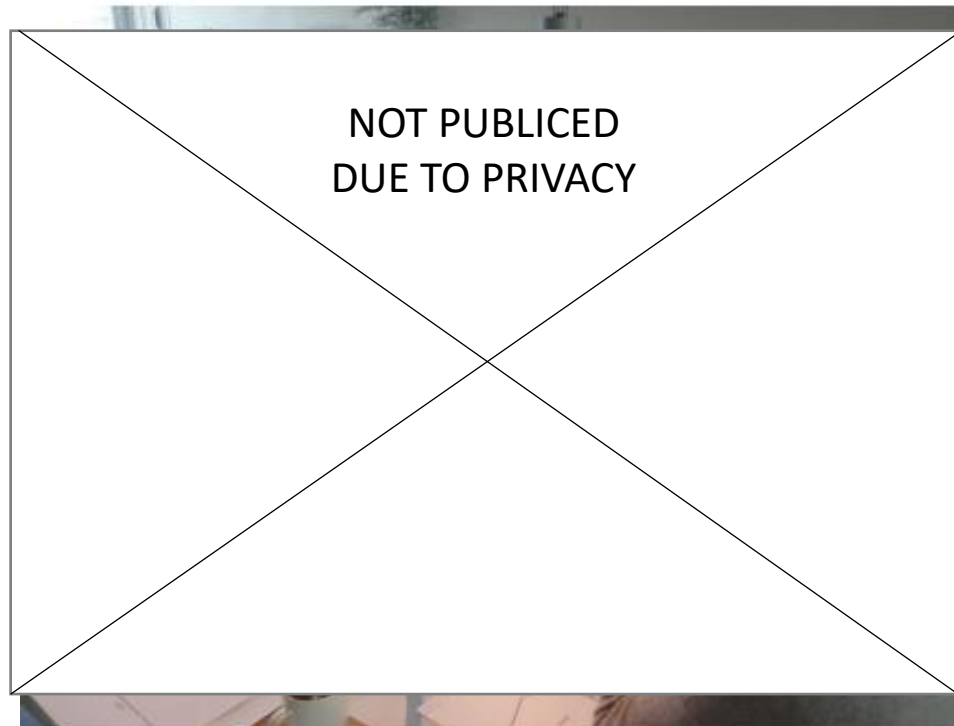
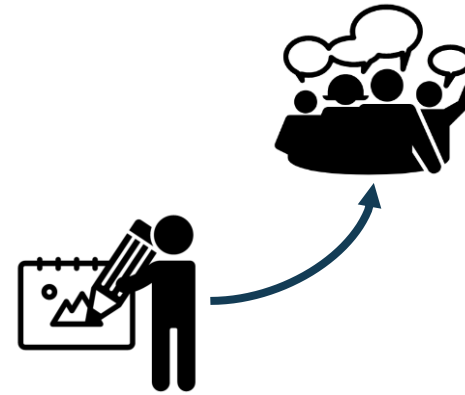
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INDIVIDUAL AND COLLECTIVE

Individual exercises as springboard for
collective discussion



Introduction

WRITTEN, VERBAL AND VISUAL DATA

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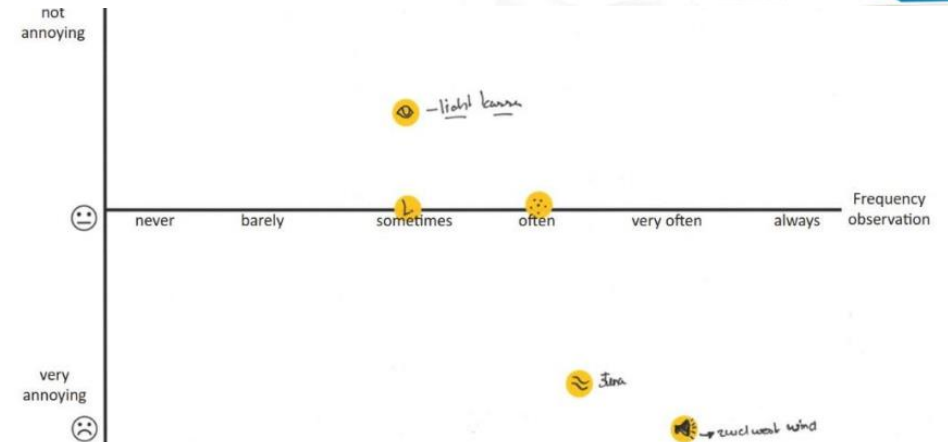
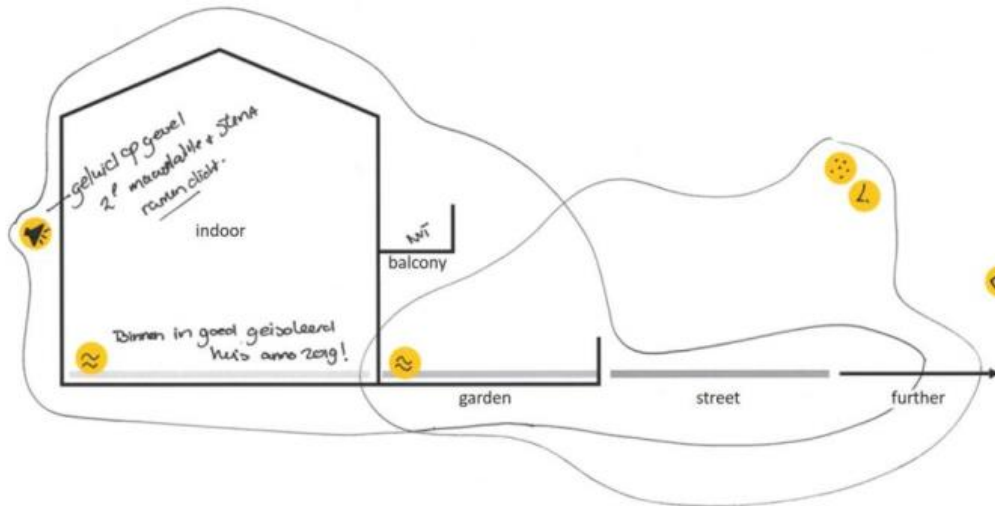
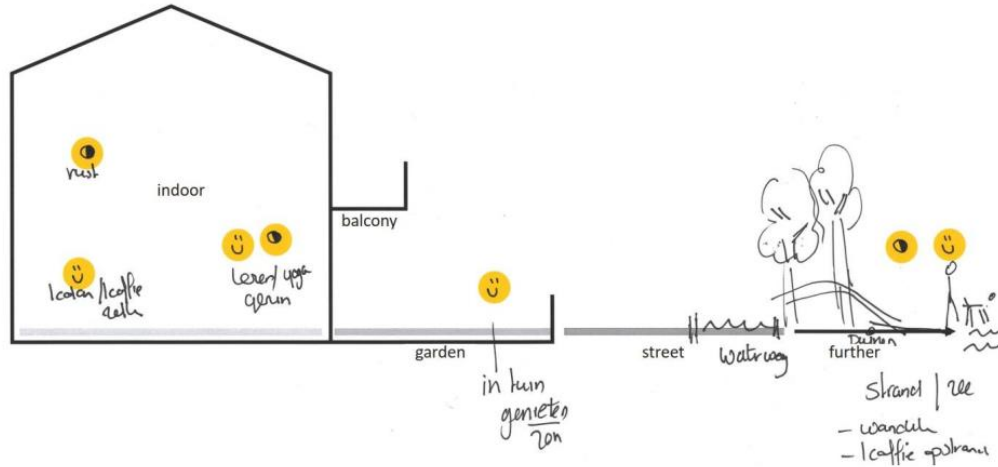
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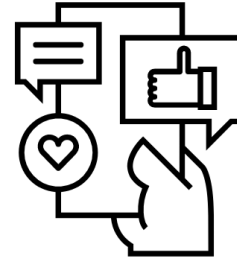
FINDING PARTICIPANTS



2000 flyers



Posting flyers



Social media



Local newspapers



Smart deals



Ringing doors

NOT PUBLISHED
DUE TO PRIVACY

Hoe ervaren jullie het om in een industriële omgeving te wonen?

In Hoek van Holland is er ruimte voor wonen, recreatie en werk. Industriële bedrijvigheid is hier een belangrijk onderdeel van en ik ben heel benieuwd hoe jullie dit als bewoner ervaren.

Aan de hand van foto's, stellingen, tekeningen (geen zorgen, tekentalent is zeker niet vereist!) zullen we met elkaar in gesprek gaan. We praten over wonen dicht bij industrie en over mogelijkheden tot ontspanning in de omgeving. Zo stellen we bijvoorbeeld vast op welke plaatsen industriële overlast ervaren wordt en welke plekken in Hoek van Holland fijn zijn om te wandelen, picknicken, sporten etc.

Wie zijn welkom? De discussiegroep zal bestaan uit ongeveer 5 bewoners. Iedereen die ouder is dan 18 jaar en die langer dan 6 maanden in Hoek van Holland woont is welkom. Helaas kan per huishouden maar 1 iemand zich opgeven.

Wanneer? De discussiegroep zal ongeveer 2 uur duren en er zijn vier avonden waarvoor u zich kan opgeven: dinsdag 3, woensdag 4, woensdag 11, donderdag 12 maart

Interesse? Stuur voor 24 februari 2020 een e-mail naar K.Y.vandenBerg@student.tudelft.nl

Als iemand het leuk lijkt deze discussiegroep bij hem of haar thuis te organiseren stel ik dat zeer op prijs. Vanzelfsprekend zorg ik dan voor een hapje en een drankje.

Waarom meedoen?

- Denk mee over de combinatie van wonen en industrie in stedelijke planning
- Maak op een relaxte, maar actieve manier kennis met andere bewoners
- Borrelhapjes en pizza!

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TYPES OF NUISANCE IN HOEK VAN HOLLAND

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Vibrations
View
Noise



View
Noise
Orange-colored soot
Black-colored soot



Light pollution



Smell



Traffic



Holiday homes



Neighbours



Modern architecture

Introduction

DISTANCE IS NOT ALWAYS EFFECTIVE ENOUGH

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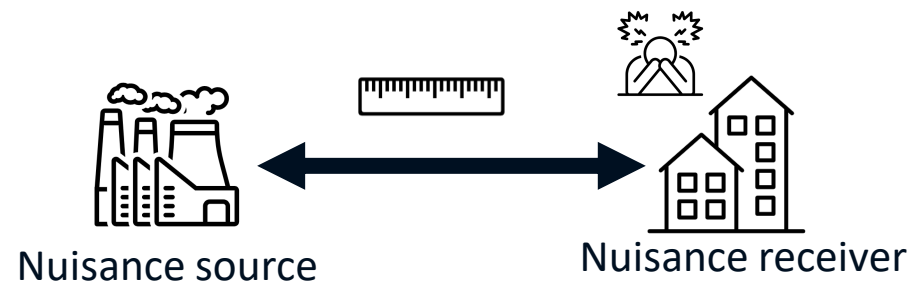
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Industrial noise



Introduction

ACTUAL NUISANCE IS NOT PERCEIVED NUISANCE

Literature Study

Level of **annoyance** regarding black-colored **does not depend on observation alone**

Conceptual Model



Research Questions



Very annoyed



Very annoyed



Little annoyed



Little annoyed



Little annoyed

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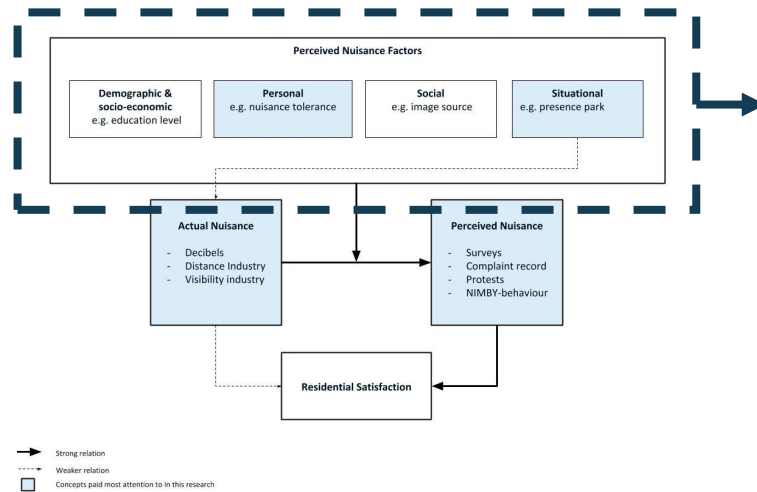
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PERCEIVED NUISANCE FACTORS



ACTUAL NUISANCE FACTORS	PERSONAL FACTORS	SITUATIONAL FACTORS
Observability nuisance in daily life	Habituation	Co-housing
Moment of time nuisance*	Feelings of familiarity, proudness	Age friendly house
Duration nuisance	Interwovenness with living environment	A house that supports to do hobby's
Permanence nuisance**	Experience past nuisance in current place of residence*	Hidden industry
Potential health risks nuisance	Previous place of residence*	Provided earplugs and eye masks industry
Potential safety risks	Places visited (during holidays) *	Holiday assurance
Operator of nuisance source*	Knowledge regarding nuisance source*	Parc-like, green natural environment
Esthetical quality nuisance source	Personal interest in nuisance source	No devaluation house
Controllability nuisance	Economic dependence on nuisance source	A holiday home in the woods
Predictability nuisance	The "busy bee" degree: Degree of enjoyment to do a lot of things and keep yourself busy	Optimal noise insulation
Presence of other types of nuisance*	Observant or intuitive personality: observant or intuitive way of processing the environment*	Optimal energy insulation
Degree nuisance source offers entertainment	Personal sensitivity	Spatial house
Degree nuisance source supports economic growth	Presence (emotional) distraction*	Facilities and activities in the neighborhood
	Trust government	Age friendly house
	Previous experience government*	Green areas nearby
	Personal expectations regarding nuisance in a particular place*	Luxurious house
	Applied Coping Mechanism*	Environmentally friendly house
	General interest in living environment	Living environment supported by industry
	Personal criticalness regarding own living environment	Mediterranean public space
		Energy neutral environment
		Green facades industry
		Solar panels on flat roof of industry
		Social cohesion in the neighborhood
		Neighborhood bus
		Beautiful garden
		Good contact with neighbors
		Safety teams or services
		A garage to park the car
		Beautiful industry
		Greener neighborhood
		Camper, to go away from time to time
		More parking facilities

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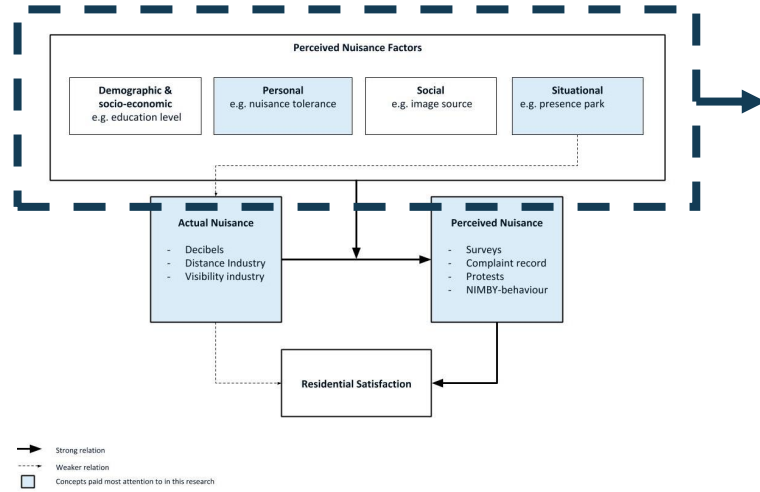
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PERCEIVED NUISANCE FACTORS

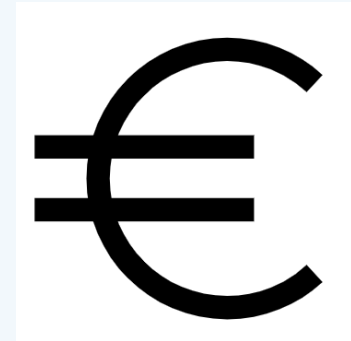


ACTUAL NUISANCE FACTORS

PERSONAL FACTORS

SITUATIONAL FACTORS

Actual nuisance factors



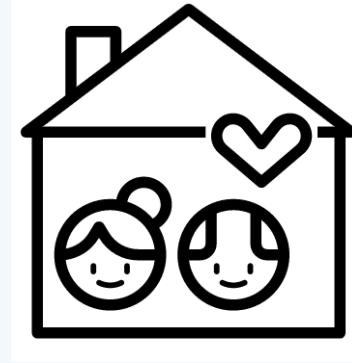
Degree nuisance source supports economic growth

Personal factors



Personal sensitivity

Situational factors



Age friendly house

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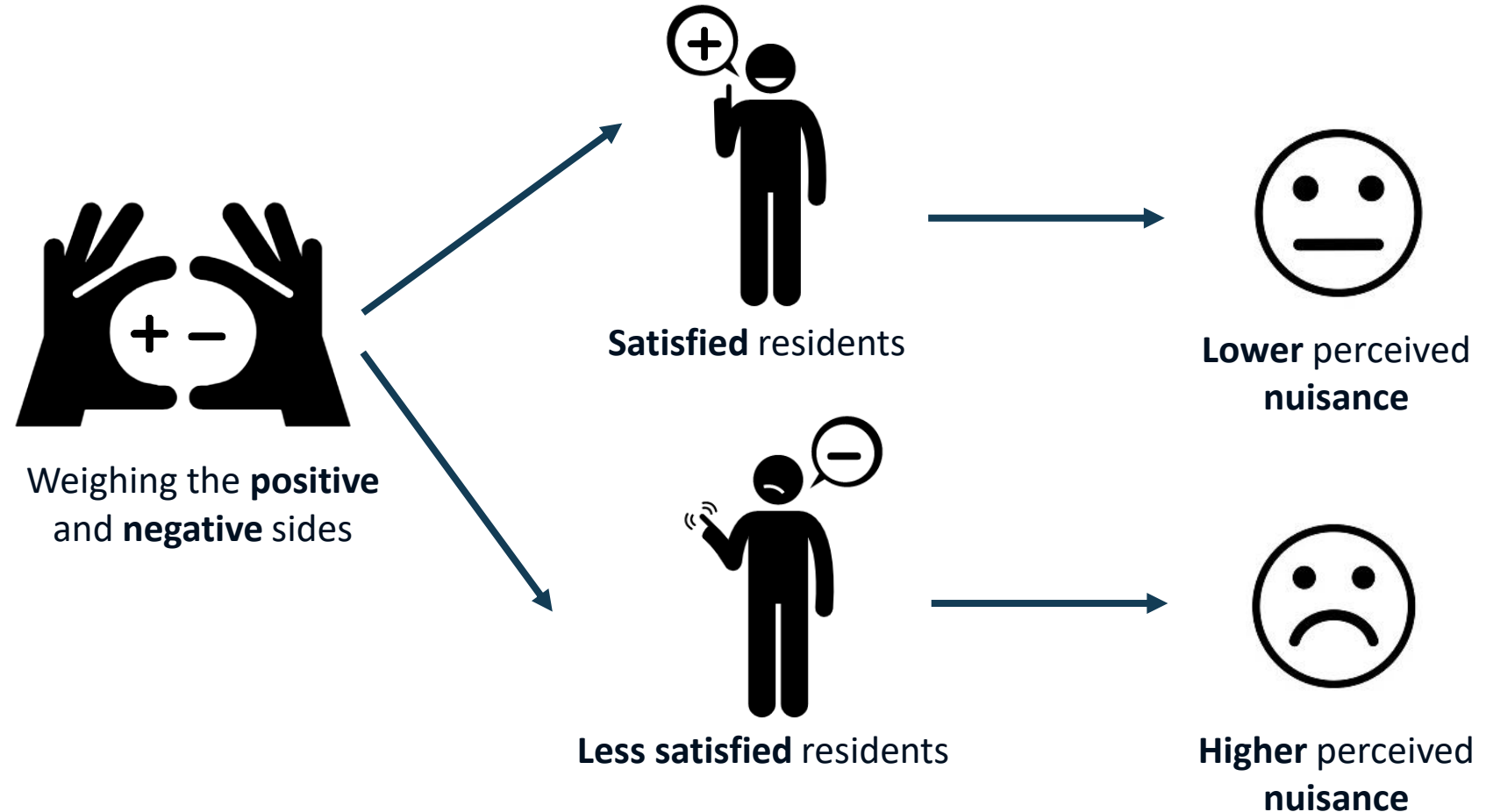
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RESIDENTIAL SATISFACTION AND PERCEIVED NUISANCE



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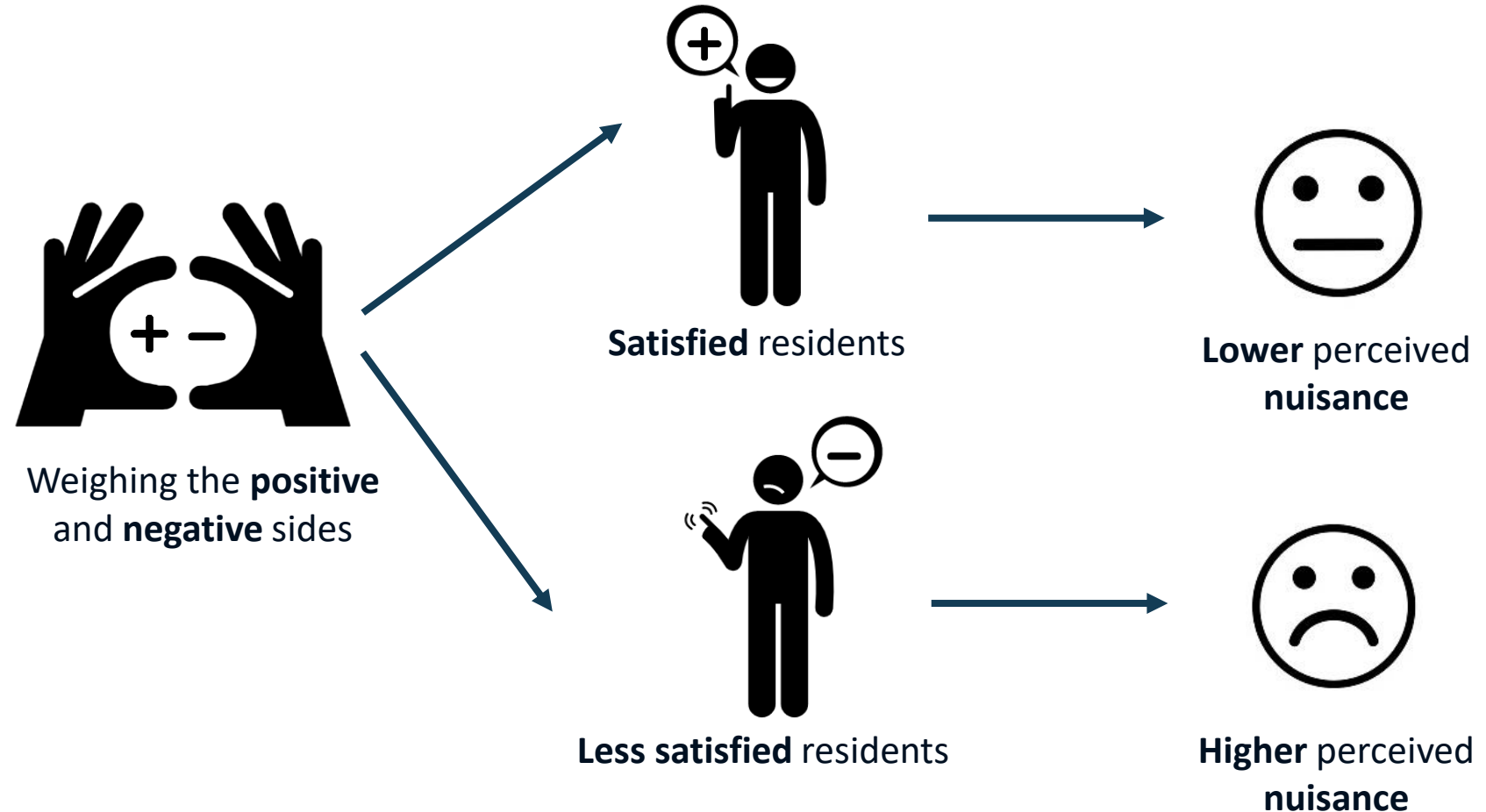
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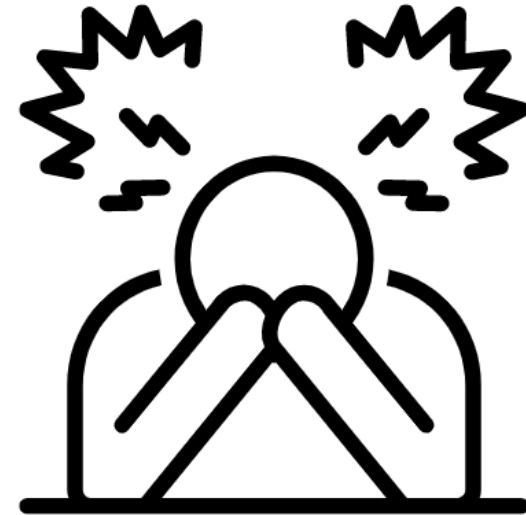
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RESIDENTIAL SATISFACTION AND PERCEIVED NUISANCE



Residential satisfaction



Perceived nuisance

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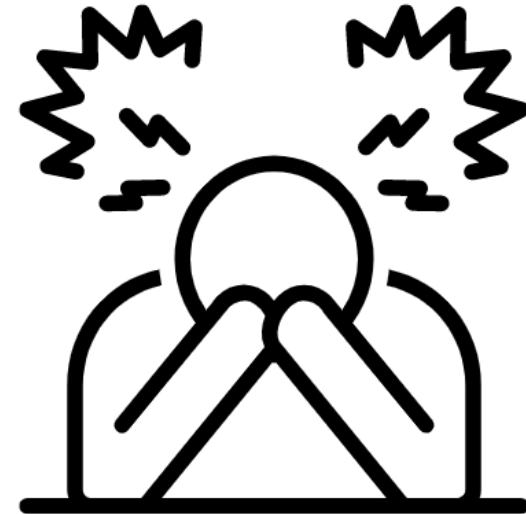
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RESIDENTIAL SATISFACTION AND PERCEIVED NUISANCE



Residential satisfaction

←
dualistic effect
→



Perceived nuisance

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NUISANCE AND URBAN PLANNING

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Environmental agreements:

- Accepted **growth** (port/village)
- Location of noise **contours**
- Facade **insulation** measures
- Acceptation, customization, deviation of **environmental norms**

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NUISANCE AND URBAN PLANNING



Area developments:

- Acceptation, customization, deviation of **environmental agreements**

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NUISANCE AND URBAN PLANNING

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Monitoring environmental quality:

- Measuring
- Reporting
- participation

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Continuous conversation:



Gemeente Rotterdam



Port of Rotterdam

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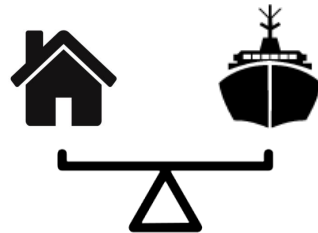
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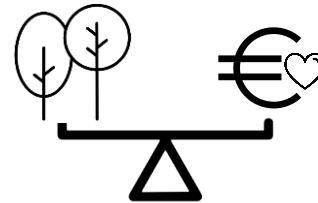
NUISANCE AND URBAN PLANNING



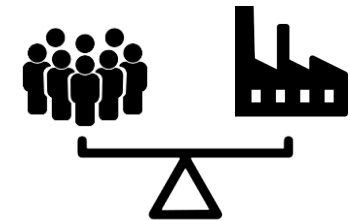
Continuous balancing act:



Villages vs. Port



Environmental values vs.
Socio-economic values



Residents vs. Industries

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CONCLUSION

- **Industrial** and **non-industrial** sources of nuisance
- When environmental **norms are reached**, residents could still experience **feelings of annoyance**
- **Each person** assesses its living environment in a **different** way
- **Residential satisfaction** and perceived nuisance

RECOMMENDATIONS

Consider and address...



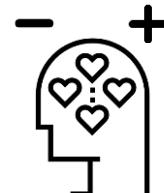
user
incompatibility



residential
nuisance



end-user
experience



feelings of
compensation



residential
satisfaction

Act...



in a holistic
way



with
leadership



in a creative
way

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CONCLUSION



Questions?

