



Welcome to Bergen

Per Vikse
Senior Adviser

Department of Urban Development,
Climate and Environmental Affairs

Korean visit, May 23., 2015

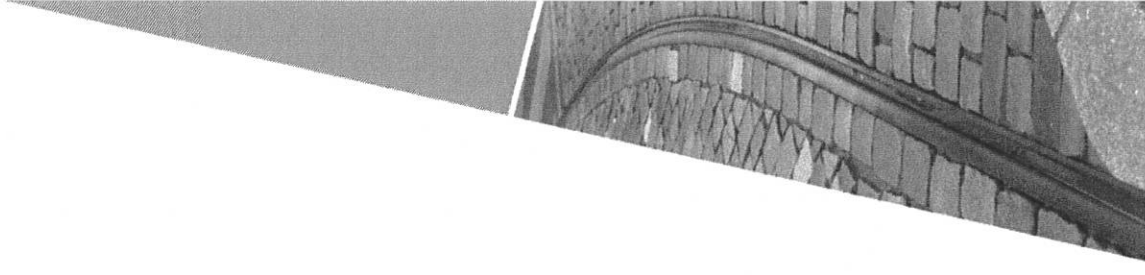


BERGEN KOMMUNE

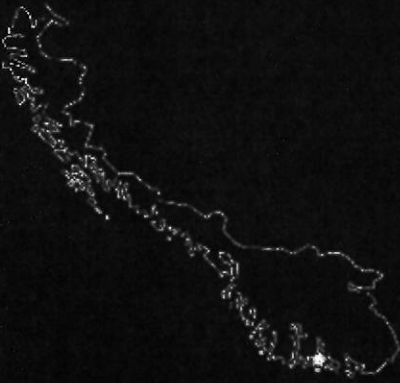
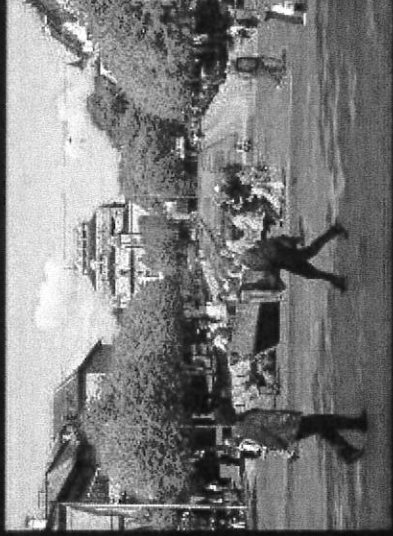
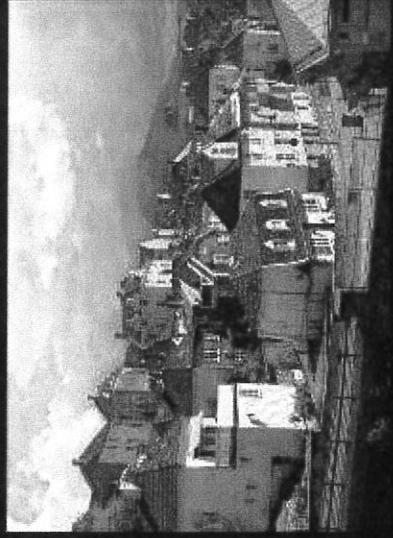
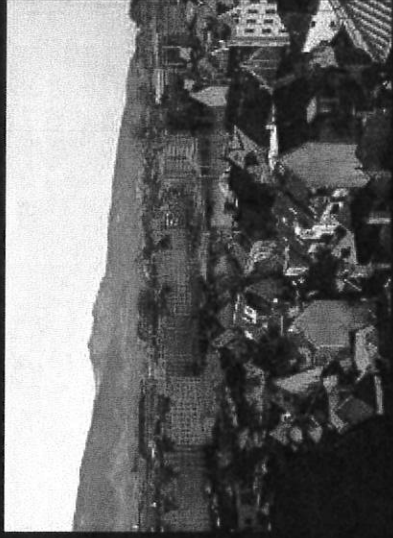
Some facts about Bergen

- **Founded in the year 1070**
- **Population: 272.000**
- **Area: 465, 3 km²**
- **Surrounded by seven mountains**
- **Average rainfall: 2250 mm/year**

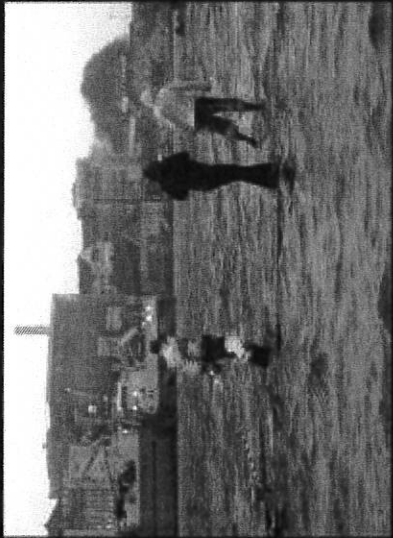
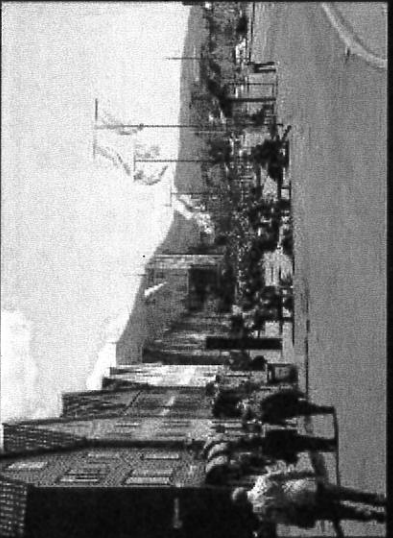
Bergen: The most rainy city in Europe

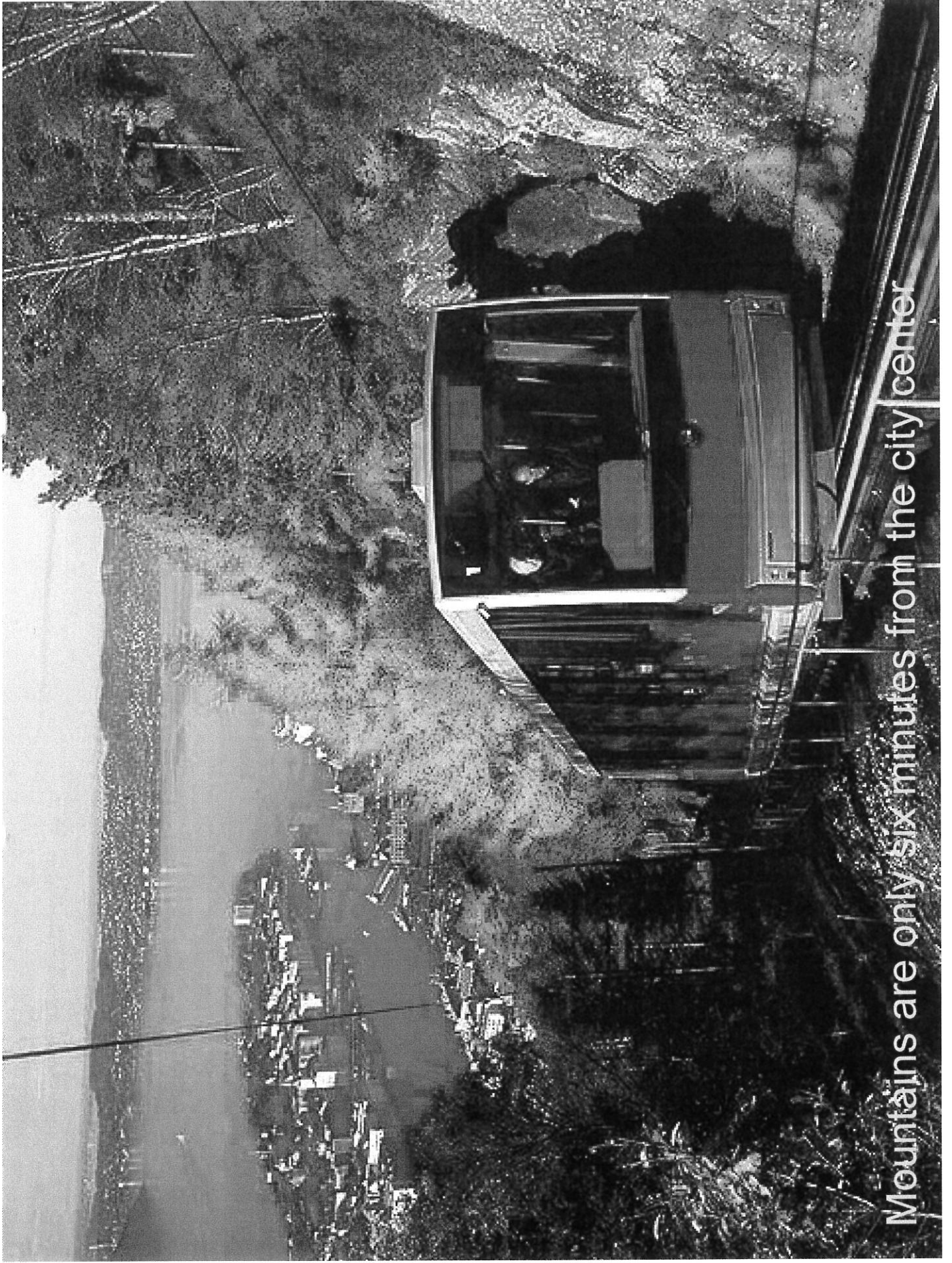




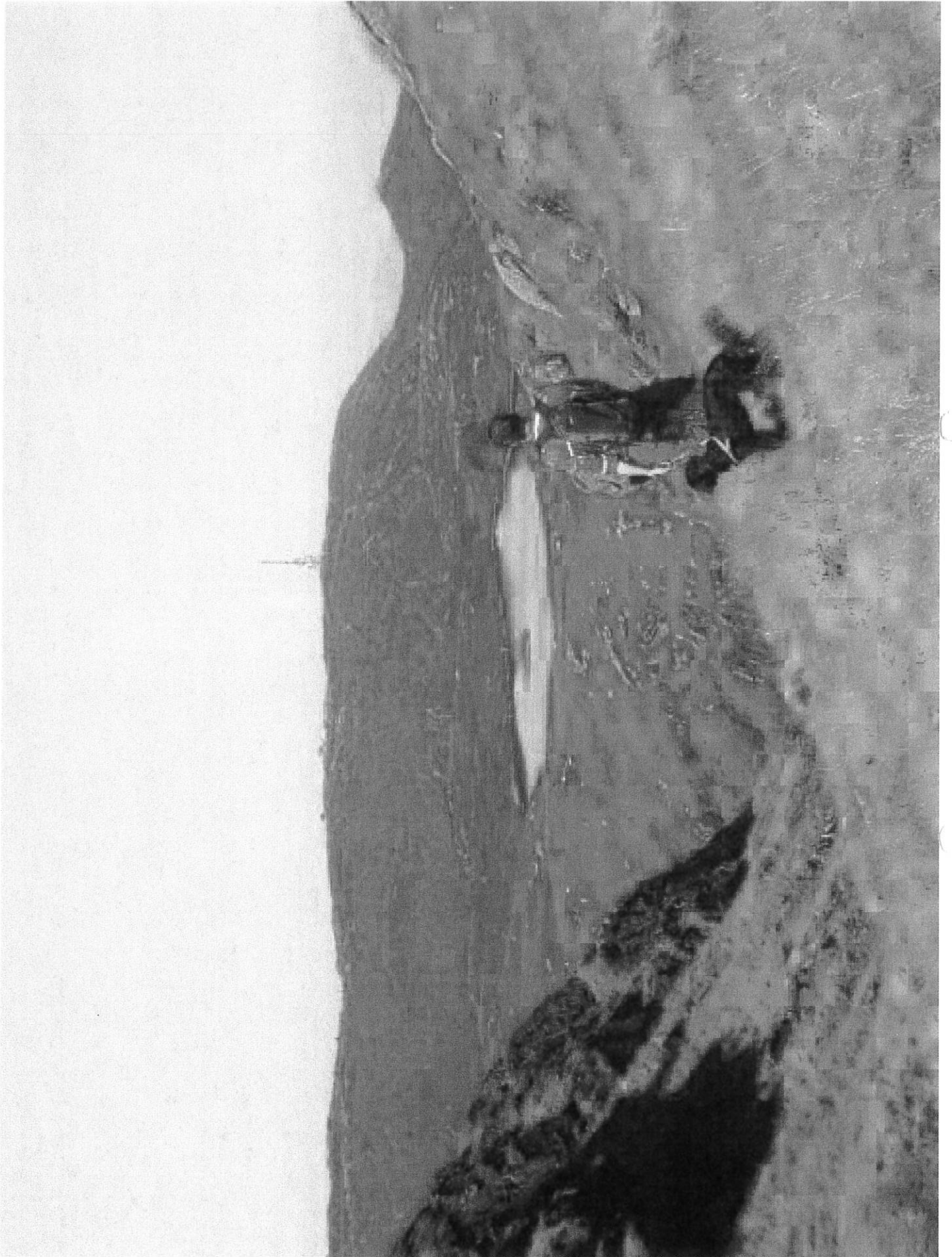


Bergen





Mountains are only six minutes from the city center



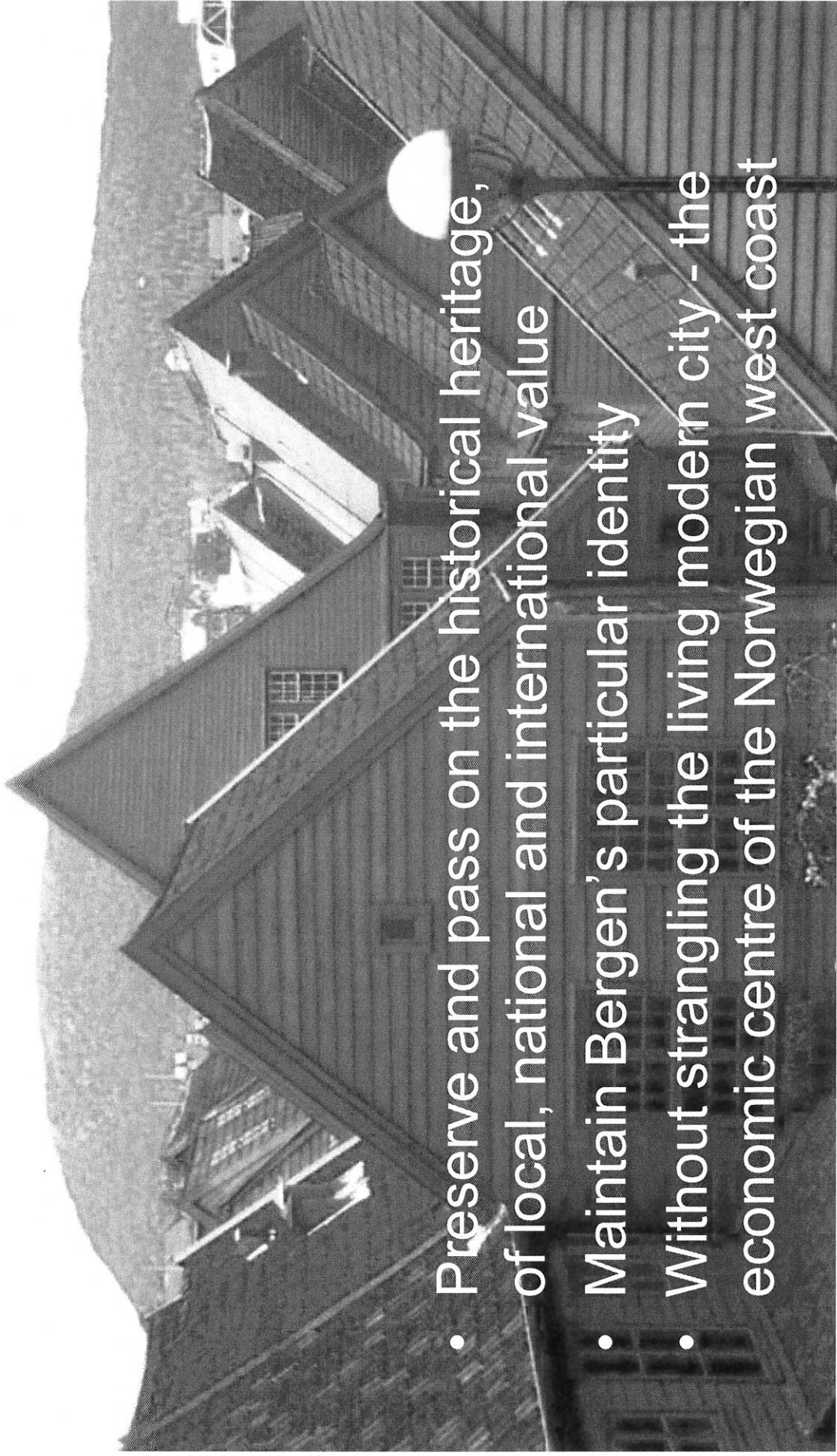


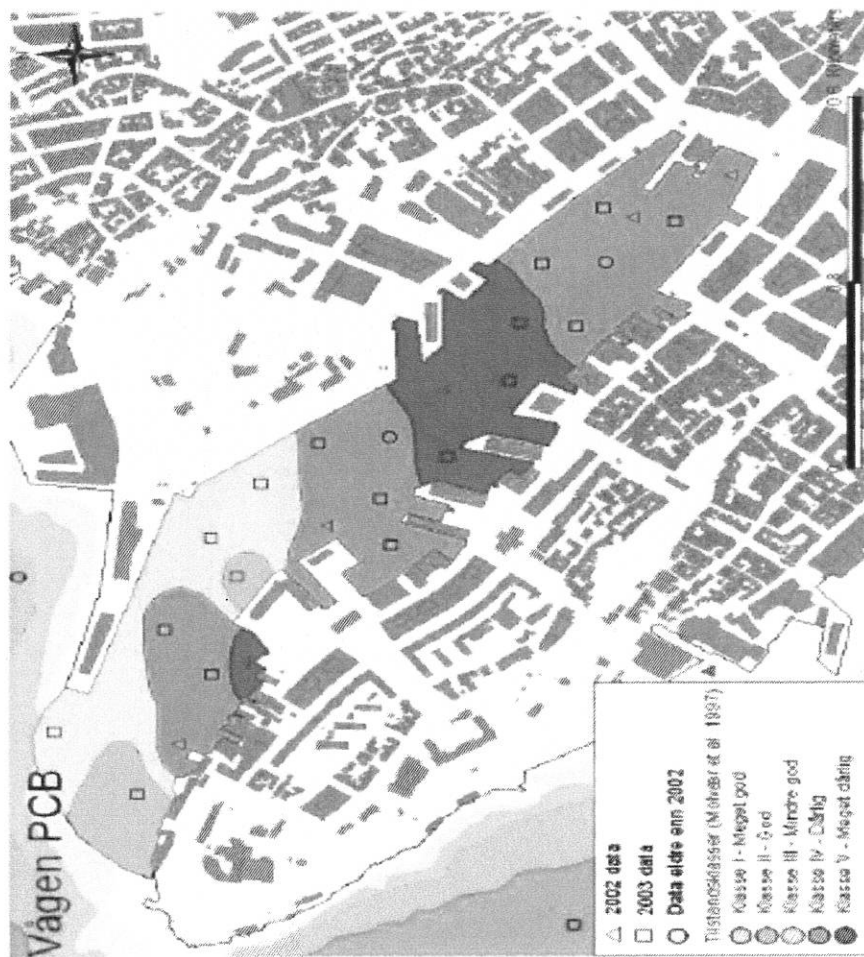


CITY OF BERGEN

Major challenges

- Preserve and pass on the historical heritage, of local, national and international value
- Maintain Bergen's particular identity
- Without strangling the living modern city - the economic centre of the Norwegian west coast





TILSTANDSKLASSER

Organiske miljøgifter i sedimenter (tørvekt)

Σ PAH ²⁾ (µg/kg)
 B(a)P ³⁾ (µg/kg)
 HCB ⁴⁾ (µg/kg)
 Σ PCB₂₈ ⁵⁾ (µg/kg)
 EPOCI ⁶⁾ (µg/kg)
 TE_{PCDF/D} ⁷⁾ (ng/kg)
 Σ DDT₂₈ ⁸⁾ (µg/kg)

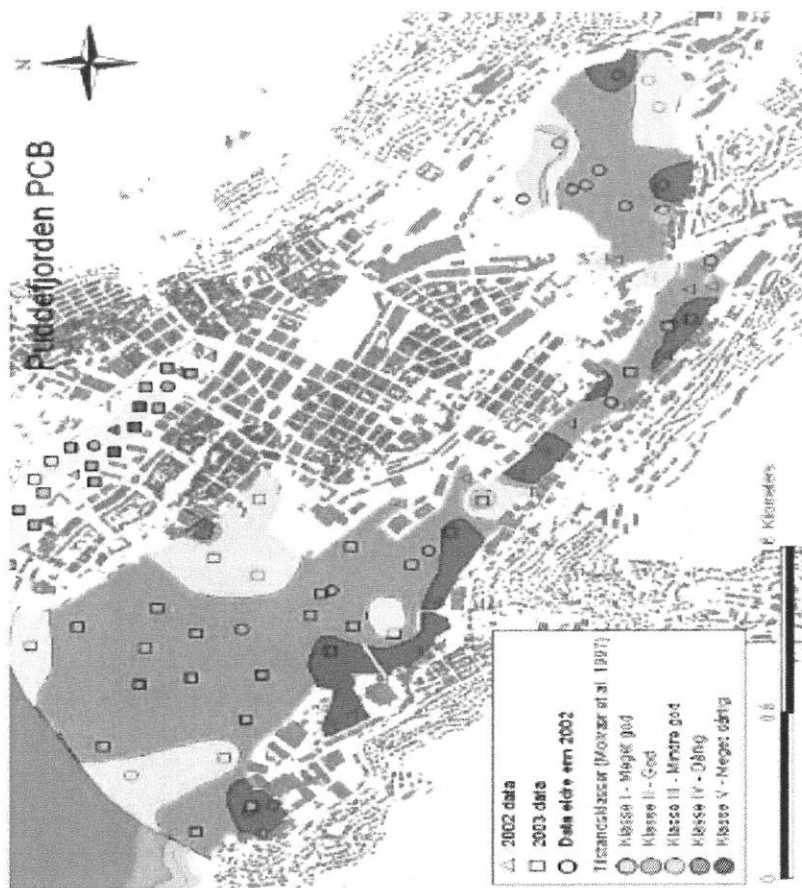
I
 <300
 <10
 <0.5
 <5
 <100
 <0.01*
 <0.5

II
 300-2000
 10-50
 0.5-2.5
 5-25
 100-500
 0.01-0.03
 0.5-2.5

III
 2000-6000
 50-200
 2.5-10
 25-100
 500-2000
 0.03-0.10
 2.5-10

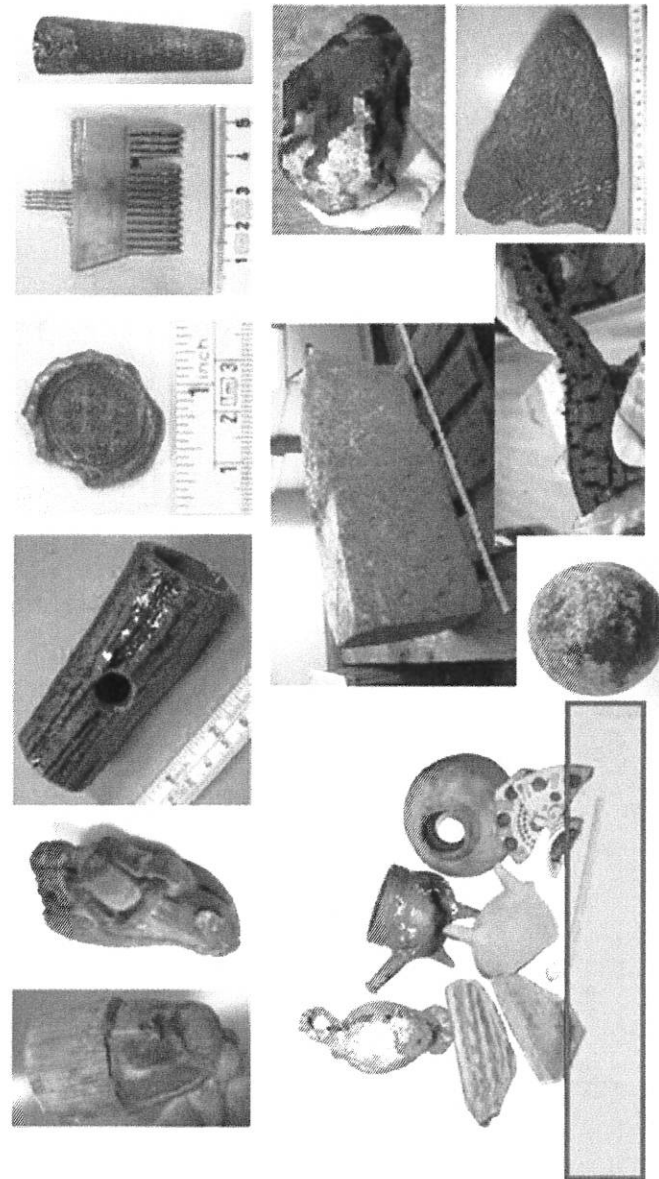
IV
 6000-20000
 200-500
 10-50
 100-300
 2000-15000
 0.10-0.5
 10-50

V
 >20000
 >500
 >50
 >300
 >15000
 >0.5
 >50

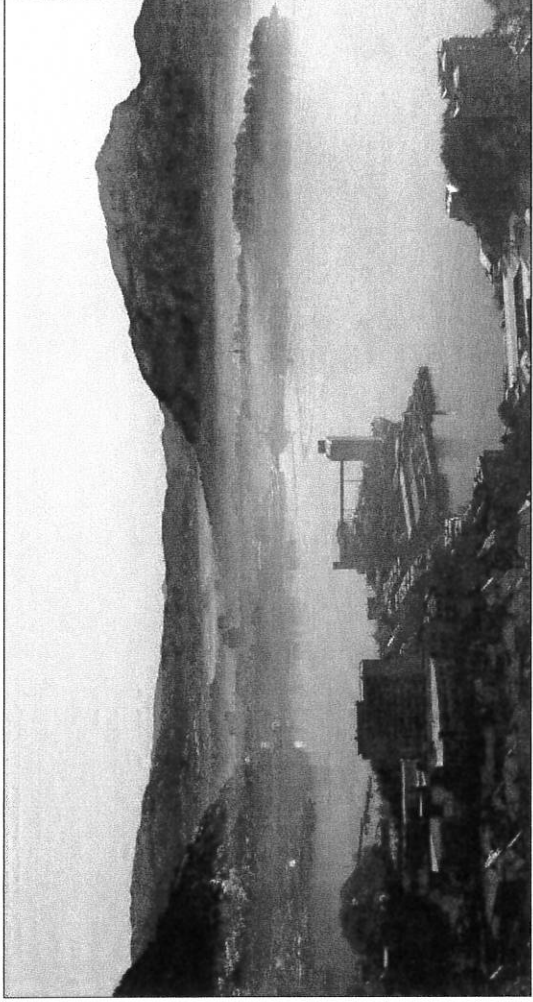


Resultater

Rundt 3000 katalogiserte funn –
vi har gravd 1/10.000 av Vågen

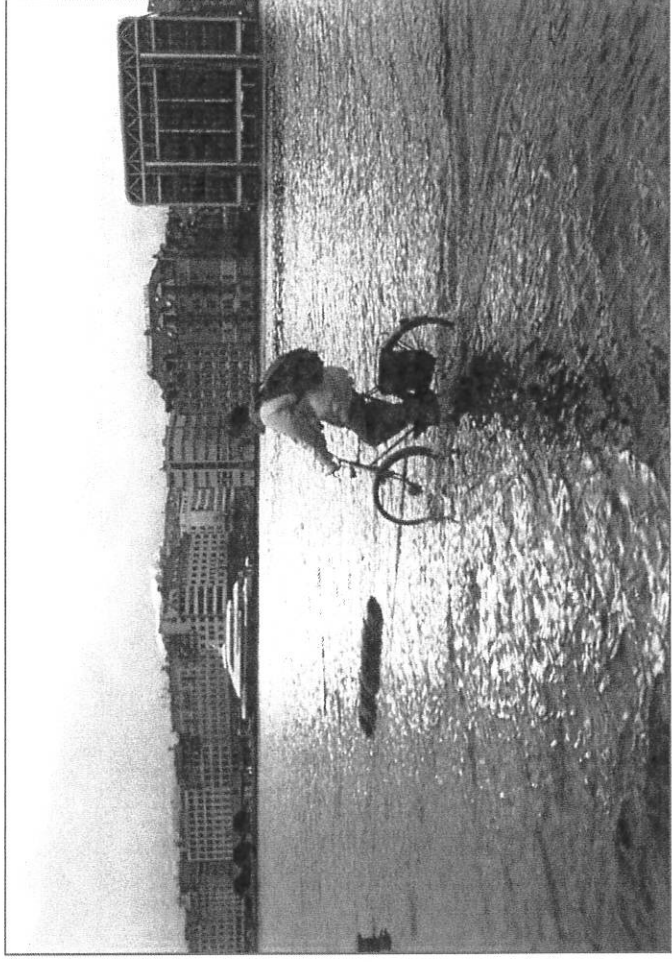


Figur 1. 1. 10. 10. 10. 10.



a major challenge:
local emissions

a major challenge:
global climate



Two overlapped topic

Local air pollution

- Dust (PM₁₀, PM_{2.5})
- Nitrogen oxides (NOx)
- Carbon monoxide (CO)
- Benzen
- Ozon

Greenhouse gases

- Carbon dioxide (CO₂)
- Methane (CH₄)
- Nitrous oxide (N₂O)
- Fluorinated gases



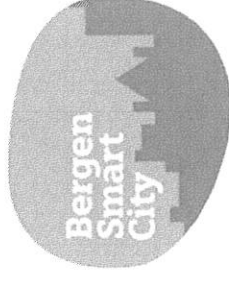
Climate and Energy action plan - Goals and strategies

Reduce greenhouse gas emissions:

- transport
- energy
- consumption and waste
- adaptation to climate change

Action plan for better air quality

- Ten packets of measures to improve
air quality.



Smartere bruk av energi

CITIES OF THE FUTURE

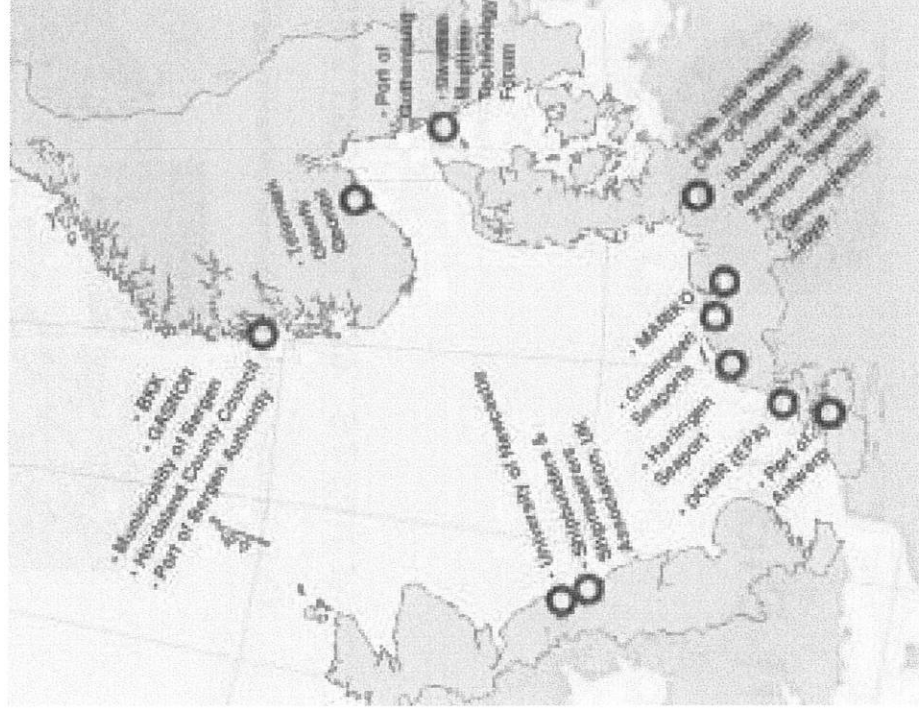
Cities with the lowest possible greenhouse gas emissions and a good urban environment



CITY OF BERGEN

”CLEAN NORTH SEA SHIPPING”

- An interregional EU program
- Members from 11 ports around the North Sea
- ”The overall objective of this project is to achieve, by joint effort, a reduction of air pollution and greenhouse gas emissions;”
- In Bergen special focus on shore power (clean energy from hydropower plants).



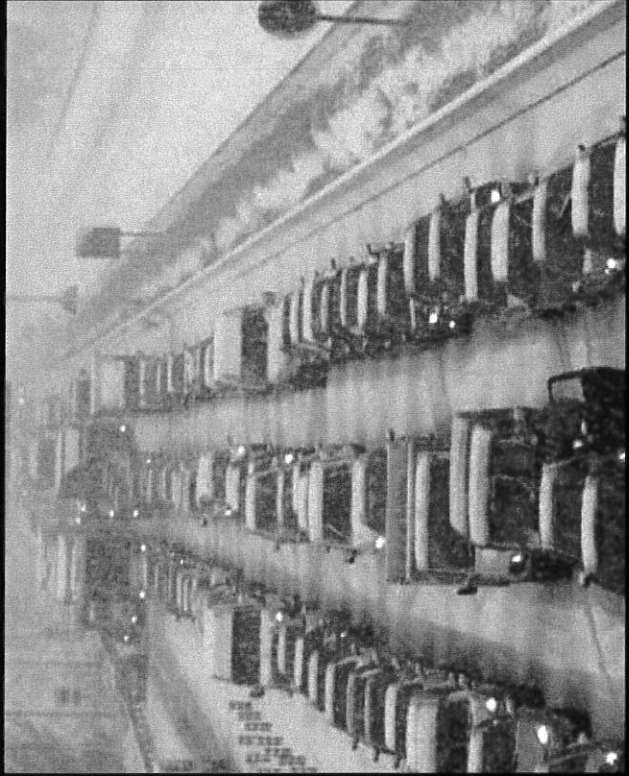
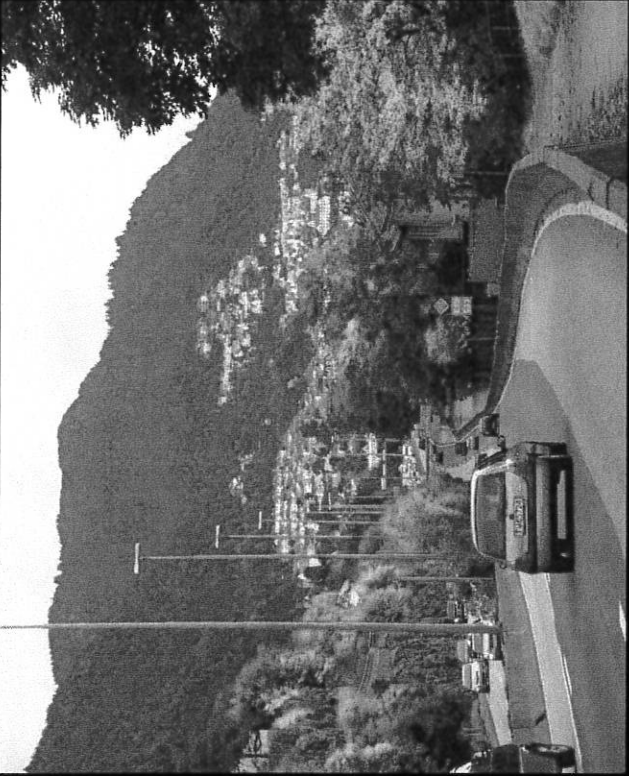
Local emissions



- *Local problems:*
 - *NO_x, dust / PM10*
 - *topography*
 - *climate / local weather conditions / inversion*
 - *traffic, heating*

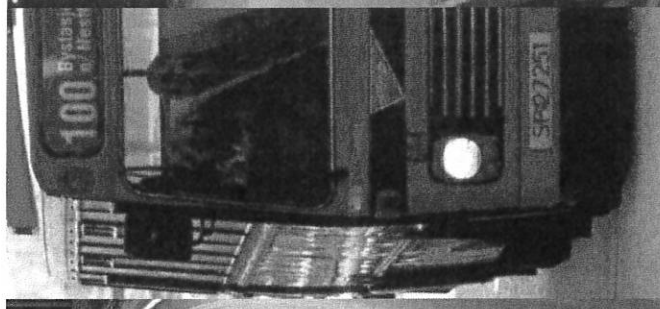


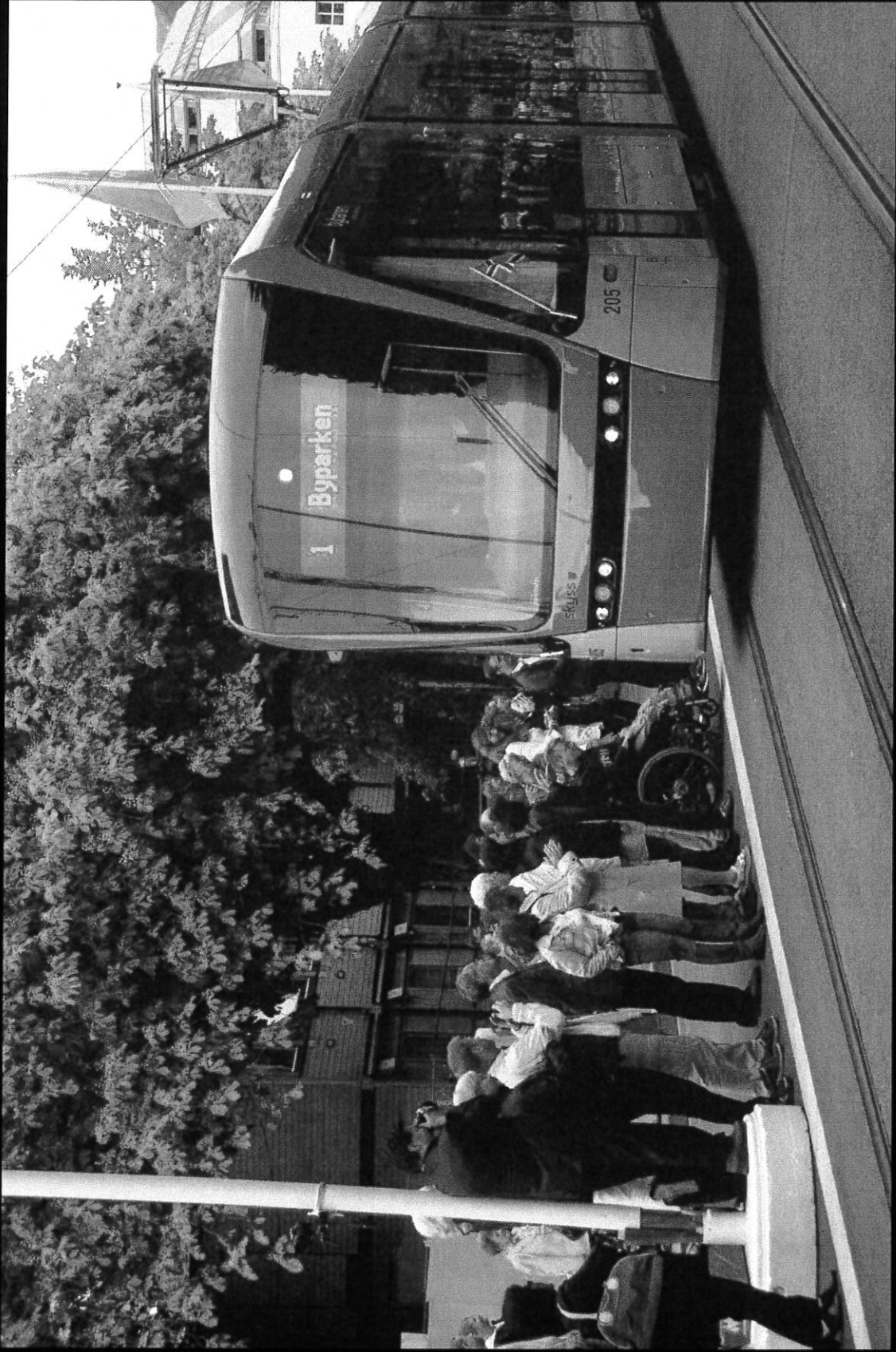
70% of the carbon emissions come from vehicles, and our main challenge is therefore to reduce emissions from transport
The first cars for private use came to Norway late in the 50-ties, and today most families have at least one car



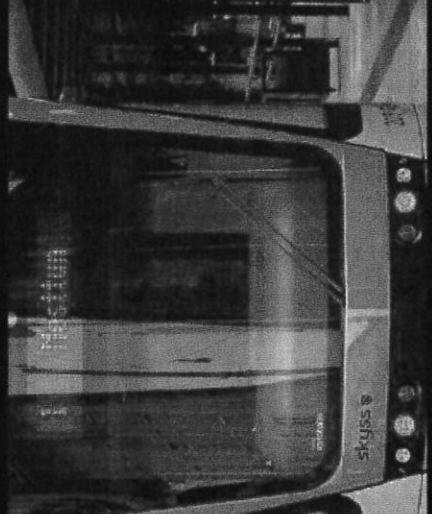
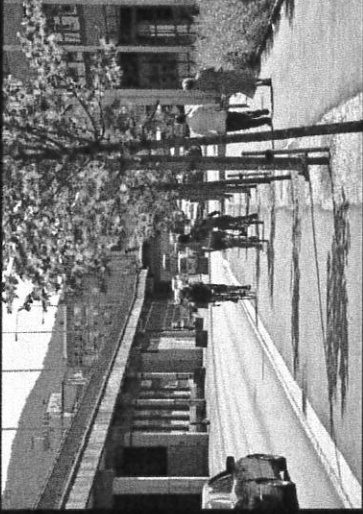
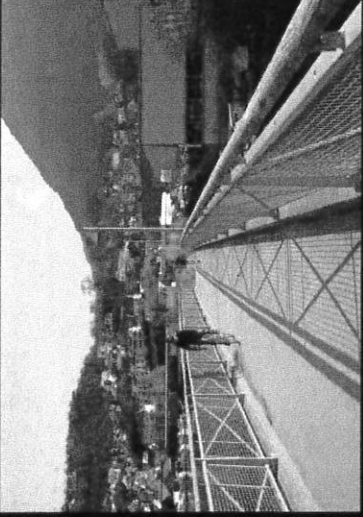
Transport – strategy for electrification and biogas

Cities must prepare for modern, attractive and environmentally friendly transport and make it beneficial to use environmentally friendly transport





Light rail system will connect all parts of the city with the city center - the light-rail system is a part of our urban development strategy towards a sustainable city



All kinds of transport; walking, cycling, driving by car or by bus or travelling by the tram, ridesharing