

# Airports on artificial islands

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A solution for noise and capacity problems of traditional contemporary airports?

Franziska  
Kupfer

Universiteit Antwerpen





# Structure

## 1. Problems of Traditional Contemporary Airports

1.1. Capacity Restrictions

1.2. Noise Pollution

## 2. Existing Airports on Artificial Islands – An Overview

## 3. Airport Islands – A Solution?

3.1. Lack of Expansion Possibilities

3.2. Noise Reduction: Hong Kong International Airport

3.3. Airport Islands and Their Problems: Kansai International Airport

## 4. Conclusion

## 5. PhD topic



# 1. Problems of Traditional Contemporary Airports

## 1.1. Capacity Restrictions

### Amsterdam Schiphol Airport

- As far back as the 60's: discussions about new airport or 5th runway
- Growth of ca. 2.24% of aircraft movements between 1997 and 2007
- „Polderbaan“ opened on 13th February 2003
- Double aim of government: growth of airport AND reduction of noise pollution

# 1. Problems of Traditional Contemporary Airports

## 1.2. Noise Pollution

- Noise pollution = unwanted noise
- Ballanced approach (ICAO)
  - reduction at source
  - noise abatement operational procedures
  - aircraft operating restrictions
  - noise charges
- Land-use planning

# 1. Problems of Traditional Contemporary Airports

## 1.2. Noise Pollution

### Brussels Airport

- Situated in the east of Brussels
- Different measures to decrease noise disturbance
- Major Problem: involvement of *three* governments
- Airport was forced to spread flights evenly between runways to decrease the level of noise disturbance in all areas
- Until 2007 1.16 million Euros were spent on lawyers, bailiffs and experts

## 2. Existing Airport Islands – An Overview

### Kansai International Airport



## 2. Existing Airport Islands – An Overview

### Hong Kong International Airport



## 2. Existing Airport Islands – An Overview

### Incheon International Airport



## 2. Existing Airport Islands – An Overview

### Centrair (Central Japan International Airport)



## 3. Airport Islands – A Solution?

### 3.1. Lack of Expansion Possibilities



Itami Airport



Kai Tak Airport

## 3. Airport Islands – A Solution?

### 3.1. Lack of Expansion Possibilities

- Airport islands generally have a higher cost
- Financial difficulties especially at Kansai International Airport
- High landing fees

## 3. Airport Islands – A Solution?

### 3.2. Noise Reduction



Kai Tak Airport



Hong Kong International Airport

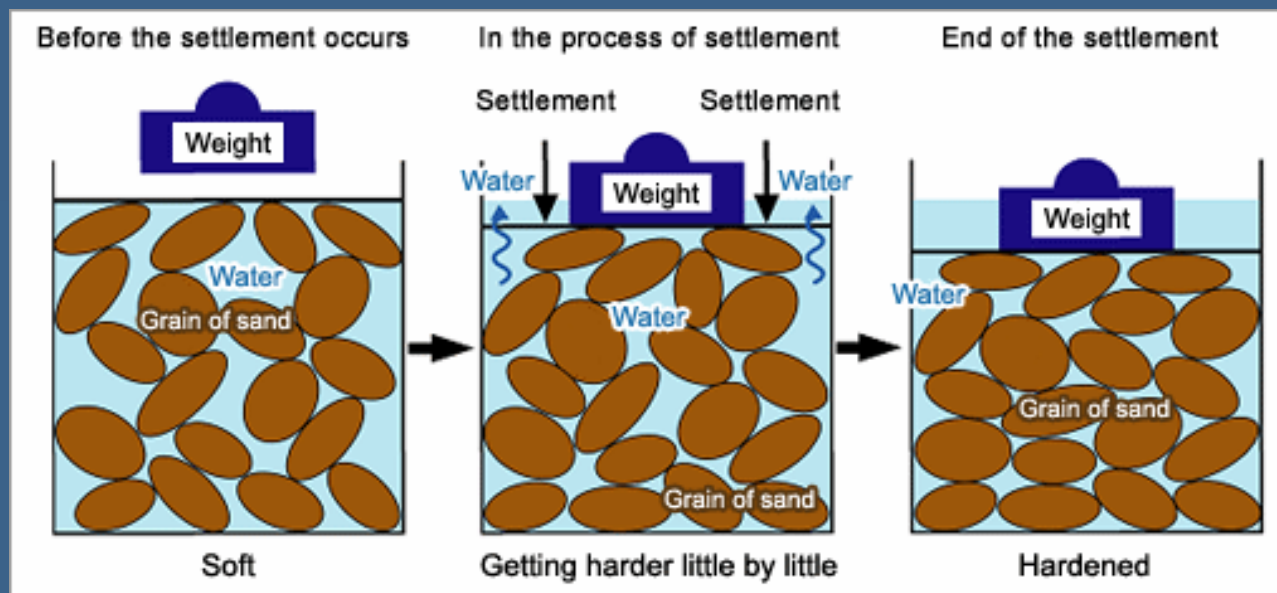
### 3. Airport Islands – A Solution?

#### 3.2. Noise Reduction

	Kai Tak	Hong Kong International
Population living within noise contour NEF 25	Around 760,000	Less than 200
Population living within noise contour NEF 30	Around 380,000	nihil

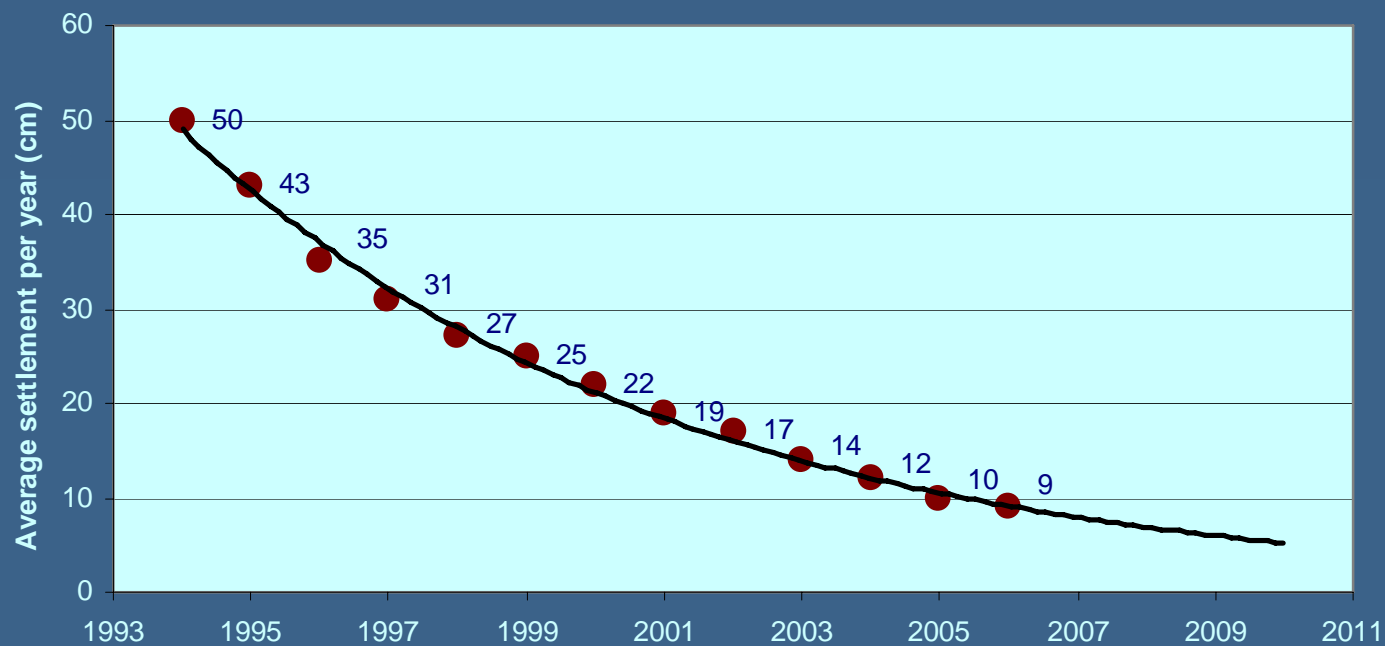
## 3. Airport Islands – A Solution?

### 3.3. Airport Islands and Their Problems



## 3. Airport Islands – A Solution?

### 3.3. Airport Islands and Their Problems



## 4. Conclusion

- Hong Kong International Airport: Solution for noise pollution of Kai Tak airport
- Airport islands easier to extend as cities can not be built around them  
BUT: high construction costs
- Other questions:
  - Feasible in Europe?
  - Ecological impact?

## 4. The influence of Globalization on Air Cargo, Airports and Airport Regions

**Macro level**

Air cargo traffic  
on world level

**Meso level**

Air cargo traffic to  
and from Belgium

**Micro level**

Impact on airports and airport regions

Globalization



Increase of world air traffic &  
Changes in the air cargo sector



Influence on airports



What role can airports and airport areas play  
in attracting more demand for air commodity transport?

## 4. Impact of globalization on air cargo, airports and airport regions

### Airports as location factor for companies

- Why are companies situated around airports and what are the differences with the past?
- What do companies expect from the location factor airport?
- How can the location factor airport be improved? What can airports do to attract more demand from the hinterland?

## 4. Impact of globalization on air cargo, airports and airport regions

### Case studies

1. Airport with hinterland that has intense industry
  2. Airport with hinterland that has no industry (transshipment)
- > try to find examples of airports that failed and that succeeded when trying to activate new demand

Thank you for your attention!

