Need for planning tools and methods to monitor and control urban sprawl

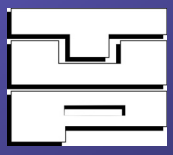
Karolina Krośnicka

e-mail: krokar@am.gdynia.pl

Bilateral German-Polish **REFINA** workshop:
"Research and model projects on suburbanization and land consumption",
November 6 and 7, 2009, Gdansk (Poland)



Dept. of Transportation Systems,Faculty of Navigation, Gdynia Maritime University, Sędzickiego Street 19, 81-374 Gdynia



Society of Polish Town Planners

Why are we here?



http://miasta.gazeta.pl/trojmiasto/1,35636,6391171,Dla__Gazety__dr_Gabriela_Rembarz.html

Gabi Rembarz

Poland have serious problems with monitoring and controlling spontaneous growth of cities



Sourroundings of Gdańsk

This is why we are glad to have an opportunity to learn from German experience (REFINA)

self-suficient „island-like" development
based on a good public transportation system



Sourroundings of Frankfurt/M

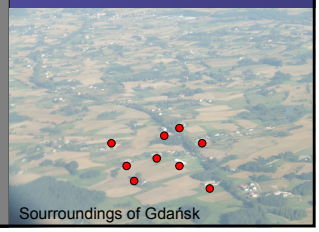
Types of suburbanisation in Poland

1. Continous, chaotic development along roads and/or railway with no breaks for ecological corridors or place for social coherency
   - → dormits, commuting
   - → good public transportation
2. New, very compact districts, situated at the city outskirts, with no sufficient transportational and social infrastructure (no public transport, no schools, kindegardens, shops etc.)
   - → weak public transportation
   - → dormits, commuting
3. Single houses/farms (?) spread within rural areas
   - → lack of public transportation
   - → waste of rural land
   - → extremely expesive infrastruture (or lack of)



http://earth.google.com/



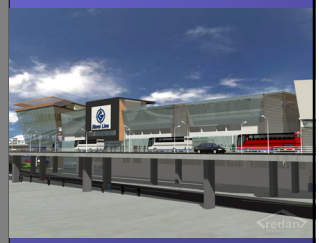


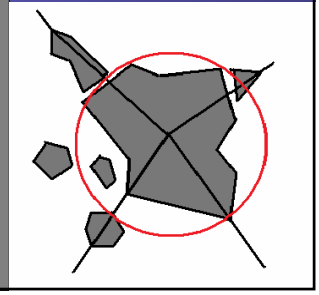
Sourroundings of Gdańsk

Ways of reducing urban sprawl:

1. introducing multifunctional and intensive land use (MILU) inside cities
2. limiting urban sprawl on the outskirts (Smart Growth)

But we still try to…





1. MILU types

http://www.milu.net/

• introducing more uses on one space (intensification) (2D)

• mixing uses (interweaving) (2D)

• multi-level use of space by different functions (layering 3D)

• multifunctional use of space in time (timing – 4D)

• simultaneous use of space by different cultural, social, age groups (cultural dimension – 5D?)

1. MILU activities in Tricity

• densification of build-up areas (fillings in the existing city tissue)
• urban recycling of postindustrial areas (waterfronts)

• revitalisation of city centres (additional/new services, technical and social infrastructure, amenities)

• additional levels (houses on blocks of flats, underground garages etc.)

• temporary uses (fun city, parking places)

MILU in Tricity

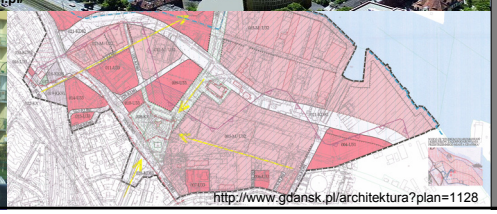






http://www.gdansk.pl/





http://www.gdansk.pl/architektura?plan=1128







2. Smart Growth Principles

LOCAL:

- Create Walkable Neighborhoods
- Attractive Communities with a Strong Sense of Place
- Encourage Community and Stakeholder Collaboration
- Mix Land Uses

REGIONAL:

- Preserve Open Space, Farmland, Natural Beauty and Critical Environmental Areas
- Take Advantage of Compact Building Design
- Provide a Variety of Transportation Choices
- Create Range of Housing Opportunities and Choices

- Make Development Decisions Predictable, Fair and Cost Effective

SMART GROWTH NETWORK

http://www.smartgrowth.org

Smart Growth in Tricity

- protection of environmentally important areas
- protection of areas of National Forests
- protection of **outer-city** rural areas
- enhancing public transportation
- extremely compact building design of new districts by developers



Main reasons of urban sprawl in Poland:

1. Land value (ground rent)
2. Accessibility (time/space)
3. Social expectations („american dream”)



Warszawa	ok. 1 050 000
Wrocław	ok. 800 000
Kraków	ok. 700 000
Poznań	ok. 650 000
Białystok	ok. 560 000
Katowice	ok. 520 000
Szczecin	ok. 610 000
Lublin	ok. 510 000
Łódź	ok. 570 000

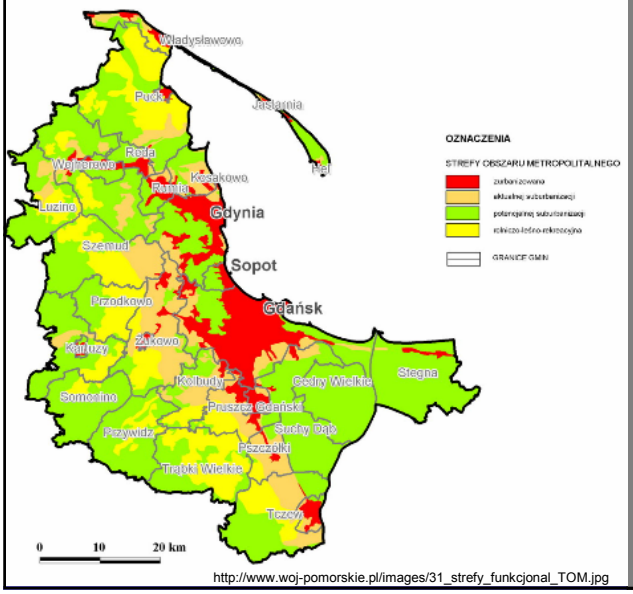
Mean price of a house 150m2 in 2009)
http://forum.investmap.pl



miasto	Mediana ceny nieruchomości w kwietniu 2009 r.*
Gdańsk	300 000 zł
Kraków	310 000 zł
Poznań	270 850 zł
Warszawa	400 000 zł
Wrocław	320 000 zł

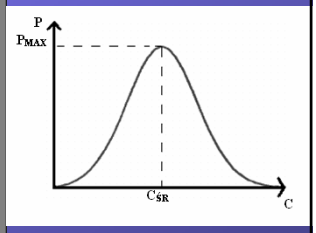
Mean price of a prefered flat about 50m2 in 2009)
Source: Open finance

1. Land value (ground rent)



http://www.woj-pomorskie.pl/images/31_strefy_funkcjonal_TOM.jpg

Distribution of ground rent in cities
P – land price
C – distance to the city centre (Csr)





http://www.industrial.pl/mapa_działki/9_trojmiasto_pl.html

2. Accessibility

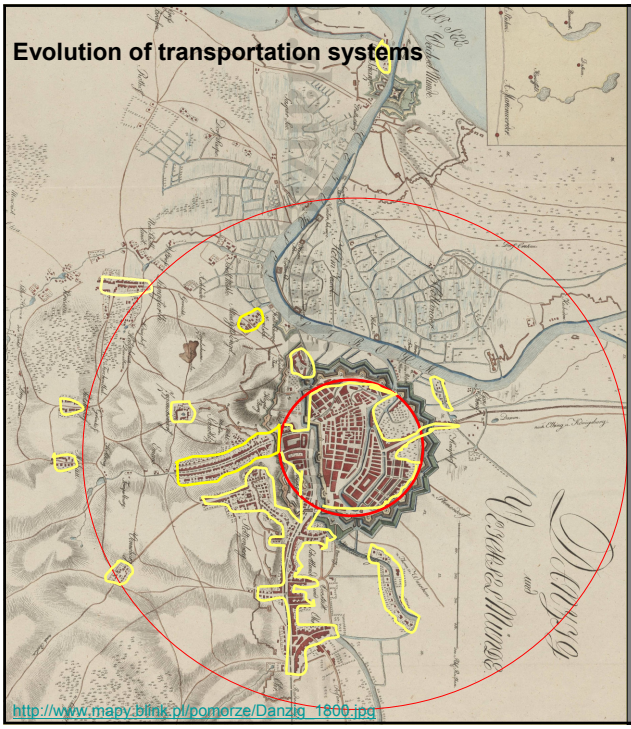
- Easy transportation of people in time and space (commuting)
- Easy transportation of goods

possible, thanks to

new transportation systems



Evolution of transportation systems

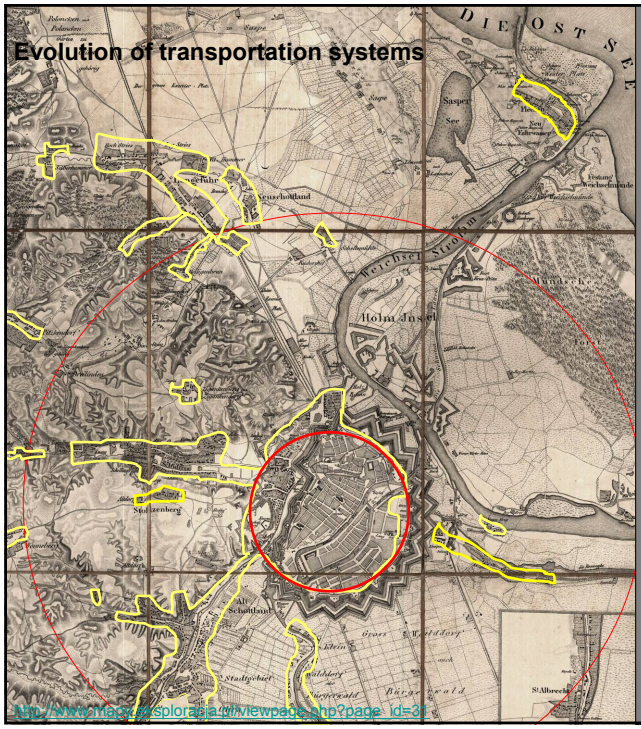


http://www.mapy.blink.pl/pomorze/Danzig_1800.jpg

Gdańsk
about 1800

Pedestrian movement

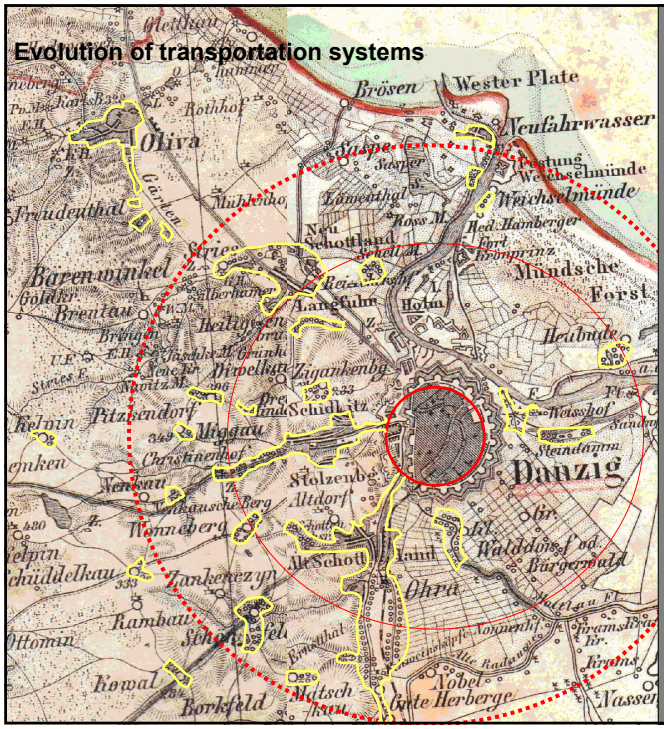
- Zarys obszarów zabudowanych
- Izochrona 15 minutowa dla pieszego – 1km
- Izochrona 1 godziny dla pieszego - 4km



Gdańsk about 1833

Pedestrian movement

- Zarys obszarów zabudowanych
- Izochrona 15 minutowa dla pieszego – 1km
- Izochrona 1 godziny dla pieszego – 4km



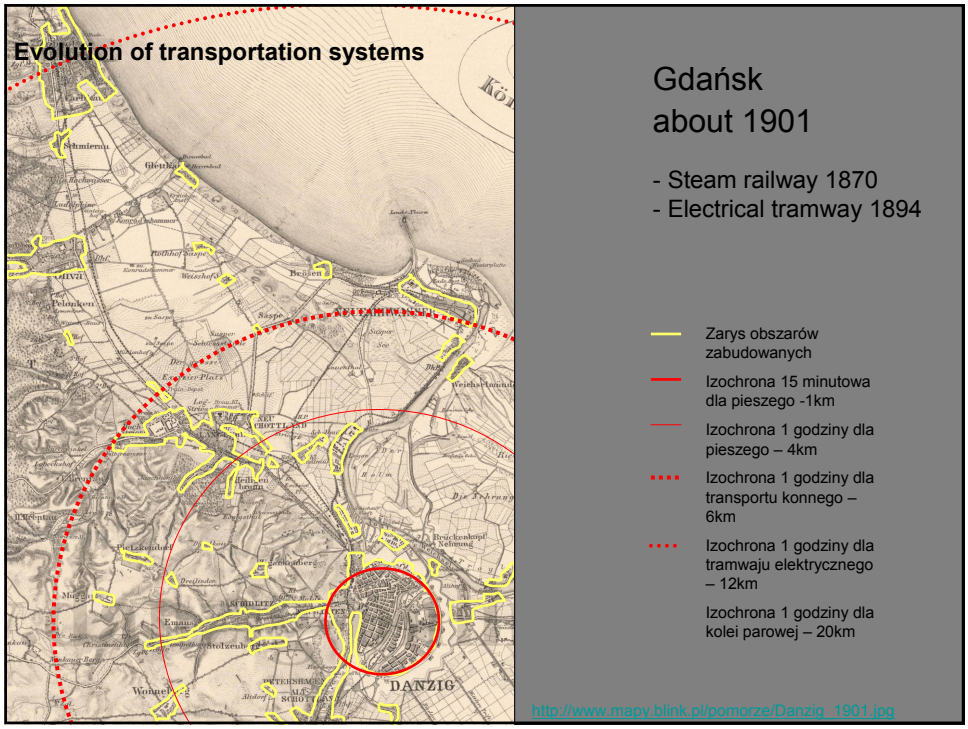
Gdańsk about 1860

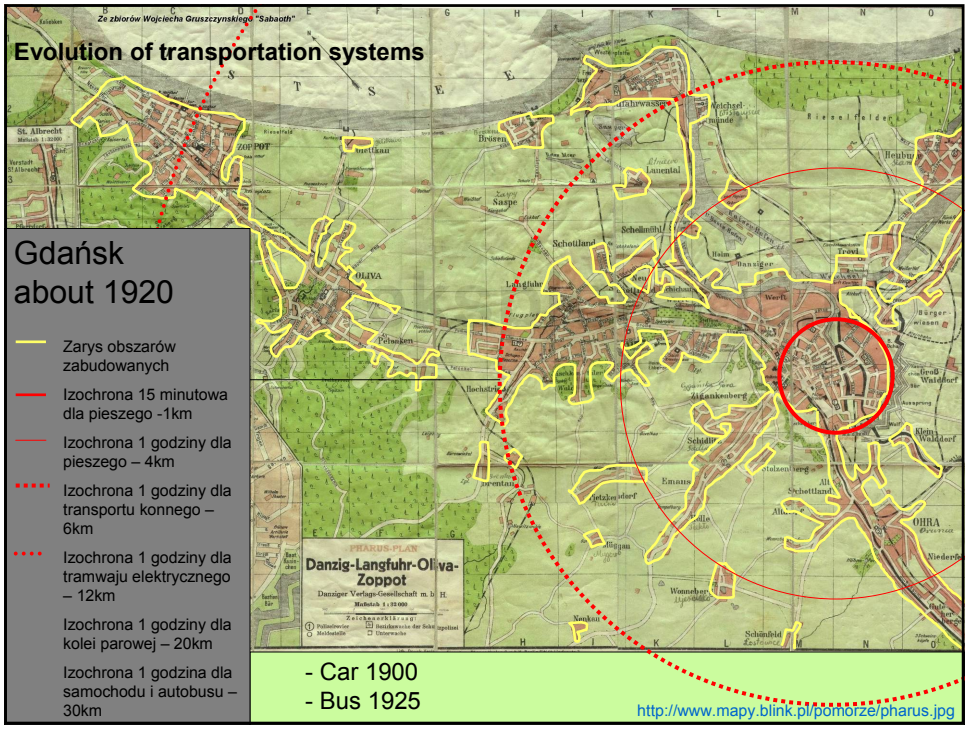
Horse-powered transportation:

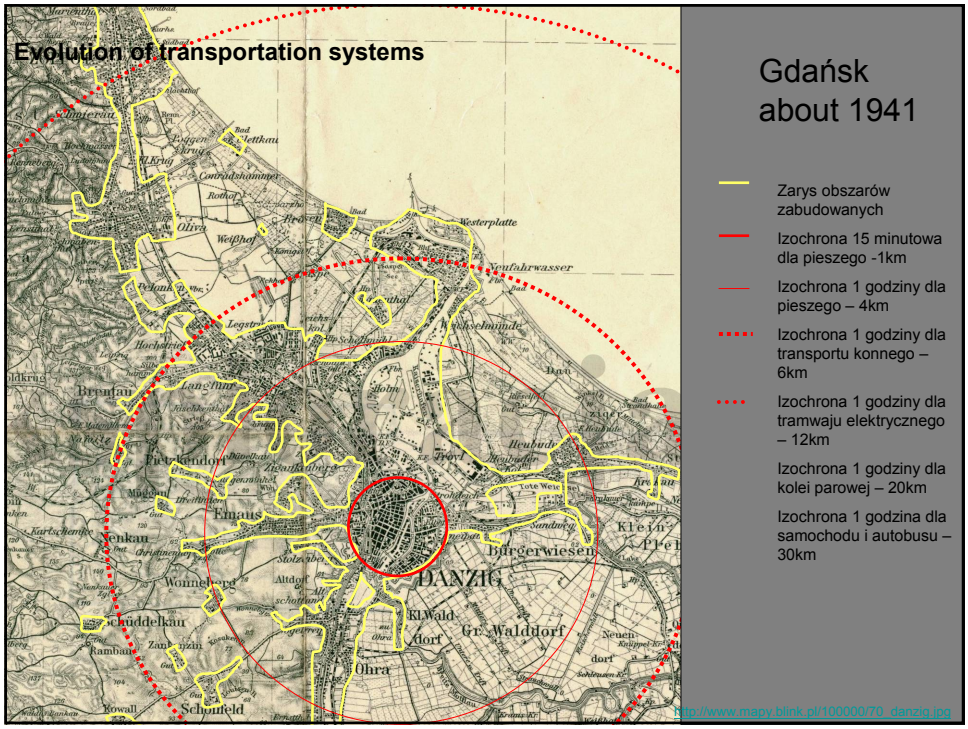
- omnibus 1864
- tram 1873

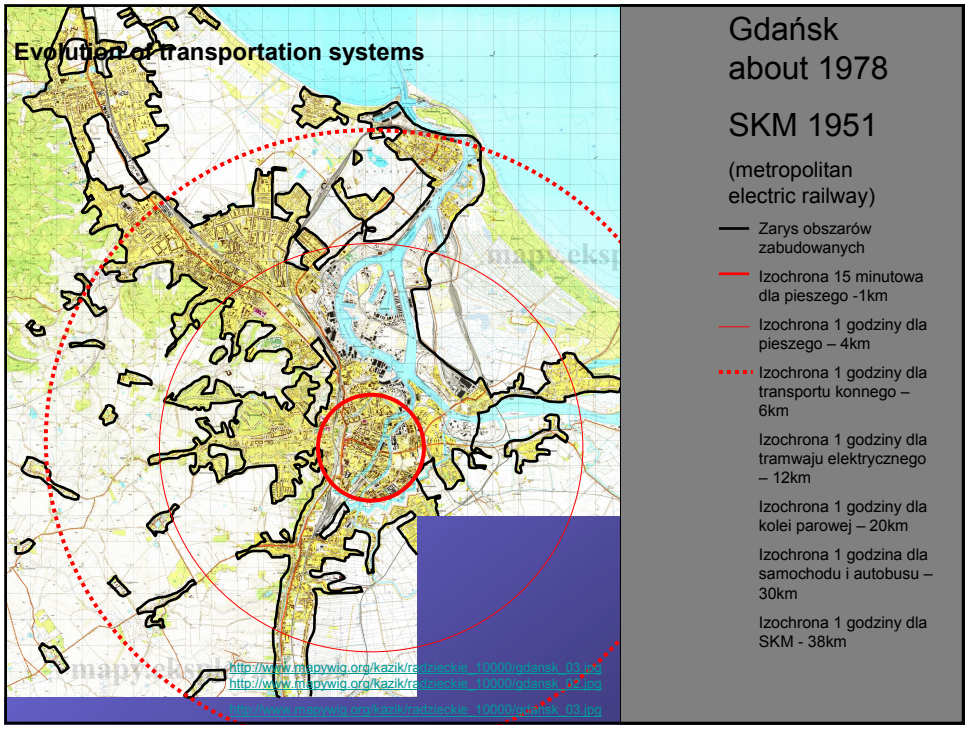
- Zarys obszarów zabudowanych
- Izochrona 15 minutowa dla pieszego – 1km
- Izochrona 1 godziny dla pieszego – 4km
- Izochrona 1 godziny dla transportu konnego – 6km

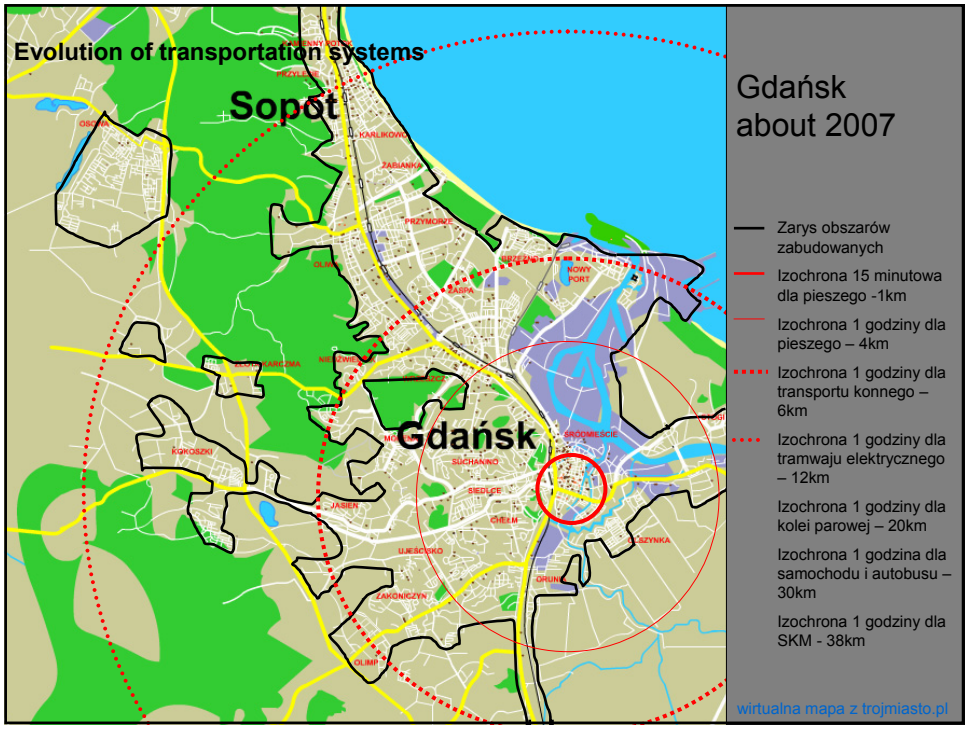
http://www.mapy.blink.pl/reymann/17_behrent.jpg
http://www.mapy.blink.pl/reymann/5_putzig.jpg


Evolution of transportation systems
DANZIG
Gdańsk
about 1901
- Steam railway 1870
- Electrical tramway 1894
Zarys obszarów zabudowanych
Izochrona 15 minutowa dla pieszego -1km
Izochrona 1 godziny dla pieszego – 4km
Izochrona 1 godziny dla transportu konnego – 6km
Izochrona 1 godziny dla tramwaju elektrycznego – 12km
Izochrona 1 godziny dla kolei parowej – 20km
http://www.mapy.blink.pl/pomorze/Danzig_1901.jpg


Ze zbiorów Wojciecha Gruszczynskiego "Sabaoth"
Evolution of transportation systems
Gdańsk
about 1920
Zarys obszarów zabudowanych
Izochrona 15 minutowa dla pieszego -1km
Izochrona 1 godziny dla pieszego – 4km
Izochrona 1 godziny dla transportu konnego – 6km
Izochrona 1 godziny dla tramwaju elektrycznego – 12km
Izochrona 1 godziny dla kolei parowej – 20km
Izochrona 1 godzina dla samochodu i autobusu – 30km
PHARUS-PLAN
Danzig-Langfuhr-Oliva-Zoppot
- Car 1900
- Bus 1925
http://www.mapy.blink.pl/pomorze/pharus.jpg


Evolution of transportation systems
Gdańsk
about 1941
Zarys obszarów zabudowanych
Izochrona 15 minutowa dla pieszego -1km
Izochrona 1 godziny dla pieszego – 4km
Izochrona 1 godziny dla transportu konnego – 6km
Izochrona 1 godziny dla tramwaju elektrycznego – 12km
Izochrona 1 godziny dla kolei parowej – 20km
Izochrona 1 godzina dla samochodu i autobusu – 30km
http://www.mapy.blink.pl/100000/70_danzig.jpg


Evolution of transportation systems
Gdańsk
about 1978
SKM 1951
(metropolitan electric railway)
Zarys obszarów zabudowanych
Izochrona 15 minutowa dla pieszego -1km
Izochrona 1 godziny dla pieszego – 4km
Izochrona 1 godziny dla transportu konnego – 6km
Izochrona 1 godziny dla tramwaju elektrycznego – 12km
Izochrona 1 godziny dla kolei parowej – 20km
Izochrona 1 godzina dla samochodu i autobusu – 30km
Izochrona 1 godziny dla SKM - 38km
http://www.mapywig.org/kazik/radzieckie_10000/gdansk_03.jpg
http://www.mapywig.org/kazik/radzieckie_10000/gdansk_03.jpg
http://www.mapywig.org/kazik/radzieckie_10000/gdansk_03.jpg



Conclusions

- Type of urban sprawl depends on a system of public transportation
- Urban sprawl could be reduced by acting simultaneously both inside and outside a city

Conclusions

- urban sprawl is the response to ground rent and increasing accessibility (caused by technological changes in transportation)
- urban sprawl is a natural process not possible to stop, but **possible to steer!**

Therefore, what are:

- the methods
- and tools

to monitor and control urban sprawl?

Is REFINA bringing answers suitable in Polish conditions?

Bundesministerium für Bildung und Forschung

REFINA

Structure of the REFINA workshop

- Welcoming speech and the introduction to the REFINA research program by *Maike Hauschild, Project Management Juelich (PtJ)*
- Session 1
  Planning instruments and urban policies of Poland and Germany concerning land consumption and suburbanization
- Session 2 – 5



Moderator 2 - 5

- Conclusions and Closing Remarks (round table of Moderators 1 - 5)

Thank you
for your attention

and

wish you a fruitful meeting

Karolina Krośnicka
e-mail: krokar@am.gdynia.pl

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"Research and model projects on suburbanization and land consumption",
November 6 and 7, 2009, Gdansk (Poland)



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