

# A TERRITORIAL STUDY OF A VALUATION OF NAVIGATION DEGREE DĚČÍN IN A LINK TO AREA SUSTAINABLE DEVELOPMENT Summary of study results

## part A:

An analysis of Labe river navigability  
between Ústí nad Labem and the state border  
of the Czech Republic

## part B:

A valuation of navigation degree DĚČÍN  
in the relation to area sustainable development

## **The submitter of the study:**

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Department of Land Planning and Building Regulations,  
Section of Regional Development

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# SUMMARY OF STUDY RESULTS - PARTS A, B

## Introduction

- The submitter of the study "A valuation of the navigation degree Děčín in the relation to area sustainable development" are the Department of Land Planning and Building Regulations Section of Regional Development of The Regional Office of Ústí Region. Works on the study proceeded in cooperation between the main designer of Atelier T-plan, s.r.o. (focus on territorial planning and task coordination) and the main coordinator of Hydrossoft Veleslavín, s.r.o. (focus on water management and related specialistic disciplines). Cooperation in socio-economy, nature and land protection, and other aspects were also taken care of.
- The function of the territorial study is to provide some handouts, a point of view, and a judgement of the plan from the standpoint of regional relations (affect of the navigation degree Děčín on so-called "area sustainable development" - it means from the standpoint of nice environment, togetherness of inhabitants, and economic growth.) The results of the study will also serve as a base for future update of "Development Principles of Ústí Region" or, possibly, as a base which can be used to push requests at an update of "Development Policy".
- The territorial study is one of outputs of "LABEL" project in which Ústí Region is engaged by decision of the Council of Ústí Region number 27/5Z/2009 from 22nd April 2009. The project (full name - "Labe-ELBE - An adaptation to flood chance in Labe catchment area" belongs to an operating program of multinational cooperation - Central Europe area). The study takes into account the target of the project which is to unite requests on Labe catchment area utilization with current potentials and risks and to integrate multinational requirements of territorial development on local, regional and global levels. The territorial study has also utilized outputs of SoNoRa project (North-South corridor Balt – Jadran), whose submitter is also Ústí Region.
- The processing and the contents of the territorial study "A valuation of the navigation degree Děčín in the relation to area sustainable development" is divided into two parts: A and B. Part "A" describes the current state of Labe river navigability between Ústí nad Labem, Střekov and the state border of the Czech Republic and its problems. What is documented is: area utilization limits, values and problems, intentions to make changes in the area. Part "A" also dealt with the development of views of the way of improvement of waterway conditions in the section.
- This phase is continued in Part "B" of the study "A valuation of the navigation degree Děčín in the relation to area sustainable development." Outputs of part "B" contain a brief commentary of the current state of the navigation degree Děčín preparations, which comes from the public EIA documentation and which is focused on affection the three pillars of area sustainable development: influence on territorial conditions for economic development, togetherness of inhabitants of the area, positive and nice environment. This information is supplied with study producer's own analyses and materials from territorial planning activities of Ústí Region. Finally, the study summarizes strong and weak points, development requirements and risks of the expertised aim from the point of view of particular pillars of area sustainable development and suggests an update of Development Policy "PÚR ČR" and Development Principles "ZÚR" of Ústecký Region."

## **Output documentation of the study**

- The study is documented in two complete sets of parts A and B in printed form in Czech language. As a component of the study there are actions and efforts to make the results of the work public: a summary of study results parts A and B in English language in printed form and a PowerPoint presentation in Czech and English languages. The results of the study in the same extent are also delivered in electronics form on a CD. The rules of publicity "OP" multinational cooperation - Central Europe were kept during the works on the study according to processing manual of the program.
- Note: The study producer took part of a workgroup "STRAT/ADAPT" discussion meeting within the framework of LABEL project. At the workgroup discussion meeting held on 29th July 2010 the study producer presented partial results of the study part A.

## **Selected used materials**

- SoNoRa - A study of practicability: A system of domestic waterways in Ústí Region; AZ CONZULT spol. s r.o., July 2010
- An analysis of the history of works on improvement of Labe waterway conditions between Ústí nad Labem and the state border of the Czech Republic; Waterways Directorate of the Czech Republic (Ředitelství vodních cest ČR), 2009
- Planning analytic materials of Ústí Region - An analysis of sustainable development and supplemental research and evaluation as a base material for Area Sustainable Development Analysis (RURÚ); Atelier T-plan, s.r.o. and T-mapy spol. s.r.o; 2009
- Semi-finished Development Principles of Ústí Region; Atelier T-plan, s.r.o.
- Documentation of influences on environment EIA according to § 8 Czech Law No. 100/2001 Sb.

## **PART A**

### **Description of problems**

- The improvement of waterway conditions in the critical section of Labe waterway between Ústí nad Labem and the state border of the Czech Republic is a long-term goal which is important for the whole republic especially for keeping transport connection of the Czech Republic to North Sea ports and to EU transport water network and also for usability support of the whole system of Labe - Vltava waterway. The need for a solution is also motivated by importance which is attributed to water transport for future division of tasks between transport branches. The need for an improvement of waterway conditions is emphasized by climate changes which make waterway conditions worse and according to presumptions they will increase the number of unnavigable periods with low water levels in Labe.
- Materials targeted on transport confirm the need of improvement of waterway conditions on Labe in the investigated section in which the waterway conditions are basically limited

during the year. About 40 km long section between the last weir and chamber lock built named Střekov and the state border of the Czech Republic is the weakest section of Labe waterway fully dependent on natural conditions of the river and on climatic conditions. The full navigability in this section is between 100 - 155 days yearly and a partial navigability is about 200 days yearly in average.

- The improvement of waterway conditions in the section is of the main importance for the usage possibility of the whole system of historical waterways in the Czech Republic (Labe and Vltava waterways - about 310 km in a sum) and for the connection to European waterways included the access to sea-ports Hamburg, Bremen, Lübeck, Rotterdam, Antwerpen.
- The improvement of waterway conditions is also important for keeping the waterway to be a part of the IV. Transeuropean Multimodal Transport Corridor and keeping the waterway system running as an alternative to truck traffic with an assumption of this transport branch connection into a logistic reform. The target is to gradually convert mass volumes of goods transport from truck transport to railway transport and water transport.
- The volume of goods per year in the IV. Transeuropean Transport corridor is about 22 million tons (czech import, export and transit) – 12 million tons by railway, 9.5 million tons on the roads and 0.5 million tons by Labe waterway. The railway "I. transit railway corridor" was evaluated as insufficient in a medium-term horizon in 2008 (before crisis) (it must work with reserves, it must absorb intensive interval passenger transport between towns), the same applies to German railways in a section near North Sea ports. Conversely, the waterway capacity near Hamburg is partly utilized and has necessary reserves.
- Making waterway conditions better is limited by nature and land protection. The affected area is located in about 40 km long free fast flowing downstream Labe river section. For its natural variability and uniqueness the area is a part of the Protected Landscape Areas (CHKO) České středohoří and Labské pískovce and NATURA 2000. Very near the site there is a Nature reserve "Labe Canyon" B. on the right Labe riverside. There is also a track of non-regional biocorridor which goes through the area, and there are other elements of Territorial System of Ecological Stability (ÚSES) located here.

# CONNECTION OF THE CZECH REPUBLIC ONTO EUROPEAN RIVER AND OVERSEAS TRANSPORT WAYS



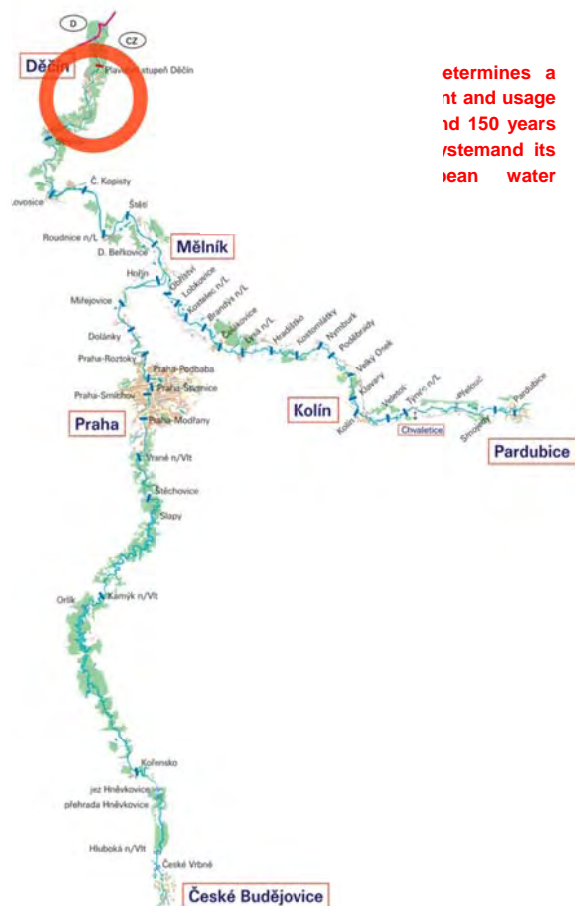
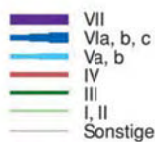
Labe waterway has the following categorisation:

Middle Labe from Přelouč to Mělník - class IV

Section from Mělník to Wittenberge - class Va

Section from Wittenberge to North Sea entry - class Vb

## UN/ECE-Klassen



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Labe Navigation in section Ústí nad Labem – State border Czech Republic

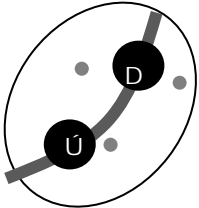




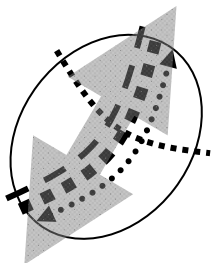
## Schema - values and characteristics of the area



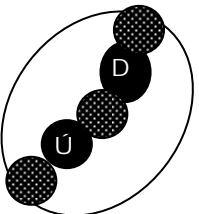
The main object in the area is Labe river corridor. The land is simultaneously natural as well as cultivated and civilized (like middle Rhine, for example), the corridor values and values of surrounding areas are protected by various forms of nature and land measures - Protected Landscape Areas (CHKO) České středohoří and Labské pískovce National park "České Švýcarsko", NATURA 2000, Territorial System of Ecological Stability (ÚSES), small protected areas.



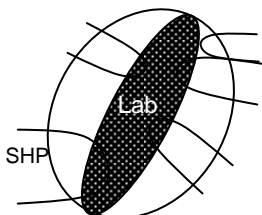
The area is the environment for 188000 people in towns and villages, it contains a regional centre - the regional capital Ústí nad Labem, a regional centre - the town of Děčín, a subregional centre Velké Březno, and small towns Benešov nad Ploučnicí, Libouchec, and more.



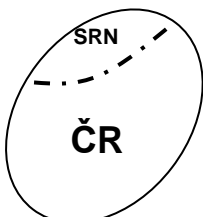
The area is crosscut by IV. European Multimodal Transport Corridor which contains highway D8, I. Transit Railway Corridor and the Labe waterway (possibly High-Speed Track (VRT) in the future); there is also a tangential corridor of the main regional road I/13 which connects the Liberec region. The area is a part of a development axis and development area of national importance Development Policy (PÚR) and regional importance Development Principles of Ústí Region (ZÚR ÚK).



The area of Labe corridor and its surroundings is characterized by a balance between nature and urbanised land. The rhythm is as follows: the land from the area being examined to Střekov weir - the area of the town of Ústí nad Labem and suburbs - intermediate towns separating area between Malé Březno and Těchlovice - the area of the town of Děčín and suburbs - Labe canyon between Děčín Loubí and the state border of the Czech Republic.



Labe corridor opens into neighbour areas - in Ústí nad Labem into North Bohemian Brown Coal Basin (Severočeská hnědouhelná pánev) (whose part is a recultivated Chabařovice mine), furthermore it opens into communication, living and beautiful adjacent valleys: on the right side of Labe it opens into Luční stream valley between Velké and Malé Březno (it includes Velké Březno castle, historical museum railway, outdoor museum of folk architecture Zubrnice); it opens into valleys of Ploučnice and Kamenice rivers; on the left side of Labe it opens into Jílovský stream valley.



The value of the territory is in its geopolitical location - border relations with Germany. There are existing cooperative relations (and maybe future relations) with German towns near the border, like Dresden, etc.



## Development of points of view at waterway conditions improvement on downstream Labe

- The efforts to improve the waterway conditions on downstream Labe have a difficult more than 100 years long history. But there are only a few most important steps which were undertaken during the past in the summary of the study results just for one's orientation.
  - The section Ústí nad Labem - state border of the Czech Republic with Germany was regulated and adjusted during 1870 – 1890; in 1895 Labe and Vltava "canalization project approval".
  - The last sluice Střekov was built in 1936. Subsequent project and preparative works were interrupted by the Second World War.
  - Studies worked-up during 1960 - 1980 led to stabilization on high navigation energetic degrees Malé Březno (82 km) and Dolní Žleb (103 km) – it was even evaluated to build a pumped-storage reservoir on a place where there is enough water-power to build a water powerstation. This was included into General water-management plan (Směrný vodohospodářský plán).
  - 1992 to 1993 - keeping the aims of high navigation energetic degrees Malé Březno (82 km) and Dolní Žleb (103 km), the parameters are comparable with the Střekov waterwork, a water powerstation of 40 MW installed power is a part of each. Two comparative studies were considered simultaneously: three navigation degrees or five navigation degrees.
  - Many examining works proceeded during 1990 - 2000. The works examined location, number, size, and building-up phasing of possible navigation degrees and additional river adjustments. Exploration and expertise works on necessary nature and land protection proceeded paralelly. Even experimental project were worked-out ("by-passes" and low steps). But objections and disagreement of opponents (mainly nature protectors) still remains.
  - 2005 - Government ČR resolution 337/2005 narrowing the improvement of waterway conditions into the section Boletice – the state border of the Czech Republic/Germany by building the navigation degree Děčín.
  - On 24th August 2010 The EIA documentation of The Project "The Navigation Degree Děčín" was supplied to the Ministry of the Environment (WELL Consulting s.r.o.; HBH Projekt spol. s r.o.).
  - On 13th October 2010 The Council of Ústí Region agrees with the supplied EIA documentation and with the realization of recommended variant "1B".
  - November 2010 - the press and other news-media inform about Sachsen Ministry of the Environment objections to The Project "The Navigation Degree Děčín".

## DOWNSTREAM LABE, PROBLEMS OF WATERWAY CONDITIONS - MILESTONES IN DEVELOPMENT, SELECTED DEVELOPMENT TRENDS

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**Projects:** 1 - project of Labe canalization (1895); 2 - plans to build waterworks "Dolní Žleb" and "Malé Březno" (1970's and 1980's); 3 – correction of the construction plan I. phase Malé Březno, II. phase Prostřední Žleb (1990's); 4 – correction of the construction plan to only one proposed building: "Navigation Degree Děčín" (2005); 5 – worked-out EIA review of the navigation degree Děčín (2010).

**Constructions:** 1 - regulative adjustments of Labe flow (1895); 2 - building of Střekov sluice (1936).

**Standpoints of neighbouring country:** 1 - acceptance of the aim, moral and material support of the aims during 1960's - 1980's; 2 - change of the standpoint, mainly after evaluation of causes and impacts of the floods in 2002; 3 - objections and doubts about the aim, threat of a lawsuit to solve conflict points (2010).

## PART B

### Current state of the navigation degree Děčín preparations

- Under the influence of strengthening ecological consciousness and under the pressure of nature protectors initiatives the aim to improve waterway conditions in the critical section was revised several times. The problem solving is now focusing on a review and pushing ahead only one construction: "The Navigation Degree Děčín". The state of preparations of the aim is on an advanced level, the EIA documentation was supplied to the Ministry of the Environment in August 2010 (the data is public on: [www.rvccr.cz](http://www.rvccr.cz)).
- The improvement of waterway conditions was limited into the waterway section from about 90 waterway km near Boletice to the state border of the Czech Republic/Germany by The Government ČR Resolution No. 337/2005. The project proposes building the navigation degree Děčín, which consists from the sluice chamber and a water powerstation, which will guarantee necessary navigation draft against the riverflow in length of about 9 km up to Děčín - Boletice. The project also proposes adjustments of the river channel under the navigation degree down to Dolní Žleb in the length of approx. 6 km. In the remaining section under Dolní Žleb down to Hřensko the requested navigation parameters are already fulfilled and that's why no adjustments are proposed here. The target is to improve navigation conditions in this section of Labe and to ensure the navigation water-depth of 140 cm for at least 345 days per average-water year and 220 cm for 180 days per year, in accordance with navigation conditions in the following-up Labe section to Magdeburg.
- The realization of this aim will positively affect navigation conditions in ports and places of reloading in Děčín and at the construction dock Křešice.
- The area of proposed building is located mostly in Labe's own river channel, only at the construction site of the navigation degree it takes the adjacent floodable zone (inundated area) with a minimal impact on agricultural land.
- The current Labe waterway leads through the Protected Landscape Areas (CHKO) České středohoří and Labské pískovce in this section but the compactness (narrowness) of Labe valley and the presence of parallel routes and railways suggests minimal impacts on the environment. The calculations prove that the proposed future swollen river level will reach only the level height which occurs every year during raised river flows.
- A minor target of the project is the usage of the hydro-energetic Labe waterflow potential in the section by building a small water powerstation of 7.9 MW installed output power.
- An important effect of the project is a complex revitalisation of the Labe river waterflow, a rehabilitation of the river banks is a part, and also an enlargement of Střekov sluice migration transmittance. Possible rehabilitation river bank repairs will decrease negative impacts on the water community and an impact of historical continuous Labe river-flow regulation.
- The area of proposed construction is mostly in Labe's own river channel, only at the construction site of the navigation degree itself it takes the adjacent zone. The navigation degree placement is influenced by antagonistic requirements to move it from ecologically valuable areas north of Děčín towards the town or, on the contrary, by the narrow character of the Labe valley north of Děčín with a railway, a road, and a follow-up port and living quarters of Děčín. The chosen location on 98.88 waterway km is on the border

with Děčín living quarters and it simultaneously allows to build all necessary waterwork objects in available width of the valley.

- Total planned investment spending is 4.9 milliard Kč (building, machinery, equipment, projects, buying of land, technical supervision, VAT). Total planned operating costs (maintenance, repairs, overhead) are 18.6 million Kč per year. Externalities - savings: savings on water transport implementation, climate protection, traffic accident decrease, road-damage and infra-structure-damage elimination, emission and noise decrease, employment increase - directly and indirectly, people's recreation - holiday, etc. With positive calculations verification calculations were also made: economic rate of return ("ERR").
- It is supposed that the navigation degree Děčín construction will change navigation conditions by increasing the tonnage of vessels and by increasing the number of navigability days. The capacity of Střekov – Hřensko section is theoretically 50 vessels daily, practically 20 vessels daily.
- According to submitted analyses and supporting materials a territorial technical solution was achieved which is more sensitive to nature and landscape than the previous solution. Nevertheless, it is not possible to exclude harmful impacts, but they are reduced by many compensations and by some nature revitalisation measures. As it results from the EIA supplement, the building has no negative impacts on the river-flow in Germany. Positive affects of the planned navigation degree Děčín apply to water-transport in national and regional extents, energetics, employment, recreation and traveling, environment improvements in urbanized river area in Děčín and flood-control measures strengthening.
- But the aim to build the navigation degree Děčín still has its opponents. Part of the public and especially part of nature protection experts still denies the building for ecological reasons. Another part of expert public expresses doubts concerning insufficient usage of the investment and insufficient interest in water goods-transport. In a few recent years Sachsen in Germany express some criticism to the navigation degree Děčín building as well.



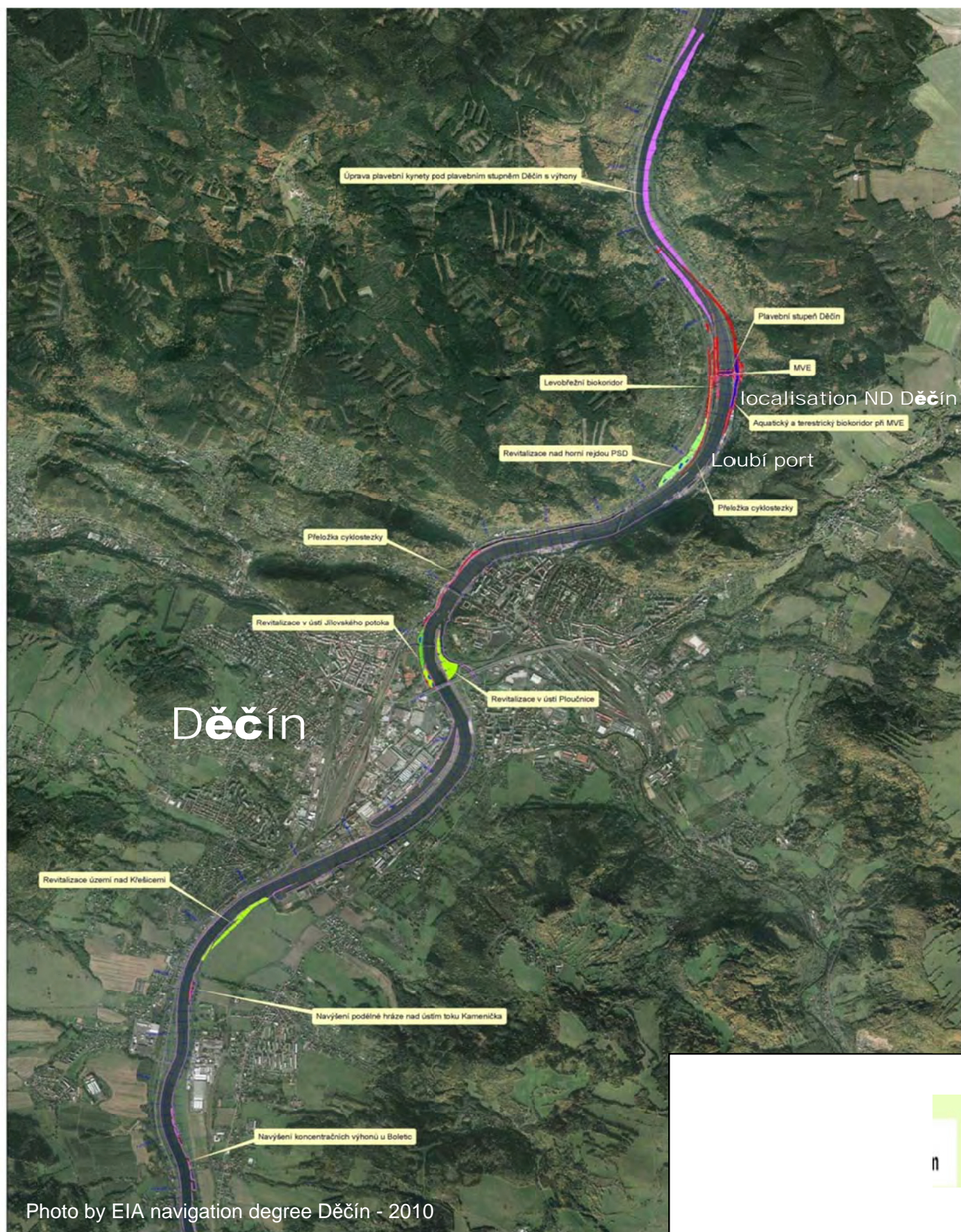
## CURRENT SITUATION OF THE LABE SECTION AND VISUALISATION OF THE NAVIGATION DEGREE DĚČÍN



Photo by EIA navigation degree Děčín - 2010



## SPACE RELATIONS OF THE LOCALISATION OF THE NAVIGATION DEGREE DĚČÍN



## **Reducing and revitalisation measures of the navigation degree Děčín**

- It is not possible to exclude harmful impacts on nature, the riverflow is an important ecosystem of European importance Territorial System of Ecological Stability (ÚSES), NATURA 2000, Protected Landscape Area (CHKO) České středohoří, Labské pískovce - it is the last area of free flowing river (without weirs, sluices) total length of 320 km from Ústí nad Labem to Magdeburg - there are many rare plants and creatures - strapwords, beavers, otters, salmon.
- Based on cooperation with biology experts the navigation degree (in current variant) is extended with a 30 m wide fish sluice (corridor) on the right bank and a 30 m wide land migration zone on the left bank. This enables the way for animals and fish to pass through, so the barrirer effect is minimized. There are more reducing measures shown in the map documentation.
- Adjustments (especially under the navigation degree) represent a very complicated task from the ecological point of view. The original aim to simply deep the ground would lead to drope in water level in the river and was not accepted. At present a solution with stone "barrage" repeated many times is being considered, which would centralize the river-flow and ensure the required waterway conditions and allow to partly revitalize existing hard-fortified river banks and improve ecological state of the river.
- Landscape impact assessment of the Navigation Degree Děčín - little negative. The proposed building is assessed as tolerable intervention into the landscape which is legally protected by the "Nature and Landscape Protection Law" (114/1992) - producer Doc. ing. arch. Ivan Vorel, CSc
- Environmental impact assessment of the Navigation Degree Děčín on NATURA 2000 - a little negative impact on natural plant posts and a little negative impact on populations of species living in "EVL" Labe valley area – AQ-Service, s.r.o. Brno, April 2010.

## **Revitalisation adjustments in Děčín**

- The navigation degree Děčín is located in the urban area in a narrow river-valley so the room for revitalization adjustments is limited. Besides small reroutings of engineering networks, a bank adjustments near Tyršův brigde on the left and right sides, with a room for walking and building a path for cyclists on the left bank it is considered to build river arms with revitalization on the left bank under the railway station "Prostřední Žleb" and near "Jílovský stream" entry and especially a complex adjustment of Ploučnice river-entry. The current plans in praparation aim to change the Ploučnice single river-entry onto "delta-entry" (two entry branches of the river channel) which besides the natural building element there used will enhance uncultivated area and will allow usage of the area as a recreation zone under the castle.



## PLOUČNICE ENTRY IN DĚČÍN - STATE AND REVITALISATION MEASURES

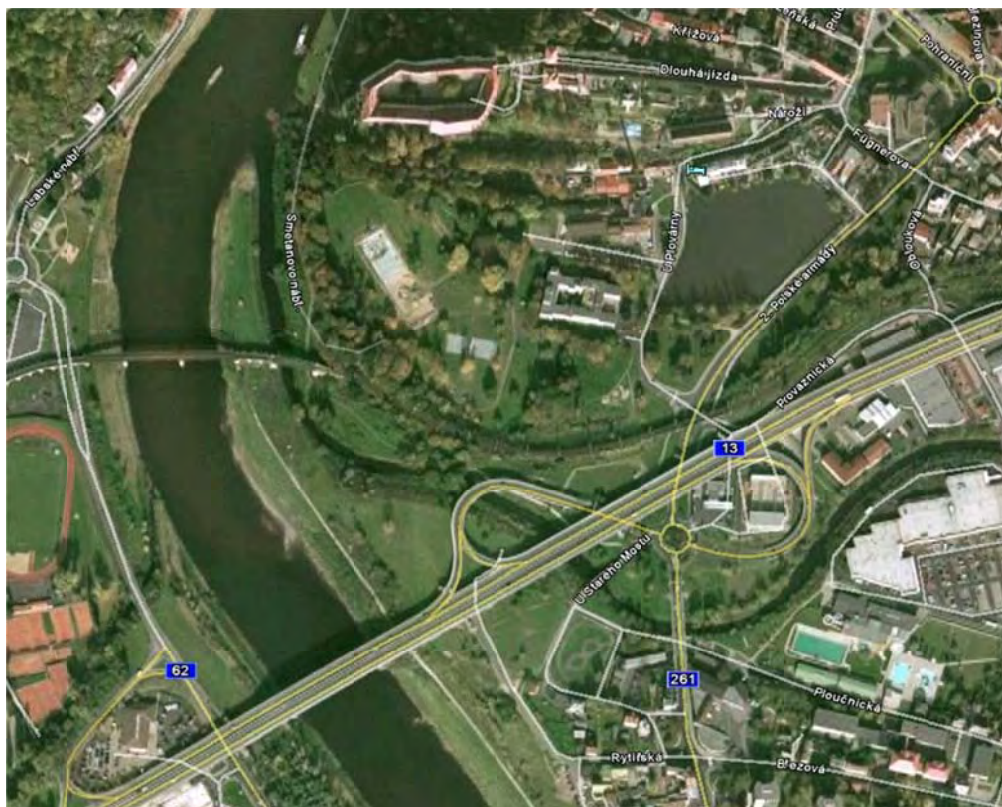


Photo by EIA navigation degree Děčín - 2010



## **Extreme water levels and the navigation degree Děčín**

- The navigation degree Děčín will have a positive effect on extreme water levels (low water flows, floods). During low water levels it will ensure stable navigation conditions - less dependent on the flow.
- In case of extremely high flows it will help to reduce floods. The Děčín navigation degree will help to raise the level of protection of inhabitants and their possessions against floods in the adjacent area. It will slightly decrease flood culmination levels due to decreased abrasiveness in the not ingrowing river channel. The stabilized level in the urban city area will protect ingrowing the river channel, forbidden wasteyards and building in the floodable zone (inundated area).
- It will have an essential importance in case of so called "winter floods" with ice-runs and ice-jams. The ice-jam can cause a backwater and floods. Proper navigation degree manipulation can break continuous ice-cover and jam and ensure transport of ice into the river section under the degree.
- The Děčín navigation degree has no accumulative volume to affect the culmination water level or to catch a part of flood volume. At about two-year recurrence flood-water the sluice is open and the flow passes through.
- Regional "blitz floods" (spates) of Ploučnice river and Jílovský stream - in case of "blitz floods", the water level in Labe will be significantly lowered by opening/lowering the sluice - this way the flood passes through the stream entry into Labe Decreasing the level will be processed the way that no vessel is put in danger. Timely warning of the stuff will be ensured by a water-measuring station information system.
- Ice-regime of Ploučnice river and Jílovský stream - possible ice-jams can be controled by decreasing the water level.
- The navigation degree Děčín partly improves navigation conditions in adjacent section Děčín – Ústí nad Labem. After its building so called "waving" will still be used. The degree will positively affect effectiveness of waving, because the section with bad navigation conditions will be shorter: from current 30 km to 18 km; so as a result the necessary wave-water-volume for navigation will be lower. This waving method cannot be used during extreme drought periods.
- During higher flows (from about two-year recurrence flood-water) the sluice is down and the flood-flow passes through. The building of the navigation degree Děčín will not worsen flood conditions down the river flow (neither it will improve flood protection of towns and villages down the river - Hřensko, Dolní Žleb). The navigation degree Děčín will not have any negative nor positive impacts on floods and their pass down the river, namely in German Labe section.

## **Navigation degree Děčín and employment**

- Direct impacts of building the navigation degree Děčín on employment are small and limited. It is supposed that local companies from Děčín and Ústí nad Labem will cooperate. After building there will be some job opportunities for navigation degree stuff.

- The main benefits to employment apply to keeping job opportunities at companies which are connected with water transport - water transport companies, ports, construction docks, manufacturing enterprises, logistic centre Lovosice. Investments into port development in Ústí Region are also supposed. In a middle-term horizon it can be a creation and keeping 2000 - 3000 job opportunities. (SoNoRa study 2010)
- (Another point of view - a cooperator of LABEL study: PhDr. E. Součková.) Building of navigation degree will not bring any significant change for the community. Water transport did never belong to big employers in the Czech Republic. The effect can happen in a limited degree only in towns and villages where there are sources of substrates or passengers.
- Usage of externalities which better navigation will bring to travel movement will surely be a welcome benefit. The river phenomena, water tourism and water sports are attractions by themselves and since long ago they attract people. For water recreation cruise development an attractiveness and beauty of the starting and ending stations will be important, together with possible offer at the stations.
- In connection with other natural beauties and with cultural and historical sightseeing in complex tourist tracks the navigability can bring a positive effect - increasing the job opportunities (decreasing unemployment). A high level of inhabitants' interest in business and services and a high business activity is a good assumption to use new possibilities.
- \*More possibilities to use natural, cultural, and historical values - National Park České švýcarsko, Protected Landscape Areas (CHKO) Labské pískovce a České středohoří, transmissions into midland - tourist areas like: Terežín monument, reservation of historical monuments in Litoměřice, an attractive area in Velké Březno - the castle, English park, historical brewery, museum of folk architecture and museum of railways at Zubrnice village (connected via recreation railway), wine-growing area Velké Žernoseky, etc.
- There is also a risk of increasing the pressures to start new natural resource minings and to export raw materials when there are more reliable transport conditions - for example a threat of overloading the area of Terežín basin by gravel-sand mining.

## **Affect of the navigation degree Děčín on the border area**

- The agreement with the construction and its support given by neighbour Sachsen from 1960's to 1990's was reviewed after the floods in 2002 with a changed conclusion: Germany wants to ensure Labe navigability not by building navigation degrees but by common river-channel maintenance (deepening of ground). Later doubts arose, that building a navigation degree in the Czech Republic would worsen the self-cleaning river ability, and that it would have a negative impact on drinking water quality in Dresden (wells along Labe, etc.) Germany also criticises the building of the navigation degree Děčín from a standpoint of ecological risks and unfortunate effects.
- From this situation, uncertainty has arisen concerning compatibility of our Czech aim to build the navigation degree Děčín and measures being prepared or already in progress in Germany. According to EIA documentation and Waterways Directorate of the Czech Republic (Ředitelství vodních cest ČR, ŘVC ČR) statement everything is alright and comparable navigation conditions are being prepared or implemented in the adjacent

Labe section in Germany. In 2002 Germany defined a maintenance target in the section from Dresden to the state border of the Czech Republic/Germany, which specifies the navigation water-depth of 150 cm (farther to Magdeburg 160 cm) for at least 345 days per average-water year. The works on this target are in progress since 2005.

- The review of navigation degree Děčín impacts on German territory is finished and is a part of EIA as a supplement: Expertise on possible impacts of navigation degree Děčín on German territory author: Prof. Ing. Pavel Gabriel, DrSc. January 2006 – addendum 2010 for variant 1B worked-out by Ing. Pavel Obrdlík after consultations with Prof. Gabriel. The results: Hydrological, hydraulic and sediment regimes are without any negative impacts on German territory. Drinking water quality - without any waterflow affection on German territory.

## **Navigation Degree Děčín - SWOT analysis of Area Sustainable Development (URÚ)**

### **a) Navigation Degree Děčín and area conditions for economic development (national, regional and local scale)**

<b>Strong points - certain positives</b>	<b>Weak points - certain negatives</b>
<ul style="list-style-type: none"> <li>▪ Improvement of waterway conditions in the weakest section of Labe waterway (navigation water-depth of 140 cm for at least 345 days and 220 cm for 180 days per average water-year) for the profit of Czech ports and construction docks in connection to North Sea ports (Hamburg, Bremen, Rotterdam, Antwerpen, etc.) is a strategically important factor - connection of an inland state the Czech Republic onto European river and overseas transport ways and transport chains.</li> <li>▪ Improvement of waterway conditions to ensure the full-year river-navigation correlates to the needs of the territory specified as a development axis OS2 and a development area OB6 of a national importance (PÚR ČR) and as a development axis NOS2 and development area NO2 of a regional importance (semi-finished by Development Principles (ZÚR) of Ústecký Region)</li> <li>▪ Improvement of waterway conditions will support keeping the waterway as a comparable transport system to IV.</li> </ul>	<ul style="list-style-type: none"> <li>▪ High investment spendings of approx. 5 milliards Kč (including the small water powerstation 0.5 milliard Kč) and 19 milliards Kč of operation costs yearly.</li> <li>▪ Děčín port can fill its role only in a limited way considering its geolocation - it is located outside of Ústí Region mines, there are limits of road transport infrastructure - unsolved problems with road I/13, limits in area development of the port itself.</li> <li>▪ The navigation degree Děčín improves navigation conditions but it does not affect another problem navigation section Děčín Boletice – Ústí nad Labem (previously considered navigation degree "Malé Březno") and that is why the connection to the whole Labe - Vltava waterway system will still be limited (regulation conditions will improve, for example - more effective waving, the length of the water-flow section with bad navigation conditions will be shortened from current 30 km to 18 km).</li> </ul>

Strong points - certain positives	Weak points - certain negatives
<p>Transeuropean Multimodal Transport Corridor, and keeping the waterway transport as an alternative and reserve to truck transport.</p> <ul style="list-style-type: none"> <li>▪ Support of goods, passenger, and recreation water transport in regional extent, in the Czech Republic and over the border. Higher waterway system usage level on Labe - Vltava waterways (The alternative not to build the planned constructions on the waterway can mean a creation of other brownfields in Děčín, in Ústí nad Labem and in region, the decadence of the system built for 150 years, with waterways length in ČR over 300 km, estimated price of the system is 160 milliards Kč, other planned investments about 5 milliards Kč until 2015.)</li> <li>▪ Support of employment in the region; benefits of navigation degree Děčín concern keeping job opportunities which are connected with water transport - water transport companies, ports, construction docks, manufacturing enterprises, estimation - creation or keeping at least 2000 job opportunities (according to SoNoRa study - 2010); further new opportunities to do business in traveling - the phenomena of a big river, water tourism and water sports.</li> <li>▪ Little protection improvement of the affected Děčín area against floods (especially winter floods and water-level and river channel state stabilization).</li> <li>▪ Electricity production in a small water powerstation of approx. 8 MW (the power produced will ensure the supply of a large part of households in Děčín).</li> </ul>	
Opportunities, possibilities, awaitings	Risks - certain fears
<ul style="list-style-type: none"> <li>▪ Improvement of navigation conditions is in accordance with supposed future division of transport tasks between transport branches, limiting road goods transport in favour of railway and water transports; Effects created by externalities - assumption of reduction of</li> </ul>	<ul style="list-style-type: none"> <li>▪ Uncertainty of sufficient demand of transporters after water transport usage (positive calculations of economical rate of return can not foresee all aspects and cut off uncertainties coming out from the current low level of water transport).</li> </ul>



Strong points - certain positives	Weak points - certain negatives
<p>road truck transport - positive for the environment, less traffic accidents, etc.</p> <ul style="list-style-type: none"> <li>▪ Better transport conditions for firms residing near Labe Waterway in important economic areas ČR (construction dock Ústí nad Labem, Děčín, Lovochemie Lovosice, Spolana Neratovice, Paramo Pardubice, etc.)</li> <li>▪ Construction of the navigation degree will act as compensation measures against supposed changes in Labe water-flow caused by climate changes, it is expected that water-flows will decrease in summer months during the next decade.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Risk of overfilling the transport system offers in given area and in international corridor in connection with the long-term aim to lead a high-speed railway (VRT) through the area (possible variants).</li> <li>▪ Building navigation degree Děčín without solving the problems how to rebuild road I/13 can mean that the transport conditions in Děčín and in adjacent suburbs will get worse in connection with highway D8 and in the direction to Liberec Region.</li> <li>▪ Improvement in water transport conditions can increase pressures to start new resource minings and to export raw materials, for example pressure on gravel-sand mining in Terezín basin.</li> </ul>

## **b) Navigation Degree Děčín and territorial conditions for togetherness of inhabitants of the area (national, regional and local scale)**

Strong points - certain positives	Weak points - certain negatives
<ul style="list-style-type: none"> <li>▪ Investments to support usage of urban area for 188 000 inhabitants (it corresponds to the definition of the development area and axis, regional capital Ústí nad Labem, regional centre Děčín, local centres).</li> <li>▪ Little protection improvement of the affected area against floods (the navigation degree has no accumulation volume), slight decrease of flood culmination levels due to decreased abrasiveness of the river channel, the stabilized level of the river-flow in the urban area will protect against ingrowing the river channel, forbidden wasteyards, building in the floodable zone (inundated area), etc.</li> <li>▪ The navigation degree Děčín will have a more important impact during "winter floods" which bring ice-runs and ice-jams. Proper navigation degree manipulation can break</li> </ul>	<ul style="list-style-type: none"> <li>▪ Generally adversely viewed continuing technization of part of the environment, besides the navigation degree itself, another adjusted section under Děčín.</li> <li>▪ The construction period of navigation degree Děčín and its impacts on Labe transport and in the town (estimated construction time is 3.5 year - it has its technological reasons, among other things: it is necessary to build "on the fly" keeping the navigation going).</li> </ul>

Strong points - certain positives	Weak points - certain negatives
<p>continuous ice-cover and jam and ensure out-transport of ice.</p> <ul style="list-style-type: none"> <li>▪ Navigation Degree Děčín solves the problem of "blitz floods" of Ploučnice and Jílovský stream and possible creation of ice-runs there.</li> <li>▪ The navigation degree Děčín will not have any negative impacts on floods and their pass down the river, neither on German Labe section.</li> <li>▪ Adjustments so far inappropriately used bank-areas in Děčín and in suburbs; a bank adjustments near Tyršův bridge, building a path for cyclists, adjustments of "Jílovský stream" entry and especially the complex adjustment of Ploučnice entry - besides the natural element in the centre it will enhance the uncultivated area and will allow usage of the area as a recreation zone under the castle.</li> <li>▪ Water-level stabilization under Děčín castle, protection the flow against drought, improvement in town centre appearance (visual aesthetic effects, stable water-levels, mirroring of the castle, etc).</li> <li>▪ Keeping - re-creation of the traditional visual character of Děčín atmosphere - water traffic activity on Labe (supposedly 20 vessels daily).</li> <li>▪ Better reachability in the Czech Republic frame and recreational cruises: Dresden, Ústí nad Labem - centre (plus newly created recreational area "Milada lake"), Děčín - centrum, Velké Březno - Zubrnice, Hřensko and even reservation of historical monuments in Litoměřice, Terežín monument, wine-growing area Velké Žernoseky, etc.</li> </ul>	
Opportunities, possibilities, awaitings	Risks - certain fears
<ul style="list-style-type: none"> <li>▪ The possibility of recreational Labe usage will increase - watersports (it is expected that people will return to domestic recreation for economical reasons, growing-old of</li> </ul>	<ul style="list-style-type: none"> <li>▪ The Possibilities of watersports development in the Czech Republic are also limited by bad water quality in the river, although the water quality has unquestionably improved over the</li> </ul>

Strong points - certain positives	Weak points - certain negatives
<p>inhabitants, increased risks abroad).</p> <ul style="list-style-type: none"> <li>Navigation degree and subsequent adjustments in Děčín area will be an impuls to a better usage of recreational and social potential of the whole corridor including Ústí Labe section.</li> <li>Showing a positive face of waterway degree Děčín to the public, accessibility and attractivity of the navigation degree for visitors, information about construction progress, about an amount and usage of ecologically produced electricity, about operation, about compensation measures reducing affects on flora and fauna, about results of monitoring the real impact of the degree on the environment, etc.</li> </ul>	<p>past two decades.</p> <ul style="list-style-type: none"> <li>Controversial Sachsen attitude to the aim, agreement and support in the past, objections during the past few years and declared disagreement at present and information presented in media about an intention to enter a lawsuit to solve conflict points. (impact of navigation degree Děčín on Sachsen border areas was examined within the framework of working-out EIA of the navigation degree and the results excluded negative impacts in hydrological, hydraulical sections, sediment regime and water quality).</li> </ul>

### c) Navigation Degree Děčín and territorial conditions for positive and nice environment (national, regional and local scale)

Weak points - certain negatives	Strong points - compensation, positives
<ul style="list-style-type: none"> <li>Intervention into natural enviroment of free fast flowing Labe section and movement of the industrial zone towards a very valuable area under Děčín - Protected Landscape Areas (CHKO), NATURA 2000, National Natural Reserve, Territorial System of Ecological Stability (ÚSES) (intervention is reduced by moving the place below the port Loubí, technical solution, and compensations and revitalization measures).</li> <li>Shortening the section of free fast flowing Labe river (without weirs and sluices - total length of 320 km from Ústí nad Labem to Magdeburg, about 40 km in the Czech Republic (connected with unpleasant impact on valuable plants and animals).</li> <li>Creation the migration barrier on the river for animals and plants, decreasing the flow-speed in backwater area above the degree with impacts on the change of living conditions of hygrophilous plants and animals.</li> </ul>	<ul style="list-style-type: none"> <li>The barrirer effect of the navigation degree is reduced by extending the degree with a 30 m wide fish corridor and land migration zone and other reducing measures: The river will not exceed its banks, stopping the flow will be minimized - but the flow will be slower, the level will vary according to the water state (it will be relatively stabilized and calm only from Rozběles to the degree).</li> <li>There are river channel revitalisation adjustments connected with building the navigation degree Děčín - a rehabilitation of the river banks and extending the migration transmittance of the Střekov sluice profile. Rehabilitation river bank adjustments will decrease negative impacts on protected plants and animals and correct negative impact of historical continuous Labe river channel regulations.</li> <li>Analyses and attachements put into EIA review substantiate that the navigation degree Děčín has no negative impacts on the river-</li> </ul>

<ul style="list-style-type: none"> <li>▪ NATURA 2000 impact assessment of the Navigation Degree Děčín - a little negative impact on natural plant posts and a little negative impact on populations of species living in "EVL" Labe valley area.</li> <li>▪ Landscape impact assessment of the Navigation Degree Děčín - little negative. The proposed building is assessed as tolerable intervention into the landscape (constructions minimally getting out of the river over the level) which is legally protected by the "Nature and Landscape Protection Law" (No. 114/1992 Sb.).</li> <li>▪ Harmful impacts of the navigation degree Děčín - estimated construction time is about 3.5 year (building problems are solved in a standalone EIA attachment).</li> </ul>	<p>flow in Germany - in hydrological, hydraulic sections, sediment regime and water quality.</p>
Opportunities - possibilities, awaitings	Risks - fears
<ul style="list-style-type: none"> <li>▪ Adjustments of the river-flow under the navigation degree follow-up an idea to build stone "barrage" many times, which except of centralizing the river-flow and ensuring the required waterway conditions would allow to partly revitalize existing hard-fortified river banks and could improve ecological state of the river.</li> <li>▪ Correspondence between waterway conditions improvement and the supposed system change in goods transport for the benefit of railway and water transport; Effects created by externalities - road truck-transport reduction - positives for the environment, climate protection, lower car-accident frequency, lower loudness, saving road transport infrastructure, etc.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Sufficiency of the reducing and revitalization measures for nature and landscape protection is assessed by competent experts.</li> <li>▪ Problems in coordination of road I/13 reconstruction with the risk of transport conditions in Děčín getting worse.</li> <li>▪ Although the quality of water got better it is still very problematic to directly use the river for water sports for hygienical reasons.</li> </ul>



## **Summary of SWOT analysis knowledge of navigation degree Děčín affect on Area Sustainable Development (URÚ)**

### **TERRITORIAL CONDITIONS FOR ECONOMIC DEVELOPMENT**

The aim to build the navigation degree Děčín is supported by important and vigorous reasons - the need to keep and improve connection of the Czech Republic to European water network, including North Sea ports (the Czech Republic subscribed to an AGN agreement - European Agreement about Domestic Waterways of International Importance), support of usage 150 years built and over 300 km long Czech waterways system. An alternative to building the navigation degree Děčín is usage limiting and usage rundown of the Labe - Vltava waterway with all consequences even in regional scale (for example brownfields arising in Labe neighborhood), the results of estimated climate changes speak for the aim. Without building the navigation degree Děčín, the strategic vision of strengthening the importance of railway and water goods transport to the detriment of truck transport. It is true that the navigation degree building is stressed with unsure division between investment spending and economical benefits which probably can be proved only in long-term time-horizon. Other point of view on the navigation degree can be caused by building another VRT transport system, which would become a part of the same European multimodal transport corridor as the waterway already is and therefore it would need a coordination with it.

### **TERRITORIAL CONDITIONS FOR TOGETHERNESS OF INHABITANTS OF THE AREA**

The aim to build the navigation degree Děčín brings prevailing benefits from the standpoint of an affect on togetherness of people in regional scale as well as in local scale. The positives concern keeping or extending job opportunities, improving the environment in the urban area and wider area of Labe corridor (living area for 160 000 people), further creating better possibilities how to use Labe for travel movement - improving conditions for regular tourist transport with attractive targets, recreational transport and water sports. The aim has slightly positive affect on protection the territory against floods - mainly winter-floods. Among negatives it is necessary to mention that building the navigation degree means other generally badly accepted technization of the environment in a very nice natural area. Supposed increased activity of ports in Děčín is problematic. This could cause together in connection with unsolved rebuild of road I/13 more traffic problems. There are also some complications: the navigation degree affects the territorial conditions for togetherness of inhabitants in the area. Among these complications it is necessary to put a standpoint of adjacent Sachsen which changed its point of view and from former support it became a critic of the aim.

## **TERRITORIAL CONDITIONS FOR POSITIVE ENVIRONMENT**

The aim to build the navigation degree Děčín represents a negative intervention into natural river environment and movement of the industrial zone towards a very valuable area under Děčín (Protected Landscape Areas (CHKO), NATURA 2000, National Natural Reserve, MZCHÚ, Territorial System of Ecological Stability "ÚSES"), the intervention is reduced via more sensitive localization, technical solution, and compensation and revitalization measures. The design has turned away from the former very technical solutions and meets the requirements of nature and land protection (it is necessary to say and notice that besides technological progress various groups of nature protectors have suggested this development). Judgement of the navigation degree Děčín from the standpoint of its impact on the landscape is little negative, The proposed building is assessed as tolerable intervention into the landscape. Also the last worked-out judgement of the Navigation Degree Děčín impact on "NATURA 2000" results in a little negative impact on natural plant posts and a little negative impact on populations of species living in "EVL" Labe valley area. We can expect opponency to these statements pointing to interventions into migration transmittance of the river, touching the most valuable sediments, the only one population of beavers (!), population of salmons, etc. which cannot be eliminated via any technical solution. There are also positive affects of the navigation degree on the environment: navigation conditions improvement correlates with a vision of a system change in goods transport in favour of railways and water transport (it should bring reduction in truck transport, less noise and lower car accident level.)

## **Conclusion**

Within the framework of evaluation the navigation degree Děčín in the relation to area sustainable development, the submitted study considers as prevailing the arguments for the construction the navigation degree Děčín.

## **Recommendation**

Include „Navigation Degree Děčín“ into updated Development Policy „PUR ČR“ and into updated Development Principles Ústecký Region „ZÚR ÚK“, work-out a territorial study of cultivation the Labe corridor in Děčín - Ústí nad Labem section.