

Transport and Land Use Planning: the example of Tri-City (Gdansk, Sopot, Gdynia) area

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Abstract - The Institute of Environmental Protection in 2002 joined the 5th FP TRANSPLUS Project. The target of the TRANSPLUS Project is to develop planning tools and best practices aimed at managing future transport demand through integrated land-use and transport planning, reducing individual motorised vehicle movements and encouraging greater use of collective and other sustainable transport modes. The Institute of Environmental Protection in the Project is responsible for the analysis of Tri-City (Gdansk, Gdynia, Sopot) Case Study. The paper presents in a very shortened form the results of the work concerning the Case Study analysis, which has been done up to the present, including following main elements: general information on Tri-City area, identification and assessment of problems, the context of the spatial and transport policies of the cities, spatial and transport policies in Tri-City area, implementation programmes and projects in Tri-City area, tools and processes supporting policies and projects, barriers in planning and implementation, conclusions.

1. Introduction

The Institute of Environmental Protection (Instytut Ochrony Środowiska) in Warsaw, together with four other partners from Poland, Slovakia, Romania and Malta, has joined the running 5th FP TRANSPLUS (TRANSPort Planning, Land Use and Sustainability) Project in the year 2002. The Project is running from 2000 and will be finished in 2003.

The target of the TRANSPLUS Project is to develop planning tools and best practices aimed at managing future transport demand through integrated land-use and transport planning, reducing individual motorised vehicle movements and encouraging greater use of collective and other sustainable transport modes.

The TRANSPLUS Project embraces six workpackages:

- WP1: System analysis of trends and strategies,
- WP2: Assessment of integrated land-use and transport planning strategies,
- WP3: Assessment of implementation strategies,
- WP4: Analysis of barriers, potential solutions and their transferability,
- WP5: Information, communication, participation - promoting the integration of citizens and stakeholders in urban decision making,
- WP6: Networking and dissemination.

The partners from Newly Accession States (NAS), who joined the Project, will realise tasks included in workpackages WP2, WP3, WP4, WP5 and WP6.

Each partner is responsible for analysis of a city case study. The Institute of Environmental Protection is responsible for the analysis of Tri-City (Gdansk, Gdynia, Sopot) Case Study. Selected, more detailed analysis concerns only the City of Gdynia.

Until now the works concentrated on the Case Study Report, embracing appropriate tasks of workpackages WP2/WP3 (also initial elements of WP4 and WP5).

The following paper presents in a very shortened form the results of the work concerning the Tri-City Case Study, which has been done up to the present.

2. Tri-City - general information

2.1 Location, spatial structure

Tri-City, consisting of cities: Gdansk, Gdynia and Sopot, is the centre of a big area with various functional, spatial, economic, demographic and social relations. Gdansk is the capital of Pomeranian Region (*Voivodship*) and the largest city of the growing sub-regional settlement system with metropolitan area features. Administrative, economic and transport activities of the Region are concentrated in Tri-City area.

Tri-City (Gdansk, Gdynia, Sopot) together with surrounding 4 cities (Rumia, Reda, Wejherowo, Pruszcz Gdanski) and 10 communes (Wejherowo, Luzino, Kosakowo, Szemud, Przodkowo, Zukowo, Kolbudy, Pruszcz Gdanski, Pszczolki, Cedry Wielkie,) create the Tri-City agglomeration. The cities of the agglomeration form a linear spatial structure, connected with two main roads and a railway line strip.

The Tri-City is located in Northern Poland, on the Baltic Sea (Gulf of Gdansk) coast. The main elements of the natural environment, which determine the Tri-City agglomeration's spatial development, are:

- the coastal strip (the beach, the sand-dune bank, cliffs),
- the outlet part of Vistula River with its plain delta area,
- the Kashubian and Reda-Leba Rivers Ancient Valleys,
- seaside lowland areas and morainal heights ("clumps"),
- the morainal high plain of Kashubian Lakeland (plateau and escarpment zone, cut by numerous stream and dry valleys; altitudes exceeding 150 m),
- big forest areas, especially the Tri-City Landscape Park (a protected nature and landscape area, including 19.930 ha of land, of which 92% is covered by forests).

These natural conditions mainly influenced on location of the agglomeration and were the reason for the linear structure of urbanised areas, along the road and railway line on the "lower terrace". Around this main transport axis, completed in the 1950s by the urban railway SKM line, are concentrated most of the all-urban services, creating the so-called "central service belt (zone)". The "lower terrace" is already a developed land, filled with housing, service, industrial and harbour areas.

The high plain's scarp played a special role in the Tri-City's spatial development. This important natural barrier was overcome only in the end of the 1960s and in the 1970s, and from this time started the development of the agglomeration on the high plain (the "upper terrace"). In 1979 the Tri-City Landscape Park was established as a legally protected area. In 1978 the first roadway of the Tri-City By-pass Road was opened for use. The By-pass Road running through Gdynia and Gdansk administrative areas hastened development on the "upper

terrace". Along and in the surroundings of the By-pass Road developed and are still developing residential areas, big shopping and service centres (hypermarkets), smaller business premises, allotment gardens. On the "upper terrace" was also located the Tri-City international airport. Main transversal roads and streets linking the By-pass Road and areas on the "upper terrace" with the "lower terrace" have been developed or are still under development and up-grading. New built-up areas developed along and in the surroundings of some of these roads/streets. The linear structure of Tri-City area is currently extending in the direction opposite to the coast. The greater part of the "upper terrace" is still not built up and is planned as the main new development land for Gdansk and Gdynia (of course except forest areas). The general direction of the Tri-City's spatial development to the West was already planned in the 1960s-1980s (in Gdynia even during the World War II). The spatial policies and land-use plans from 1990-2002 continued this idea.

The present, main specific features of the Tri-City agglomeration are:

- spread out of urbanised areas along the coastal line and the foot of the high plain's escarpment zone (in general the northern-southern direction),
- development of almost all accessible seaside areas with diversified land relief (lowland areas, slopes and flat-tops of morainal heights),
- urban expansion of Tri-City and satellite centres on the high plain areas, surrounding the Tri-City Landscape Park (in the western direction).

Except Gdansk-South area and a part of southern Gdynia other development areas on the high plain are separated from developed land on the "lower terrace" by forest complexes of the Tri-City Landscape Park (5-6 km wide). The further development of Gdynia western and Gdansk western and southern areas will change the spatial structure of Tri-City. Finally, in general it will consist of urbanised areas divided by the great forests. The relationships between the urbanised areas, taking into account the increasing number of inhabitants of the "upper terrace", already now and even more in the future will cause increase of transport demands. In order to prevent excessive increase of car traffic it is necessary to strive after:

- better use of land on the already developed "lower terrace",
- creation of multifunctional areas (housing - working places - broad range of services) on the "upper terrace",
- development of efficient and convenient public transport connections between the "lower" and "upper terrace".

The Tri-City agglomeration is an interesting example of a linear two-pole structure, transforming now into a multi-segmental urban system (Chojnacki 2001) [1]. Its potential and importance as well as the necessity to manage the European challenges can motivate creation of a metropolitan area. Until now there are no favourable legal foundations and political / administrative conditions to organise the Tri-City metropolitan union or agreement.

Basic data concerning Tri-City area, the agglomeration, the potential metropolitan area and the Pomeranian Region are presented in Annex 1.

2.2 Tri-City - transport links

The main elements of the transport infrastructure in the Tri-City agglomeration area are:

- the road system:
 - roads of national and international importance: No.1/E-75, No.6/E-28 (the section Legowo-Gdynia as the Tri-City By-pass Road), No.7/E-77,
 - the cross-town road/street running through the cities of the agglomeration (Wejherowo-Gdansk),
 - transversal roads/streets linking the eastern part of the Tri-City agglomeration ("lower terrace") with the Tri-City By-pass Road and areas on the high plain (western areas);

- the railway system:
 - railway lines of national and international importance connecting (the most important lines: E-65 Gdynia-Warszawa, C-E 65 Gdynia-Katowice; the lines running through the cities of the agglomeration play also a role of urban and suburban lines),
 - urban/agglomeration railway (SKM) Gdansk-Gdynia-Wejherowo (separate line between Gdansk and Rumia),
 - railway lines of regional importance: Gdynia-Koscierzyna, Reda-Hel,
 - main railway junctions: Gdynia and Tczew;
- sea ports in Gdansk and Gdynia (ferry, container, ro-ro, bulk, oil and other special reloading terminals);
- international airport in Gdansk-Rebiechowo - one of the three main Polish airports (passenger terminal with capacity 500.000 passengers/year, cargo terminal).

Future development plans include building the A-1 motorway section from Gdansk to Torun, and further on to Lodz (with necessary links to Gdansk and Gdynia harbours). Under consideration are possibilities to up-grade road No.6 (“Via Hanseatica”) and No. 7 to express roads.

Within the Tri-City agglomeration area will be located the future crossing of routes of the Pan-European Transport Network - TEN/TER/TINA/Helsinki Conference Corridors [2]:

- Corridor VI: Gdynia/Gdansk - Warsaw/Lodz - Katowice - Ostrava/Bratislava,
- Corridor IA: Gdansk - Kaliningrad - Riga,
- postulated corridor: Gdansk - Warsaw - Odessa.

3. Problem identification and assessment

3.1 Spatial development - trends and current situation

In the Tri-City agglomeration a sub-urbanisation process takes place - expansion of residential areas in rural communes (Kolbudy, Pruszcz, Zukowo, Kosakowo, Luzino, Szemud, Wejherowo) and dynamic development of smaller cities (Reda, Rumia, Tczew). The population of the agglomeration’s communes is growing, except the Tri-City, which as a whole has zero balance of migration. The number of population is decreasing in Gdansk and Sopot, increasing in Gdynia. The migration growth is concentrated in a ring of communes surrounding Tri-City area (in 7 suburban communes inflow of population was twice higher than outflow and 70% of population came from cities).

Urban processes in the agglomeration create an effect of inhabitants “escape” to neighbouring rural communes and smaller cities, which is unfavourable for big cities, especially Gdansk. The communes offer extensive building areas for lower prices than in Tri-City. It is possible, that in oncoming years a dynamic development of suburbs can occur and the housing structures in Tri-City area (mainly in Gdansk) will be not filled.

In Gdansk and Gdynia new building areas (greenfield locations) are expanding on the outskirts of the towns (Gdansk-South and -West, Gdynia-West). The main function of these areas is housing (big share of one-family houses). Transport connections between new residential areas and city centres are at present mostly realised by private cars (even if PT connections exist).

Except housing, the same situation takes place in location of business activities. Enterprises, mainly for economic reasons, are moving to suburban communes.

Considerable changes in the urban spatial structure in last years resulted from location of several hypermarkets (large shopping and service centres) on non-invested areas in the western part of the Tri-City area, along the Tri-City By-pass Road. The sale offer and service manners of these objects are adapted mainly to motorised clients needs.

Following land-use trends are also observed in Tri-City area and the agglomeration:

- reduction or loss of previous functions of some industrial and railway areas located close to the city centres (e.g. part of the Gdansk shipyard, part of harbour-railway area in Gdynia) - creation of potential development areas for other functions,
- conversion of farmlands and wasteland into building grounds,
- location of leisure and “second” houses, owned by Tri-City inhabitants, in rural communes - travels to/from leisure areas are mainly realised by private cars and generate big traffic flows, especially in weekend periods.

3.2 Transport - trends and current situation

Following transport trends are observed in the Pomeranian Region and Tri-City area from the 1990s:

- rapid increase in motorisation - private car ownership/use (in Poland on average approx.70%, e.g. in Gdynia 1990 - 159 cars/1000 inh., 2000 - 301 cars/1000 inh.) and freight road transport (in Tri-City - mainly to/from harbours),
- considerable increase of traffic volume - e.g. in Gdynia in years 1993-1997 - 44-94% on main streets; in Poland and in Pomeranian Region - traffic density doubled from 1990,
- change in modal split - estimated general drop of public transport ridership in Tri-City area and agglomeration approx. 25% (approx. 60% for the urban/agglomeration railway SKM) in 10 years:

year	PT total ridership (mill. passengers/year)	in this SKM	SKM share (%)
1989	430	90	21
2000	330	35	11
2002	321,5	36,5	11,35;

according to the “Gdansk Spatial Policy” in the 1990s the share of PT dropped from 60% to approx. 40%.

Most of already developed areas in Tri-City and its surroundings are linked with public transport lines. Despite the increase of motorisation, public transport plays still an important role in the Tri-City’s transport system. At present the public transport system in Tri-City area consists of:

- urban/agglomeration railway (SKM Ltd., a company of PKP - Polish State Railways Group) - lines: 1) Gdansk-Wejherowo (from Gdansk to Rumia a separate two-track line, parallel to the long-distance rail-tracks), 2) Gdansk-Gdansk Nowy Port (from the end of 2002 Gdansk-Gdansk Brzezno),
- tram and bus routes in Gdansk (services organised and realised by the municipal budgetary unit Urban Transport Company in Gdansk),
- trolley-bus and bus routes in Gdynia (services organised by the municipal budgetary unit Urban Transport Authority in Gdynia and realised by 3 municipality owned, 2 state owned and 5 private operators - *situation in 2003*),
- trolley-bus and bus routes in Sopot (services organised and realised by above mentioned organisations in Gdansk and Gdynia).

Basic problems of public transport in Tri-City area are:

- non-integrated system (different organisations; different tickets and systems of fares for public transport in neighbouring cities, for the urban/agglomeration railway and for regional trains),
- bad condition and low ridership of the urban/agglomeration railway (SKM),
- lower speed of municipal mass transit vehicles as a result of increasing car traffic and bad condition of streets surface,
- until now no measures implemented for PT vehicles priority in traffic,
- limited funds for maintenance, modernisation and development of urban public transport.

Decrease of the urban/agglomeration railway (SKM) ridership in the last decade was result of a number of factors:

- rapid increase of car ownership and use;
- low standard, outdated design and bad condition of SKM carriages;
- low feeling of safety by SKM passengers in result of high criminality degree (in the last year the situation has been improved by better police control);
- better and more convenient municipal PT connections. The urban/agglomeration railway is mainly used for trips between the cities. Trips inside individual cities are realised in the first row by other PT modes (tram, bus, trolley-bus). There are also attractive bus connections between the cities of agglomeration (e.g. Gdynia - Sopot, Gdynia - Rumia);
- essential alterations in the labour market. In previous years the urban/agglomeration railway was carrying big amount of workers to largest industrial plants located in the neighbourhood of the SKM line (shipyards in Gdansk and Gdynia). At present the employment in these plants is much lower and other working places are dispersed in the whole Tri-City agglomeration's area and the sub-urban areas. A lot of people are working in small and one-man firms, partly located at home. New working places (e.g. hypermarkets, shopping and wholesale centres) are very often located outside the range of SKM. A relatively high unemployment also limits the amount of journeys to the work;
- the prior development of the Tri-City agglomeration in the South-North line was favourable for use of urban railway. The present and planned future spatial development of Tri-City is and will be realised mainly in the western direction, outside the current range of SKM;
- the present amount and organisation of integration nodes and P+R / B+R systems are insufficient to influence the enlargement of passengers using SKM. The nodes are mainly integrating different PT modes. The P+R / B+R systems are not developed; there are no attractive solutions stimulating these forms of journeys.

Currently some problems with proper PT connections (too few lines, too low frequency) have inhabitants of newly developing settlements, located in the western, "upper" part of Tri-City area, in the vicinity and to the West of the Tri-City By-pass Road - especially in Gdansk (connections with central areas of the town).

The main problems of the Tri-City road/street network are:

- congestion of the part of road/street sections and junctions (in peak hours), especially the cross-towns route and sections of main street links transversal to this route,
- congestion in the town centres,
- transit freight traffic on the urban street network,
- increased number of road accidents and collisions,
- lack of convenient road links to sea ports in Gdansk and Gdynia,
- insufficient street network on newly developing areas,
- unsatisfying and non-integrated traffic control system (without priorities for PT vehicles),
- parking problems, especially in the city centres.

There are paid individual parking places, marked along the streets in the centres of Gdansk and Sopot. No fees for car parking along the streets are introduced in Gdynia. Car-free areas embrace only the central part of the historic Gdansk Old City (Main Town) and the walking promenade in the central Sopot. These car-free areas exist from many years and perform important cultural and tourist functions.

Except the car-free area in the strict centre of the Gdansk Old City, most of the historic Gdansk Main Town is from many years a car-restricted area. The restriction is realised by introduction of parking fees in this area. The legal base for parking fees is the Resolution of Gdansk City Council. According to the Resolution on a delimited (and marked) area in the Gdansk Main Town parking ticket fees are obligatory. The entrance of a car to this area and next parking is possible only after purchase of a parking ticket (identify card). The main reason for introduction of these restrictions and fees was protection of the cultural heritage (historic buildings, streets etc.). At the same time there are no public transport lines in the Gdansk Main Town area.

The basic Tri-City transport data are presented in the Annex 2.

Environmental problems occurred due to changes in the field of land-use and transport in Tri-City area and its surroundings:

- Space consumption (greenfield development),
- negative impacts on nature, landscape and cultural values,
- deterioration of the values of the Tri-City Landscape Park (protected area),
- threats for groundwater basins (especially the Main Groundwater Basin No. 110) and groundwater intakes (especially in Gdansk),
- air pollution (in Tri-City area, in last 10 years emissions from industry and energy sector decreased, instead the pollution from transport is more significant),
- high road noise level (in most measurement points in Tri-City area the equivalent noise level along the streets is exceeding 70 dB),
- expansion of mentioned above negative environmental impacts on new areas - due to urban sprawl.

Main existing problems and threats for the potential Tri-City metropolitan area's development:

- No integration of local administrative units (cities, communes) activities, ensuring a harmonious development of the “metropolitan” area [3],
 - no “metropolitan” agreement and “public” partnership [3],
 - conflicts and competition between cities and communes [3].
- Lack of an integrated transport system in the area [3],
 - lack of integrated actions concerning transport system development [3],
 - non-integrated public transport system,
 - increase of transport demands caused by unreasonable development of residential and service areas [3].
- Insufficient links between the Gdansk and Gdynia harbours and the national road network [3].
- Incoherent formation of the Tri-City area's (central part's of the “metropolis”) structure in result of non-integrated spatial management [3],
 - mono-functionality of concentrated working-places areas, big housing estates and “old” residential-service urban structures [3].
- Lack of spatial order in the surroundings of the Tri-City area (sub-urban areas) [3],
 - dispersion of settlement units and services [3],

- spatial development realised mainly in the interest of landowners [3].
- Conflicts between environment protection needs and transport impact, in this transport system development, especially in planned transport corridors [3],
 - threats for the Tri-City Landscape Park rising from urban development in the Park's direct vicinity, recreation use, increasing road traffic across the Park and extension of transport infrastructure areas [3].
- Car oriented society (including most of decision-makers).

Main dilemmas for the Tri-City area, the Tri-City "metropolis" and the Pomeranian Region:

- How to restrain the urban sprawl in the conditions of market economy? [3]
- How to create a sustainable transport system in the situation of rapid individual motorisation development? [3]

4. Policy context

4.1 The national spatial planning system

Until now the basic national legal act concerning spatial development in Poland is the Spatial Development Act of 7th July 1994 (with amendments). The new Spatial Planning and Development Act was approved by the Parliament on 27th March 2003, was published on 10th May 2003 and will be put into force the 11th July 2003. The short description presented below corresponds to the Spatial Development Act of 7th July 1994.

The spatial policy of a city (commune) is formulated in the "study of conditions and directions for spatial development", approved by the city (commune) council. These policy studies are obligatory for all municipal and rural communes. The "study" should take into account provisions of the "regional (*voivodship*) development strategy", included in the "regional (*voivodship*) spatial development plan" and conditions resulting from tasks for realisation of supra-local public aims. The "study" is not a local law and is not a base for issue of decision on conditions for development and use of a property (location/development permission).

The basic tool of the spatial policy should be the local land-use plans, approved by the city (commune) council. The local land-use plans should be coherent with the spatial policy. Only the local land-use plans have legal power. Local land-use plans are usually prepared for some parts of a municipal or rural commune only when necessary. A local land-use plan is the base for issue of decision on conditions for development and use of a property (location/development permission). This decision is next a base for building permission. In the absence of a local land-use plan, under certain circumstances, the decision on "development conditions" can substitute it.

The present spatial planning system is not sufficient to fully ensure integrated and balanced planning in a city (commune). A spatial policy (study of conditions and directions for spatial development) includes guidelines for spatial development of the whole city (commune) and is a document where integration and sustainability of land-use and transport planning can be declared. However, in some cases, the spatial policies are drawn up in a very general way, which does not ensure that an integrated and sustainable approach will be implemented in practice. The practical effects of spatial management are a result of local land-use plans' regulations. Very often local land-use plans cover only small parts of a city or commune area (some of them are limited to several lots), leading to non-coherent and non-integrated spatial management.

It is expected that the new Spatial Planning and Development Act (and executive regulations related to this act) will contribute to improvement of the spatial planning system.

The most important national planning documents concerning spatial development or related to spatial development issues are:

- the National Spatial Development Policy Concept (2000),
- the Long-term Strategy for Permanent and Sustainable Development - Poland 2025 (2000),
- the Second (II) National Ecological Policy (2001).

The most important regional planning documents are:

- the Development Strategy for Pomeranian Region (2000),
- the Spatial Development Plan of Pomeranian Region (2002).

4.2 The national transport policy

There are no legal requirements for elaboration of separate transport planning documents on the city (commune) and regional levels. The national guidelines for transport system development are included in the National Transport Policy 2001-2015 document [2].

The general objective of the Policy is to achieve a balanced transport system in the technical, spatial, economic, social and environmental way. One of the sub-goals is: “decrease of the negative impact of transport on the citizens life conditions, natural and cultural environment, and finally achievement of a balanced state according to sustainable development principles”. One of the main directions of the National Transport Policy is development of public transport in cities and regions as well as creation of conditions for cycling development. The Policy shows directions for implementation of sustainable transport principles, among others:

- aiming at creation of compact, multi-functional structures in spatial planning, which is necessary to rationalise the transport needs,
- promotion of public transport, cycling and walking as well as limitation number of cars in the city centres - by appropriate land-use policy, parking policy, systems of access fares etc.

One of the possibilities to improve public transport in metropolitan areas, mentioned in the Policy, is establishment of inter-municipal (communal) unions and agreements for PT management and services.

It is also stated that the environment protection strategy against the nuisance of transport, included in the Transport Policy document, is entirely consistent with the Second (II) National Ecological Policy (approved by the Polish Parliament in 2001). Nevertheless the National Transport Policy to year 2015 do not introduce solutions radically changing the present ones. The Policy, trying to start the transformation towards a sustainable policy, in the initial phase is classified between a “definite car-oriented” and a “car-oriented” option, and next step-by-step turn to a “moderate car-oriented” option. Road infrastructure development is a priority.

5. Spatial and transport policies in Tri-City area

The municipalities of Tri-City area have following strategic planning documents, approved by the City Councils:

- studies of conditions and directions for spatial development (spatial policies) - the Cities of Gdansk, Gdynia and Sopot,
- transport policy (as a separate document) - the City of Gdynia,
- development strategies - the Cities of Gdansk, Gdynia and Sopot.

Approved spatial policy documents formulate following, basic directions (long-term visions) for spatial development of the cities:

The spatial policy of Gdansk (approved in 2001) [4]

- 1) The main direction should be filling of free areas in existing urban structures. The policy provides for considerable transformations of the Downtown, simultaneously respecting the cultural heritage of the area.
- 2) Southern and western districts of the city are main development areas for housing and services. It is assumed that over 75% of the increase of dwelling resources in Gdansk will be realised on the city's outer development areas.
- 3) The eastern part of the city should be recognised as development area for maritime economy as well as tourism and leisure functions.

The spatial policy of Gdynia (approved in 1999) [5]

The leading option of the city's spatial development is:

- 1) Intensifying or restructuring of existing developed areas, in particular the Downtown and other central areas of the city.
- 2) Urbanisation of new areas - development of western areas (Gdynia-West), requiring control by the municipality and previous investments in technical infrastructure.
- 3) Filling in developing areas in the southern-western direction inside administrative borders of the city.

The spatial policy of Sopot (approved in 2002) [6]

- 1) The city has a strongly determined spatial structure and very limited possibilities of spatial development, which can be realised almost only by filling in, transformation and revitalisation of existing developed areas.
- 2) The policy provides for changes in spatial structure of the central part of Downtown area, with development of service functions.

The cities of Gdansk and Sopot have no "transport policies" in the form of separate documents approved by the City Councils (this is not required by law). Guidelines for transport planning and transport systems development are incorporated in spatial policies and **development strategies** [7] of these towns. **The Transport Policy of Gdynia** was approved in 1998 as a voluntary act of the City [8]. The general directions for transport planning included in these documents can be recapitulated as follows:

- 1) reduction of the increase of general transport needs by:
 - stimulation the development of multi-functional areas,
 - location of concentrated housing, working places and services close to PT lines and centres,
 - stimulation the development of services (offices, banks etc.) in the way reducing mobility needs;
- 2) improvement of public transport services quality and restraint the decrease of PT share in passenger transport by:
 - general priority for public transport,
 - modernisation of public transport stock and infrastructure,
 - introducing priorities for PT vehicles in traffic;
 - improvement of the urban/agglomeration railway (SKM) system,
 - integration of public transport sub-systems in each city and creation of an integrated PT system in Tri-City area and the agglomeration,
 - development of integration/transfer (multi-modal) nodes based on railway stations and urban/agglomeration railway SKM stops; creation of P+R systems based on these nodes;

- 3) improvement of efficiency of the cities' street/road systems by:
 - up-grading and development of street and road systems,
 - limitation of transit traffic on streets crossing central parts of the cities,
 - development of parking systems / introducing parking policies;
- 4) improvement of traffic safety;
- 5) improvement of traffic management / implementation of modern traffic control systems;
- 6) facilities for pedestrians and cyclists, including development of cycleways networks;
- 7) differentiation the transport policies and car accessibility with regard to different zones of the cities;
- 8) decrease of transport's negative impact on the inhabitants' life conditions.

The spatial policies of Gdansk and Gdynia provide for development of PT rail systems in the long-term perspective:

- extension of the urban/agglomeration railway (SKM) line and development of the tram / rapid tram system in Gdansk,
- possibility of creation light railway / rapid tram lines in Gdynia, connecting the districts located in northern and western districts with the Downtown (using sections of existing railway lines).

In the spatial policies of Gdansk and Sopot parking policy solutions were proposed, aimed at limitation of accessibility to the cities' central areas. The documents introduce division of each city's area into three parking zones, with delimitation of the zones and related parking space indicators (number of parking places) for different types of new investments in the zones. In the "Transport Policy of Gdynia" document it was resolved that the policy should be diversified with regard to 3 zones, corresponding to different areas of the town. Parking indicators for the zones as well as delimitation of the zones were not introduced in the policy.

There is still no common spatial management and transport policy / strategy for the whole Tri-City area and the Tri-City agglomeration. General directions and tasks for spatial and transport system development are included in the Spatial Development Plan for Pomeranian Region (approved in 2002).

6. Implementation programmes and projects in Tri-City area

Practical activities of the cities concentrate mainly on:

6.1. Improvement of street/road system

Much is done in Tri-City area to improve the road traffic, however the scope of the works is limited by modest financial means. The main part of transport projects' financing is currently assigned to road investments. The most important projects and programmes (realised or under realisation) are:

- in Gdansk - the Slowackiego Street, the western section of the W-Z Route, the Sucharskiego Route,
- in Gdynia - the Kwiatkowskiego Route, the "Programme of Modernisation of the City's Road System 1998-2002", including among others construction of the Rozowa ("Pink") Road, reconstruction of the Janka Wisniewskiego Street and modernisation of the Swietojska Street.

6.2. Improvement of public transport

Following important projects and programmes were realised or are under implementation:

- in Gdansk - the “Urban Public Transport Project”, I stage under realisation (2000-2003), including purchase of new low-floor buses, modernisation of trams, renovation of tramway tracks, restructuring the Urban Transport Company,
- in Gdynia - new form of urban public transport organisation and management (introduced in 1992), the “Programme of Public Transport Stock Replacement” - purchase of new buses and trolley-buses (initiated in 1995), development and continuous modernisation of the trolley-bus system (building of a new line in 1996, modernisation of the contact system), construction of two new integration nodes at urban/agglomeration railway (SKM) stops (1997, 2000), construction of two new bus depots (1994, 2000).

6.3. Development of bicycle routes

Each of the cities prepared concepts or programmes for bicycle routes development: “Bicycle routes network concept in Gdansk” (2000), “Concept of the bicycle routes network in the City of Gdynia” (1996), “Bicycle routes programme in Sopot” (1996). The City of Gdansk worked out “Design standards for bicycle infrastructure”(2000). Investments are realised step-by-step. Currently the Gdansk Cycling Infrastructure and Promotion Project is realised (2001-2004), comprising design and construction works (30,7 km of cycleways and 70 km of traffic-calmed streets) as well as promotion and public participation campaign. Until now bicycle routes in Tri-City area are used mainly for recreation purposes.

6.4. Urban renewal / usage of inner city brownfield sites / compact & mixed land-use

There are special programmes and projects for revitalisation of post-industrial and harbour-railway areas located close to the city centres in Gdansk and Gdynia:

- “Gdansk Young City” Project (73 ha of post- shipyard areas),
- “Gdynia Downtown Development Zone” Programme (100-hectare site covered in a big extent with railway tracks, which qualify for reconstruction and reduction, freeing new territory destined for other uses) and “Gdynia’s Prestigious Zone (Premier Waterfront District)” Programme (embracing a part of harbour area).

They are still in the initial phase of realisation. Mixed-use development is planned on the areas. Until now the Gdynia Programmes are rather strategic visions for the areas development than realisation programmes. The Gdynia Prestigious Zone (Premier Waterfront District) Programme is partly implemented by realisation of the project concerning modernisation and development of the marina and its hinterland.

The establishment of the Pomeranian Science and Technology Park is currently realised on the area of a former bus depot near Gdynia centre.

An interesting example of a completed construction project of a multifunctional structure is the “Witawa” Family Centre, located on a compact lot in the central part of Gdynia-Witomino district (flats for over 1.400 inhabitants, service/retail and recreation area, multi-storey / underground parking space).

In the City of Sopot the “Sopot Centre” Project is under development (pre-construction phase). The project concerns realisation of a multifunctional complex of buildings, located in in the core centre of Sopot, in the area comprising the lower part of the Bohaterow Monte Cassino Street (walking promenade) and the Sopot pier. The project supplements the Programme „Revitalisation of the Sopot Historic Centre”, initiated in 1997 and planned for 10 years realisation. The Programme concerns up-grading of existing residential buildings and replacement of sub-standard buildings with new ones in a delimited area of the Sopot centre.

The described areas and structures are located near the public transport hubs. Realisation of the projects and programmes will contribute to create environments encouraging walking and cycling.

6.5. Projects on new development areas

Different housing investments (commercial projects) are realised on western and southern new development areas of Gdynia and Gdansk. Most of them are realised by private development and investment companies. The new local land-use plan for a part of the future Gdynia-West (Chwarzno-Wiczlino) district has been worked out. The planned area has a capacity of approx. 20.000 inhabitants.

7. Tools and processes supporting policies and projects

The Case Study analysed following tools and processes supporting land-use and transport policies and projects in the Tri-City area:

1) Supporting tools

- tools to monitor urban development and problems
- prediction tools and models used for policy elaboration
- tools for monitoring of policies and projects

2) Supporting processes

- processes to support policy development
- processes to include citizens / stakeholders in policy development
- processes to support individual projects

In this paper it is only possible to present selected remarks on this relatively broad issue.

7.1 Supporting tools

Following supporting tools used in the Tri-City area may be considered as interesting and innovative:

- the Municipal Geographic Information System (GIS) developed and used by the City Office of Gdansk,
- the urban traffic modelling in the City of Gdansk, realised with use of EMME/2 computer program and model, used for elaboration of the traffic prognosis for the Gdansk spatial policy and in current work of the Gdansk Development Office,
- regular surveys on the citizens' transport preferences and behaviours carried out by the Urban Transport Authority in Gdynia (in co-operation with the Gdansk University),
- the air quality monitoring network in Tri-City area, especially the network of the Foundation "Tri-City Agglomeration Regional Air Monitoring Agency" (ARMAAG).

Limited scope or lack of adequate national requirements and guidelines, and lack of money in municipal budgets are the main reasons, that monitoring of land-use and transport policies as well as investments projects implementation is currently insufficient. It concerns especially transport issues.

There is a need for monitoring and regular surveys in following fields:

- traffic flows and speeds,
- availability of parking spaces,
- vehicles entering central areas of the cities,
- transport modal share,
- car ownership (improvement of car registration system's reliability),
- accessibility surveys (accessibility by different transport modes),

- mobility surveys (number, length, time, destination of trips, special surveys on trips to work, school, shopping),
- integrated PT surveys in the Tri-City agglomeration (including urban/agglomeration railway SKM and number of installations for PT priority in traffic),
- cycling and walking surveys (including number of promoting installations, e.g. cycle parking facilities),
- development of multifunctional areas,
- more detailed dwelling surveys (location and structure of constructed dwellings, origin of inhabitants settled in new dwellings),
- location and area of service and retail premises,
- labour market surveys (better information on employment and working places number and location),
- visitors (tourists and others) in Tri-City area (daily amount of visitors and transport modes used by visitors),
- social acceptance of policies.

Efforts should be undertaken aimed at unification of tools and models for land-use and transport development prediction and monitoring in the Tri-City agglomeration.

“Before and after” surveys should be generally used for evaluation of projects’ implementation. It is expected that monitoring of projects’ implementation will develop, according to EU, national and regional requirements related to financing or co-financing of projects by EU and national support funds. Also other projects’ implementation, where the municipalities will benefit directly of EU co-financing (e.g. EU Framework Programmes) or other foreign co-financing, will require monitoring. As an example can be mentioned the running CIVITAS-TELLUS 5th FP sub-project concerning the Swietojanska Street in Gdynia, where a “Local Evaluation Plan” was worked out and currently is waiting for acceptance by the European Commission (as a component of the TELLUS Project Evaluation Plan).

7.2 Supporting processes

Legal requirements and the planning system

Integration of spatial development planning and transport planning is not required in a full extent by the national law. Transportation assessments are obligatory only for local land-use plans including areas for location of big retail premises (hypermarkets etc.). There are no legal requirements stimulating decrease of transport demands on planned areas (*according the legal status before putting the new Spatial Planning and Development Act into force*).

The municipalities’ attitude towards integration between land-use and transport planning

At present there are no legal obligations for elaboration of municipal or regional transport policies, strategies or plans (as separate planning documents). Two ways of transport policy formulation are used in the towns of Tri-City area (as well as in other Polish cities):

- formulation the transport policy as a separate document, approved by the City Council, and also incorporation of transport policy (in more or less detailed and altered form) into the city’s spatial policy and development strategy documents (in Gdynia),
- formulation of the transport policy within the city’s spatial policy and development strategy documents (in Gdansk, Sopot).

By these means the cities strive for integration of land-use and transport planning.

Processes to include citizens / stakeholders in policy development

The most interesting example of a public participation procedure in the Tri-City area is the Local Agenda 21 process in Gdansk, started already in 1990.

Broad public discussions were related to formulation of development strategies - for the towns of Tri-City area and the Pomeranian Region. In Sopot the strategic plan has become the LA21 Action Plan.

Social acceptance of policies and monitoring of social acceptance

Policies aimed at sustainable development in Tri-City area and Pomeranian Region are in general well received amongst citizens and stakeholders. But when it comes to detailed implementation solutions, there are objections mainly from politicians, city officers and journalists, sometimes citizens too. Most objections are against restrictions and limitations of free car traffic (even parking fees).

However, there are some interesting exceptions. According to the Urban Transport Authority's social survey from year 2000, 75% of Gdynia inhabitants supported the idea to introduce priority for PT vehicles on 3-lanes roads (only on these roads). In Gdansk the city authorities and responsible officers started to support the idea of introducing priorities for PT vehicles in traffic, but it was criticised in the most popular regional newspaper.

The survey on the citizens' transport preferences and behaviours carried out by the Urban Transport Authority in Gdynia (2000) included also opinions on possible restrictions for private car users [9]. The inhabitants' answers are presented in the table below:

Proposed measure	For (%)	Against (%)	No opinion (%)
Bans on car parking in the city centre	35,2	47,5	17,3
Limitations in car traffic in the city centre	56,6	30,9	12,5
Car entrance fees to the city centre	10,7	77,1	12,2
Walking zones in the city centre	78,0	14,2	7,8

Currently there are no special monitoring procedures to observe and measure social acceptance of land-use and transport policies.

Information and communication campaigns

The City of Gdansk is at present involved as a "follower city" in the 5th Framework Programme's project TAPESTRY - Travel Awareness Publicity and Education Supporting a Sustainable Transport Strategy in Europe, together with other follower cities and 26 project partners. The City of Gdansk is interested to exchange ideas and experiences concerning possible campaigns supporting the city aims for increase the modal share of public transport and cycling.

Part of the Gdansk Cycling Infrastructure and Promotion Project's (2001-2004) budget will be used on promotion and public participation campaign, implemented by the NGOs. The campaign is planned to reach 80% of the city's inhabitants and to convince people to use newly built cycling infrastructure.

The CIVITAS-TELLUS sub-project, realised at present in Gdynia (2002-2006), will also include a promotional campaign encouraging the use of PT and bicycles.

Generally, notwithstanding the presented cases, the citizens' involvement in planning / implementation processes is not satisfactory. There is still much to do in this field.

Co-ordination of implementation actions

In contrary to relatively well co-ordinated and consistent strategy and planning documents (in each individual city) there are some problems with proper co-ordination of actions aimed at policies and projects implementation. Integrated land-use and transport projects need an integrated approach and very well co-ordinated activities of different departments of the municipal offices. During collection of information to the Case Study, it was generally found that the efficiency of existing communication channels and information flows inside municipalities is a weak point in the process of policies and projects implementation. Shared responsibility for implementation actions is another factor making this process difficult.

It seems necessary to institutionally strengthen the co-ordination of integrated land-use and transport policies and projects implementation on local and regional levels. It will be very important taking into account increasing needs for realisation of such projects and expected possibilities for their financing after Poland's accession to EU.

Financial and institutional support of individual projects

The municipalities of Tri-City area and the Pomeranian Region authorities make big efforts to find financial resources for implementation of land-use and transport projects. The financing is ensured by:

- municipal budgets and issue of municipal bonds,
- bank loans and credits (the World Bank, EBRD, other banks),
- support from the Regional and National Environment Protection Funds,
- grants (e.g. the Global Environmental Fund, the 5th Framework Programme),
- EU pre-accession funds (ISPA, Phare).

It is expected to co-finance more projects by EU funds after Poland's accession to EU - structural funds, mainly European Regional Development Fund (in this Interreg and Urban programmes) and Cohesion Fund.

Some possibilities for financing land-use and transport projects are expected in Public-Private Partnership development.

A very important mechanism supporting implementation of projects should be the regional planning system. The regional authorities will support projects consistent with the regional development strategy and other regional planning documents.

8. Barriers in planning and implementation

Barriers identified in the Tri-City Case Study, visible in the planning and implementation stages, were classified according to following main groups:

- spatial
- economic and financial
- legal/regulatory
- institutional and organisational
- social and cultural

The most important are:

Spatial

- Spatial planning in the Tri-City area is strongly determined by natural conditions - location on the Gulf of Gdansk coast, very diverse topographic features (significant

altitude differences on short distances, very different landforms on a relatively small area), big forest areas inside administrative borders of the cities.

Economic and financial

- In the current situation most of investors are looking for immediate economic benefits. The pressure from investors on local authorities and planners results in short-sighted and fragmentary planning.
- Limited financing influence the scope and quality of spatial planning (this problem especially concerns local land-use plans).
- Limited financial resources on the national, regional and local level is the most important barrier, which hinder implementation actions (however it happens that funds are given for projects which are not necessary in the first row).
- Lack of money on the local level has a negative influence on:
 - implementation of integrated policies as well as infrastructural and “soft” projects,
 - municipal support to public transport (investments, maintenance of PT infrastructure and stock, subsidies to PT operation and fares),
 - monitoring/review of implemented policies and projects.
- Reduction of municipal subsidies and increasing costs of PT tickets, discouraging the clients, can be one of barriers hindering realisation of projects concerning PT development and promotion (economic and social barrier).

Legal/regulatory

- The present legislation is not sufficient to guarantee integrated land-use and transport planning and to ensure institutional co-operation in the field of spatial and transport planning in the Tri-City area.
- The legislation on revenues of self-governmental units is not satisfactory to ensure the level of financing corresponding to the needs of cities, related to their competencies (especially big cities).
- The legal limitations are a barrier for development of Public-Private Partnerships for implementation actions (some legal acts, currently being in force, are inconsistent with the Public-Private Partnership model).
- Currently in Poland the general problem is unstable law and low quality of many legal acts.

Institutional and organisational

- Land ownership matters and the market have big influence on practical planning decisions (local land-use plans). Most of the land on new development areas is private property. Often a planned area consists of big amount of private lots. The landowners usually strive for use of their land mainly for housing, according to dominating market needs. The cities have very limited or no financial resources to purchase land for other use (services and other working places, public aims etc.). This is an important barrier for planning of multifunctional areas on new development areas and general for reasonable spatial planning.
- On already developed areas, including central parts of the towns, unregulated and unfavourable property matters (e.g. harbour or railway areas, unclear land titles etc.) are one of the barriers hindering reasonable planning.
- Weak co-operation and integration of activities between cities of Tri-City area as well as competition for financing of projects.

Social and cultural

- There are often protests from the public, not always right, to presented drafts of local land-use plans. In general it unnecessarily hinders the planning processes and next the plans’

realisation. But of course it should be also mentioned that some protests were reasonable and stopped realisation of wrong plans.

- One of barriers for implementation of integrated policies and projects, especially concerning private car restriction measures, are car oriented decision-makers, journalists and society as well as very powerful lobby of automotive industry and road building. Most of car owners are against bans on car parking in the city centre, car entrance fees to the city centre, parking fees etc. Independently from the political option (the right and left wing) and level most of the politicians and decision-makers are car oriented and support in the first row development of road infrastructure. The present strong “car culture” in Poland is a reaction on many years limited access to private car and is supported by intensive car advertising and promotion in mass media.

9. Conclusions

- General objectives and directions written down in strategic planning documents of Gdansk, Gdynia and Sopot are in a considerable extent consistent with sustainable development principles and EU policies. The documents contain directives against car traffic congestion in central areas of the agglomeration and directives for public transport priority and integration as well as promotion of walking and cycling. According to the documents a leading direction of spatial development should be intensification and restructuring of already developed/urbanised areas, in particular central (downtown) areas of the cities. But the strategic planning documents for Gdansk and Gdynia include also other important directions for spatial and transport systems development, i.e.: urbanisation of new areas and development of street/road systems.
- Observations show that the political and social climate is currently most advantageous for road investments and housing investments on new development areas. This situation is unfavourable for implementation actions aimed at creation of compact urban structures and reduction of private car usage in Tri-City area.
- Following positive and interesting implementation activities of the Tri-City municipalities should be emphasized:
 - improvement of PT, especially in Gdynia,
 - development of bicycle routes, in particular in Gdansk,
 - initiation of projects and programmes concerning revitalisation and re-development of central areas in Gdansk, Gdynia and Sopot,
 - in-filling locations in existing urbanised areas.
- Until now it was impossible to implement several important measures, indicated in the strategic planning documents:
 - after many years of discussion there is still no integration of PT in Tri-City area and the agglomeration,
 - there are still no modern traffic control systems with priorities for PT vehicles,
 - the promotion of walking and cycling is insufficient (few pedestrian zones, very often lack of convenient solutions for pedestrians in investment projects, lack of complex solutions for development of the bicycle sub-system, such as secured parking sites and garages for bicycles, users-friendly regulations for bicycle transport in PT vehicles etc.),
 - there are no or insufficient car restriction measures (until now no car restrictions and parking policy in Gdynia),

- until now there are no education / information campaigns addressed to the citizens, promoting environmentally friendly and sustainable transport behaviours,
 - monitoring of spatial and transport policies as well as investments projects implementation is currently insufficient. It concerns especially transport issues. Until now it is no co-ordination and no integration of transport surveys and studies in Tri-City area.
- It is indispensable to guarantee implementation of mixed-use development on new development areas and priority for PT connections between these areas and other parts of the cities. New mono-functional (residential) areas, dependent from individual car transport, will generate new transport needs and increase of car traffic.
 - Following positive impacts are expected to be achieved by modernisation and development of the street/road systems:
 - eliminating the systems’ “bottle-necks”,
 - taking the transit traffic from the central parts of the cities and eliminating or reducing this traffic in residential districts,
 - ensuring better accessibility to the ports.
 - Without implementing priorities for PT vehicles in traffic, car access restrictions/regulations and parking policies, the better street/road systems may encourage to more intensive use of private cars. New or improved roads may create environmental conflicts, e.g.:
 - the Kwiatkowskiego Route, the Leborska Route, the Slowackiego Street, the Nowa Spacerowa Street - conflicts with protection needs of the Tri-City Landscape Park,
 - the “Green Road” in Gdansk - conflict with protection needs of groundwater intakes,
 - the “Red Road” (Northern By-pass Road) Gdynia-Rumia-Reda - conflict with protection needs of the Main Groundwater Basin No. 110.
 - It is still no integrated and coherent spatial and transport policy for Tri-City area and the agglomeration as well as co-ordinated implementation actions in this field (e.g.: competitive development activities of the Ports of Gdansk and Gdynia, in a smaller scale - the sports/show-halls in Gdansk/Sopot and Gdynia). The local political conditions were unfavourable for implementation of such policy. It is a hope that the newly established Metropolitan Council of the Gulf of Gdansk will be a body, which may improve the situation. The Council was established in April 2003 and consists of the Marshall of the Pomeranian Region, the Presidents of Gdansk, Gdynia, Sopot and Wejherowo, the Mayors of Pruszcz Gdanski, Reda, Rumia and Zukowo, the Heads of Kolbudy Gorne and Kosakowo Communes.

10. References

- [1] CHOJNACKI M.: *Gdański Obszar Metropolitalny - Problemy i trudności kształtowania się zespołu metropolitalnego*; in: *Województwa nadmorskie w inicjatywie wspólnotowej Interreg* (edited by W. Szydarowski), Gdansk: 2001.
- [2] *The National Transport Policy 2001-2015 (Polityka transportowa państwa na lata 2001-2015 dla zrównoważonego rozwoju kraju)*, Ministry of Transport and Maritime Economy, Warsaw: 2001.
- [3] *Plan Zagospodarowania Przestrzennego Województwa Pomorskiego*, Gdansk: (2002).
- [4] *Studium uwarunkowań i kierunków zagospodarowania przestrzennego miasta Gdańska*, Resolution of the Gdansk City Council of 20.12.2001.
- [5] *Studium uwarunkowań i kierunków zagospodarowania przestrzennego miasta Gdyni*, Resolution of the Gdynia City Council of 24.11.1999.

- [6] *Studium uwarunkowań i kierunków zagospodarowania przestrzennego miasta Sopotu*, Resolution of the Sopot City council of 04.10.2002.
- [7] *Strategia rozwoju Gdańska do roku 2010*, Resolution of the Gdansk City Council of 17.06.1998; *Zaktualizowana strategia rozwoju Gdańska do roku 2010*, Draft 2002; *Plan strategiczny miasta Sopotu*, Sopot 2002, Resolutions of the Sopot City Council of 25.04.1996 and 21.06.2002 (updating).
- [8] *Polityka transportowa miasta Gdyni*, Resolution of the Gdynia City Council of 25.02.1998.
- [9] WYSZOMIRSKI O., SMIRNOW R.: *Preferencje i zachowania komunikacyjne mieszkańców Gdyni w 2000 roku*; in: *Biuletyn Komunikacji Miejskiej*, Nr 60.

Annex 1: Tri-City area and the cities against the background of Poland, Pomeranian Region (*Voivodship*), potential Tri-City metropolitan area and the Tri-City agglomeration (in year 2000, except indicated cases)

Parameter / indicator	Poland	Pomeranian Region (<i>Voivodship</i>)	Potential Tri-City metropolitan area *	Tri-City agglomeration	The agglomeration - area outside Tri-City	Tri-City area	City of Gdansk	City of Gdynia	City of Sopot
Population (x1000)	38644,2	2198,3	1327,3	990,1	236,3	753,8	456,6	255,4	41,8
Population increase / decrease in years 1990-2000 (%)	+1,4	+3,7	+3,6	-0,4	+17,2	-1,2	-1,8	+1,6	-10,5
Average migration balance per 10000 population (data from 1998-2000)	-4	+3	+12	+17	+70	0	-15	+30	-34
Area (km ²)	312690	18293	5537	1516	1101	415	262	136	17
Population/km ²	124	120	240	653	217	1817	1742	1885	2416
Share of built-up and urbanised areas (%)						31,3	31,4	30,0	38,9
Average usable dwelling space (m ²) per inhabitant	19,0	17,7	18,1	18,7	17,8	20,3	19,1	19,4	23,6
Passenger car ownership (cars/1000 inhabitants) **	258	284				336	341	301	505

Remarks:

According to data from: Central Statistical Office, Regional Statistical Office in Gdansk, City Offices (Gdansk, Gdynia), spatial policy documents (Gdansk, Sopot)

* Potential Tri-City metropolitan area - delimited by the Union of Polish Metropolises (source: spatial policy of Gdansk, 2001)

** According to data from Central Statistical Office and Regional Statistical Office in Gdansk - number of passenger cars registered by municipalities and population in year 2000. According to Gdansk spatial policy document (2001) and Sopot spatial policy document (2002) passenger car ownership in Gdansk was estimated on the level 280-300 cars/1000 inh., in Sopot - 450 cars/1000 inh.

Annex 2: Tri-City basic transport data

General data

Number of trips/capita/day:

- Gdansk - 1,77 (1998) - motorised trips only
- Gdynia - 1,76 (2000) - motorised trips and other modes longer than 1km
- Sopot - 1,77 (2001) - motorised trips and other modes longer than 1km

Average private car occupancy (in Tri-City area) - 1,66

Modal split (%):

Gdansk (1998)

- PT rail and road 39,9 (SKM, tram, bus, taxi)
- cars 33,4
- bicycles 1,4
- on foot 23,7
- others 1,6

Gdynia (1997)

- PT rail and road 50 (SKM, trolley-bus, bus, taxi)
- cars 28
- bicycles 1
- on foot 20
- others 1

Gdynia (2000) - only non-pedestrian trips

- PT rail and road 64,0 (SKM, trolley-bus, bus)
- cars 35,5
- others 0,5

Sopot (2001) - only non-pedestrian trips

- PT rail and road 46,92 (SKM, trolley-bus, bus)
- PT + cars (P+R) 0,44
- cars 50,00
- others 2,64

Comment - it is no co-ordination and no integration in studies of existing travel behaviours in Tri-City area

Public transport data

PT ridership (mill. pass./year) in 2002:

- the Urban Transport Company in Gdansk service area 172,5
- the Urban Transport Authority in Gdynia service area 112,5
- urban/agglomeration railway (SKM) in service area 36,5
- Total 321,5

PT vehicle-km in 2002 (mill. v-km/year - SKM excluded):

- the Urban Transport Company in Gdansk service area 28,3
- the Urban Transport Authority in Gdynia service area 19,6
- the City of Gdynia area 17,1

Average PT journey length:

- Gdansk (1998) - 6,3 km
- Gdynia and Sopot - data not available
- by urban railway (SKM) in the agglomeration (2002) - 19,2 km (*on the base of sold tickets*)

Average PT journey time:

- Gdynia (2000) - 32 minutes
- Gdansk and Sopot - data not available