



platform for the implementation of NAIADES

# Inventory of IWT related logistics education institutions and training content

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## **A.1 Executive Summary**

PLATINA WP 3 partners collected information on current coverage of topics related to inland navigation in the general logistics education as a pre-requisite for the soon following Deliverable 3.7 – Strategy for the integration of Inland Waterway Transport (IWT) knowledge in general logistics education.

The target groups ranged from secondary schools, vocational education to University level.

Apart from a few institutes offering courses with a stronger focus on inland navigation it can be concluded that there is a considerable gap in the general logistics curricula throughout the different countries and throughout the different levels of education along the interconnected European Waterways.

Topics which seem to be of importance to a majority dealing with inland navigation in the general logistics education are:

- comparison of transport modes,
- the strengths and weaknesses of IWT
- transport geography,
- types of goods and ships,
- technology in inland navigation,
- legal knowledge,
- transport planning,
- markets and prices,
- infrastructural topics,
- transport documents.

This report gives an overview on the national research findings. Different tables with contact data and more information on topics covered are attached to this report in Annex II.

## **A.2 Introduction and Methodology**

If inland navigation should play a stronger role in future European transport systems it is important to plant adequate “knowledge” seeds on this environmentally friendly mode of transport in future decision makers involved in transport and logistic chain processes.

As a prerequisite for the Deliverable D 3.7 – Strategy for the integration of inland waterway transport knowledge in general logistics education, the WP 3 team developed a short questionnaire trying to identify the current Status Quo at various educational institutes.

Each partner translated the questionnaire and distributed it to identified institutes in their countries. Since the team for this Deliverable consisted of partners from only 5 countries we asked for support from EDINNA partners, the educational inland navigation network as well as from colleagues actively involved in the NELI project.

We also used the Bestlog Knowledge Base Education Directory on [www.bestlog.org](http://www.bestlog.org) which entails Universities and Universities of Applied Sciences throughout many different countries.

In the questionnaire we expressed interest in specific contact details so as to enable further information exchange, the range of courses and modules offered at the respective institutes with regards to inland navigation as well as teaching content of IWT related subjects. A model questionnaire is enclosed under A 5. Annex I.

When looking at the term “general logistics” it becomes clear that logistics are comprised of a multitude of different sub themes ranging from more economical aspects to technical specialities. We therefore decided to concentrate on institutes offering courses or modules with regards to **transport/traffic logistics**.

We focused our research on the following target groups:

- vocational colleges,
- Universities of Applied Sciences,
- Universities,
- country specific educational institutes such as secondary schools with a specific focus or alike and
- private training institutes.

The questionnaires were distributed to a large number of identified institutes in many countries along the interconnected waterway states.

The overall result is rather disappointing as some countries were faced with a very low response rate.

Only few outstanding general logistics institutes could be identified which have a stronger focus on IWT.

This inventory of IWT related logistics education institutions consists of two parts: a written summary report giving overviews on the national research results of the core IWT countries linked to the interconnected waterway system as well as an Annex II containing Excel lists for each country listing the required contact and course details.

### A.3 Country Reports – Overviews

As outlined above, all partners were asked to distribute the questionnaire in their countries. Below we have tried to summarise the findings of the partners who conducted the research.

Below the country reports you can find a matrix of identified IWT related topics in general logistics education in the various countries.

### A.3.1 Austria

Inland navigation plays only a minor role in logistics education and training in Austria. Throughout all education and training institutes there is not a single subject offered dealing exclusively with IWT.

There are two types of **vocational schools** in Austria: vocational colleges where students gain a graduation degree and three years' dual vocational schools combining a theoretical education at school and a practical education with a professional firm.

The first category of schools implies technical or economical vocational schools with a focus on logistics. In five of them IWT plays a minor role.

At three locations a dual vocational training is offered for forwarding merchants. Some of the apprentices are employed in the IWT sector.

At the vocational schools IWT is thought approximately for one hour per year. The topics are quite similar as on university level – only the very basics are taught.

Except for guest lectures there are no teachers with IWT background - although some have professional experiences in forwarding or logistics.

At **university level** (Universities and Universities of Applied Sciences) there is no institute or study program specialized on IWT. The questionnaire was sent to 22 Universities and Universities of Applied Sciences dealing with transport and/or logistics. Most of them have a technical or business orientation. Only 10 institutes claimed that they teach some lessons with IWT-related contents.

At Universities IWT topics are covered within subjects dealing with transport management, transportation systems or transport logistics. Within these subjects of 2 to 4 European Credit Transfer System credit points IWT topics are taught in average for about 1-2 lessons.

IWT is taught on a very basic level - the most common topics are:

- attributes of IWT
- comparison of transport modes,
- important waterways and ports,
- transport planning,
- types of goods and ships,
- market and prices,
- telematics in IWT.

There is one exception: the Bachelor and Master Programme for “Logistics and Transport Management” at the University of Applied Sciences “bfi Vienna” where a student gets approximately 9 lessons on IWT during his/her studies.

At university level most teachers have a university background without practical experiences. Especially at Universities of Applied Sciences guest lectures from practically experienced experts are very common.

Since some years via donau is in touch with universities and vocational schools as they provide teaching materials, give guest lectures, organize excursions and field trips and supervise diploma-theses.

Within the questionnaire teachers showed interest in more information and teaching materials on IWT. Some forms of cooperation and exchanges have already been initiated (e.g. guest lectures, the realisation of an excursion (via donau and port of Vienna), an experts` symposium and the provision with teaching material.

### A.3.2 Belgium

12 Universities offering various Master Degrees concerning economics and logistics, 19 Universities of Applied Sciences focussing on logistical management, 15 secondary schools and 2 private training institutes have been approached in Belgium.

At the technical **High Schools (secondary education)** IWT is a compulsory topic during the classes of “International transport and freight forwarding” for pupils between 16 and 18 years old.

Contents with regard to IWT include the following issues:

- customs documents,
- types of barges and cargo,
- relevant legal knowledge such as the Budapest convention,
- strengths and weaknesses of the transport mode,
- geography of river systems,
- infrastructure,
- means of transport,
- development of naval fleet,
- basics of chartering,
- bill of lading,
- organizations and different sector players.

On the professional bachelor and master level (logistics management) IWT courses are included in the course programme as separate course modules or integrated in other subjects such as insurance, packing requirements or customs documents.

The universities offer different specialisations. Antwerp and Ghent are especially known for their “wet” know-how on ports, sea and IWT.

Logistic degrees or certificates can also be obtained by evening classes on transport, logistics and mobility. An introduction into the practice of inland navigation is given.

Regarding the background of the teachers and instructors it can be noted that people tend to have a practical logistic background such as for example employers from the Port of Antwerp; Lawyers and Geographers; Masters in Economics (with practical training in companies and courses in general logistics), professionals still working in the logistics field.

### A.3.3 Bulgaria

The research in Bulgaria has only begun. We managed to establish a first contact list of different institutes in Bulgaria. However, the research in the country itself is ongoing. Possible results could be integrated at a later stage.

### A.3.4 Czech Republic

We distributed the questionnaire to around 20 institutes in the Czech Republic and received one answer from the Military University of Transport in Brno which teaches transport systems of logistics as a bachelor degree. Inland Navigation is only covered limitedly:

- a short introduction to the means of transport and their application,
- IWT geography and
- the use of IWT in multimodal transport chains.

### A.3.5 Croatia

There are eight education and training institutions that are identified in this report: five universities (faculties), one vocational school and one training center.

There is a relatively new vocational school (Obrtnička Škola Sisak) in Croatia which curriculum is directly focused on IWT although this is not a general logistics education institute.

The **University** of Zagreb, Faculty of Transport and Traffic Sciences has the most significant part when it comes to education in inland water transport. They are also a member of the EDINNA network.

The faculty of transport and traffic sciences - water department - is the only institution in Croatia that provides high level education in the field of inland navigation. This institute offers a large variety of general logistics course both on Bachelor and Master level.

Three core topics are covered at the faculty: traffic study, intelligent transport systems and aeronautics study.

The traffic study has 7 departments: road, city, railway, airway traffic, postal traffic, information – and communication traffic as well as water traffic. Students receive a basic education on transport in general for the first two years of their study. Later on they can choose a subject for specialisation from the above mentioned departments which lasts one semester.

The department of water traffic focuses on logistics, technology and planning in maritime transport and inland waterways.

Topics relating to IWT are for example:

- integral and intermodal systems,
- ships and vessels (Ro-Ro, container),
- water transport technology,
- water traffic safety,

- Security (RIS),
- intelligent water transport systems,
- water transportation planning,
- planning of waterways, (flow capacity on natural or channelized waterways),
- determination of transport expenses,
- basics of ship construction
- ports, harbours and terminals.

All students are required to complete practical work of at least 1 month within their professions. All teachers involved have some kind of practical experience in IWT.

The faculty of mechanical engineering and naval architecture focuses on technical requirements of ship construction and shipbuilding relating to inland water transport.

The IWT company Dunavsky – Lloyd offers newly established courses for those already employed in the branch of inland waterways.

#### A.3.6 France

120 questionnaires were sent out and 16 answers received.

There are several vocational training schools specialised in transport with a strong focus on road haulage and logistics which finance professional educational networks such as AFT-IFTIM/ISTELI or PROMOTRANS. These networks provide the schools with the curricula and the teaching documents of the courses. By approaching the above mentioned networks all member schools could be contacted thus guaranteeing a 100% coverage. For schools depending on the national education ministry, another network could be used.

An overview of existing types of logistics and IWT education and training institutes looks like this:

- Professional A-level (BAC) education (entry certification for higher education):

There are specified professional A-level courses offered such as a “BAC Professionnel Transport “. Students finish when they are around 18 years old.

IWT is not covered in these A-level programmes.

However, there is an ongoing initiative on developing a specific IWT-related BAC which should enter into force in 2010/2011.

- A diverse system of further training (BTS = Brevet Technicien Supérieur or DUT = Diplôme Universitaire de Technologie) for 2 or 3 years follows after the A-levels with different levels of professionalization in transport and logistics. It is estimated that the pupils have from 4 up to 15 lessons dealing with IWT during their training.

An interesting initiative is offered at the National Institute for international transport and ports (ISNI) - which is an EDINNA member - offering a 2 year course after A-levels dedicated for future logistic managers focussing on inland navigation. More information can be found on [www.isni.eu](http://www.isni.eu).

This model is so successful that a second location in Chalon sur Saône will be opened in autumn 2010.

Students are being trained theoretically and practically in general logistics companies. As part of their studies, a practical sailing time on board an IWT training vessel is integrated in the course curricula.

- When studying for around 5 years after A-levels students can qualify as an engineer or for management positions in logistics companies. MBAs can also be obtained with a specialisation in logistics. IWT is covered in classes dealing with

- sustainable development,
- supply chain logistics or
- multimodal transport courses.

Topics covered during the IWT related lessons are:

- IWT geography and IWT classifications
- Ports
- Statistics (IWT and comparison with others modes)
- the different organizations and authorities taking part in IWT,
- the texts and laws in national and international IWT,
- contracts used and transport documents,
- insurance,
- types of goods and vessels,
- technical aspects such as waterways and their characteristics,
- locks, boats,
- cost calculations as well as
- advantages and disadvantages of IWT.

Some institutes offer conferences or site-visits to ports or professional companies.

When looking at the background of the teachers and instructors at the different institutions, it can be noted that very few have professional practical sector-related backgrounds. Since the learning documentation is prepared centrally by the above mentioned networks, the staff works with these tools to familiarise themselves with the syllabus.

Some institutions claimed that they do not have waterways in their area, so students will not find jobs or training courses. They argued to have less motivation to promote IWT.

Interest for updated course materials and relevant documentation was expressed as well as contact with professional industry representatives.

#### A.3.7 Germany

The logistics sector in Germany offers jobs for around 2.7 million people. As a result the education and training sector is correspondingly diverse. There is a large variety of education and training providers for general logistic studies on different educational levels.

However, only very few institutes explicitly cover transport logistics or even more specific topics relating to inland navigation. Some touch on the issues very broadly. Most addressees who responded to the questionnaires (around 60) expressed an interest in obtaining further information on inland navigation.

For the time being, the German partners provided them with existing documentation such as facts and figures on IWT; a DVD on IWT; general IWT information brochures; an EWITA leaflet recommending the use of up to date online learning tools and recommendations for specific websites (Naiades, Edinna).

However, it became obvious that specific target oriented pedagogically revised learning or teaching materials are missing.

We have looked at the following professions being taught at **vocational colleges** which are generally taught in a 3 year dual apprenticeship combining theoretical learning at vocational colleges and practical learning within a logistics company. All professions have some learning modules dealing with different modes of transport and could therefore have some link to IWT.

- Logistics manager (Kaufmann/-frau für Speditions- und Logistikdienstleistungen)
- Specialist in harbour logistics (Fachkraft für Hafenlogistik)
- Shipping merchant (Schiffahrtskaufmann/ -frau)
- Specialist in warehouse logistics (Fachkraft für Lagerlogistik)
- Specialist in waste management (Fachkraft für Kreislauf- und Abfallwirtschaft)

172 vocational schools received questionnaires of which 35 (20,4 %) completed them. IWT related topics addressed are:

- inland waterways;
- types of vessels;
- types of business;
- legal basis of charter;
- shipping documents;
- dangerous goods;
- transport chain;
- pricing and
- modes of transport in general.

On the more practical level of **Universities of Applied Sciences** and Cooperative Education, study programs for a Bachelor of Business Administration, Logistics Management or Logistics Engineering were identified. Different subjects are offered which have some relation to IWT: inbound logistics; service logistics; traffic logistics and Supply Chain Management.

A stronger focus on transport related sciences can be found at the Universities of Cooperative Education which are characterised by a strong practical focus.

74 Universities of Applied Sciences received questionnaires of which 19 (25,7 %) were returned. Topics covered are:

- legal framework,
- transport systems and modes of transport,
- characterization of transport and logistic processes,
- intermodal forms of organization,
- IWT technology,
- structural offers in IWT,
- types of businesses in IWT,
- dimension and structure of the German inland fleet, inland waterway network,
- differentiation of inland waterways in dimensions of navigability caused by the weather,
- port management on inland ports,
- importance of IWT in the pre- and post run in foreign trade.

15 **Universities of Cooperative Education** received questionnaires of which of 6 (40 %) completed the questionnaires.

Identified topics are:

- IWT as part of logistics,
- transport modes,
- commercial management of IWT,
- handling cargo business,
- freight contracts,
- special knowledge on the various transport modes (road, rail, inland waterway, sea, air),
- intermodal transport,
- courier and postal services,
- integrating concepts and modes,
- fleet,
- locations,
- networks,
- transport policy,
- infrastructure policy.

Similar degrees and courses are offered at different **universities**.

46 Universities received the questionnaires of which 11 (24 %) were returned.

The University courses entail for example subjects such as:

- basics of technology,
- business forms,
- legal requirements,
- functions of inland ports,
- planning and optimization of terminal layouts,
- multimodal transport.

Private education providers are run by different logistics associations such as for example “BVL Campus”.

One of the remarkable initiatives that could be identified was a full project week dedicated to IWT at the University of Applied Sciences Heilbronn where the German Shortsea Shipping and Inland Waterway Promotion Centre (SPC) sends lecturers to have 2 days in class with the students and a 2 day port excursion with meeting practical experts and field visits of container terminals. The students engage in case studies and research papers on IWT related topics.

Another interesting contact that could be made as a consequence of the questionnaires being distributed was the realisation of a practical weekend seminar conducted by the SPC for around 70 teachers from vocational schools teaching logistics managers across the whole country. These teachers voluntarily founded an association ([www.spedilehrer.de](http://www.spedilehrer.de)) to engage in further training.

The University of Applied Science Osnabrück offers a 1 week intensive course on IWT given by a former port director including a 1 day fieldtrip to the port of Hamburg.

It can be observed that most teachers have a general academic degree with often plain “text book”-knowledge. The use of (retired) practical experts or freelancing consultants is rather scarce.

The addressees asked for information materials for the respective target groups as well as for business contacts for field trips, internship placements, expert presentations or things alike.

#### A.3.8 Hungary

The Hungarian IWT education is comprised of nautical and logistics sections.

The logistics education is controlled by the Ministry of Education. The secondary level vocational study programmes are controlled by the National Institute of Vocational and Adult Education through the National Education Book (NEB), which stipulates the basic competencies, skills and curricula. The three logistic education programmes in the NEB are based on the General Certificate of Education.

IWT plays a minor role in the NEB curricula of logistics education programmes. Typically there is not a single subject dealing with IWT.

As a rule, 1-2 lessons dealing with IWT are included in courses such as “freighting”, “logistics”, “logistic systems” and “logistic informatics”.

The international transport and logistics manager education at the Széchenyi István University is the only one where the subject of “waterway freight” dealing with water

transportation is taught. There are no BSc or MSc study programme specialized in IWT or water transportation.

The Budapest University of Technology and Economics offers IWT specialization possibility for the students of BSc Transport Engineer. This BSc education is based on the earlier MSc transport engineer study programme which contained the same specialization possibility. The student interest is very low, there are only about 1-2 students in 5 years. Although the Széchenyi István University, the University of Szeged and the Eötvös József College deal with IWT in 2-4 European Credit Transfer System Credit Points subjects, most of MSc and BSc logistic engineer, transport engineer and logistics management programmes do not have any subject in IWT.

The Budapest Business School – which is also a member of EDINNA - offers different international programmes including a subject “international transportation and forwarding”. Topics addressed are:

- the key issues of logistics and its offshoot,
- transportation-logistics and its role in the organisation of distribution processes,
- the function of international transportation law agreements,
- specific modes of transport,
- combined types of carriage and the practice of forming unit cargoes
- detailed analysis of the transportation aspects of INCOTERMs,
- overview of customs law and tariffs

A variety of universities and colleges are interested in developing IWT related contents in the existing courses. Except for the nautical education and guest lecturers there is no teacher with IWT background. Many in-house lecturers have practical experience in logistics but few in road or rail transport. IWT related subjects are taught by guest or half time lecturers with good IWT experience. Regarding practical training, a mandatory internship is foreseen. In NEB programmes 30-50% practical training, consisting of laboratory or of field exercise is included in the education programme. At university level the obligatory practical training is a 4-8 weeks internship (e.g. in a logistic company) throughout the entire period of education.

#### A.3.9 Italy

We sent the questionnaire to 9 educational institutes in Italy but did not obtain any responses. We have been contacting Italian Embassies, Italian Provinces for a long time to find out information on IWT education in Italy.

The CFLI, an education centre for intermodal logistics, is based in Ancona, Genova and Venice and became an EDINNA member in 2009 ([www.cfli.it](http://www.cfli.it)).

CFLI offers different courses related to inland waterways, maritime and port professions. The University of Venice also offers a Master in Logistics and Transport in cooperation with CFLI. Further details can be found on <http://www.masterlogistica.it/>.

The state funded education in Italy shows a difference with other countries in Europe. Specialisations in logistics in, e.g. secondary education are hardly known. The

“Insituto Tecnico Commerciale Statale “Giulio Cesare” in Bari is currently applying for funding at the European Commission to build the first vocational education institute for logistics. In this process, the STC-Group will be actively involved.

#### A.3.10 Netherlands

Although some initiatives have been identified in the Netherlands, a large demand for IWT related topics was noted especially for vocational logistics education.

10 Universities which offer various Master Studies with respect to logistics were approached. We only received a reaction of the Netherlands Maritime University in Rotterdam.

10 Universities of Applied Sciences – educating the direction Logistics and Economics or Logistics and Technical Transport Knowledge also received a questionnaire.

The vocational education in the Netherlands offers a wide range of education with respect to logistics. During the research we focussed on the following directions offered by a large number of schools in the Netherlands:

- 1) Logistical Team Manager;
- 2) Logistical Employee;
- 3) Logistical Supervisor;
- 4) Assistant Logistical Employee;
- 5) Assistant Operational Employee Transport and Logistics;
- 6) Manager Storage and Transport;
- 7) Manager Port, Transport and Logistics;
- 8) Employee wholesale business and Logistics;
- 9) Employee logistical management – Physical Distribution;
- 10) Assistant Employee Transport and Logistics;
- 11) Manager Port logistics and Employee Port logistics;
- 12) Forwarding Agent;
- 13) Coordinator Port operations.

40 **Vocational Schools** - often offering more than one of the directions mentioned - and 1 Private Training Institute have been approached in the Netherlands. We received only 13 reactions. The answers obtained can hardly be seen as representing the total educational system in the Netherlands.

Topics taught at Vocational colleges are basically relating to making the students familiar with IWT and its main features.

At the **University of Applied Sciences** the following topics are addressed:

- knowledge of transport modalities;
- logistics strategy development;
- service level agreements;

- monitoring systems;
- transport law;
- transport economics;
- modal shift and the use of transport documents.

Currently, a “HBO Minor Sustainable Inland Shipping Management” - a specialisation in the last year of a study at a University of Applied Sciences - is being created by the STC-Group and the University of Applied Sciences Rotterdam together with the national authorities. This minor consists of a number of modules which clearly follows the structure of NAIADES and the work packages of Platina: Markets, Fleets and Innovation, Jobs and Skills, Communication, Perception and Image and Infrastructure. This is a first step of integration of IWT related topics in general logistics education in the Netherlands. After delivery of the Minor to the authorities the minor is available for all Universities of Applied Sciences in the Netherlands. IWT stakeholders are closely involved in the development of the material that is created at the current stage.

Teachers and instructors are often professionals in transport and/or logistics management; transport economics or guest speakers from business life. Auditors from transport companies or people who have studied logistics and/or economics with a specialization in logistics in port and/or road or people still active in the IWT sector are also teaching in the various institutes.

Another remarkable initiative is the Master programme of “Shipping and Transport” offered by the STC Group Maritime **University**. Within the Master programme 70 hours in total are focussed on inland navigation and deal with a wide variety of topics such as:

- Development and Management of Multipurpose Waterways,
- Role and Importance of the IWT Sector in the Netherlands,
- Rules and Regulations for IWT,
- Legislation and Safety,
- IWT in Confined Waters; Hydraulic Phenomena; Classification Design and Functioning of IWT-Related Structures,
- Management and Operations of Structures in Waterways,
- River Engineering Related to the Development of Reliable Navigability,
- Economic Feasibility of Making Inland Waters Navigable,
- Survey and Research on Waterways, Related to Shipping,
- Aids to Navigation (AtN) and Navigational Aids (NA),
- Terminal Lay-out, Cargo Handling and Fleet Operation,
- Environmental Impact of Waterway Improvement and of Fleet- and Terminal Operations,
- Multidisciplinary Use of natural Waterways; development of Respectively Vision, Policy Paper and Master Plan.

Generally concluded, almost all institutes responded to have an interest in IWT background materials for their education. Intermodal thinking is only at a starting point when it concerns educational programmes and a lot of institutes are missing the knowledge to integrate IWT knowledge into their education. This stresses out the need for D 3.7, even in a leading IWT country.

#### A.3.11 Poland

We approached more than 50 educational institutes in Poland with a focus on transport logistics.

We only received one answer from the University of Gdansk, Faculty of Economics, Department of Transport Policy.

Prof. Włodzimierz Rydzkowski can be contacted at [w.rydzkowski@ug.gda.pl](mailto:w.rydzkowski@ug.gda.pl). Further information can be found on [www.ekonom.ug.gda.pl](http://www.ekonom.ug.gda.pl).

The faculty offers various logistic courses with a major in transport and logistics for undergraduate, postgraduate and doctoral level. The following courses contain IWT elements:

- Economics of Inland Navigation,
- Economics of Transportation,
- Transport Policy,
- Introductory Logistics,
- Developments of Transport Infrastructure.

Economics of Inland Navigation is a course entirely devoted to IWT which lasts around 30 hours.

#### A.3.12 Romania

No special IWT logistics courses were found in Romania. Logistic courses which include IWT related topics are included in the portfolio of various universities and training centres in Romania. In absence of replies to our questionnaires sent to different institutions it is very hard if not impossible to quantify to what extent.

IWT logistics is covered in general logistic courses such as Supply Chain Management or Multimodal Transport, Management in Transport.

No logistics courses were identified in the education system within vocational schools and Universities of Applied Sciences.

Eight universities were identified which offer logistics courses in the following degrees: Industrial logistics, Logistics Management, Supply Chain Management, Multimodal transport, Transport Logistics, Management in Transport, Master in telematics for navigation or as an Engineer Vessel Traffic Management.

Several training centres were identified delivering logistics courses in supply chain management, management, logistics and acquisition.

IWT is not covered in the identified institutions.

The general logistics education in Romania is carried out in compliance with the ELA (European Logistics Association) standards.

There is a voluntary logistics association in Romania, ARILOG, which promotes the scientific and technical development of logistics studies in Romania for companies.

NELI, a project funded by the European Commission under “South East Europe” (SEE) is developing three harmonized courses incorporating existing practices in SEE of which one focuses on Logistics in IWT.

A special training module shall be developed with the support of the project partners. Since NELI also establishes a cooperation network, close contact should be established with the identified organisations. Personnel contacts by visits are recommended for a better insight.

#### A.3.13 Serbia

6 universities dealing with transport and/or logistics were identified, most of them technical Universities. Only two Institutes (University of Belgrade - Faculty of transport and traffic engineering - Department for Water Transport and the Military Academy from Belgrade) teach IWT issues.

There are vocational schools in Serbia where students gain a graduation degree. 8 institutes were identified, in three of them IWT plays a major role. Approximately 30% of the apprentices are employed in the IWT sector.

There are more schools at secondary level but their study programmes do not include IWT. These are mostly technical schools with a focus on logistics although some of the apprentices are employed in the IWT sector. All these schools are public institutions and their curricula were developed under the Ministry of Education.

The school of shipping, shipbuilding and water civil engineering Belgrade has been established over 60 years ago and has long been the only school in Serbia for inland navigation. In the last five years the school has 30 students every year in nautical technician department and 20 students in the deckhand department. Interest in marine engineering is reduced, the school has only approximately 10 students every other year. Some of them are employed in the IWT sector and some of them are employed in the sea going vessels. This school is also an EDINNA member.

High Traffic School "PINKI" – Novi Sad has had one nautical technician department in the past 10 years with an audience of also 30 students per year.

Starting with last year, the Technical School – Kladovo has also established one marine engineer department (30 students).

**At universities and universities of Applied Sciences** IWT is taught on a very basic level - the most common topics are:

- attributes of IWT,
- comparison of transport modes,
- important waterways,
- ports,
- transport planning,
- types of goods and ships,
- market and prices.

However, we can say that certain subjects like navigation in the water transport, Inland Security, River information services, ship manoeuvring, towing, pushing are related exclusively with IWT.

Except for the nautical education there is no teacher with IWT background. At University level most teachers have a University background without practical experience. Some of the vocational teachers have practical background e.g. as practical training or inland navigation.

#### A.3.14 Slovakia

Most of the secondary schools such as Stredná priemyselná škola dopravná (Secondary School of Transport), Bratislava or Stredná priemyselná škola strojnícka (Secondary School of Mechanical Engineering), Bratislava specialized on transport, are focused on road and railway transport.

Inland water transport and logistics are only mentioned in courses like Transport Geography, Logistics, Logistics in Transport or Forwarding, Supply Chain, Logistics in transport, Science of commodities.

There are several private schools and yacht clubs which offer training in IWT however, not logistics.

In the Slovak Republic the academic education in the field of inland water transport and logistics is only realized at two universities, the University of Zilina from Zilina and the Slovak Technical University from Bratislava.

The University of Zilina – which is also an EDINNA member - is one of the oldest and biggest universities in the Slovak Republic. Nowadays it has seven faculties. The Faculty of Operation and Economics of Transport and Communications is the largest faculty at the university and is comprised of four departments which focus on air, rail, road and water transport.

The following subjects are taught:

- Waterways and Port Logistics,
- Technical Equipments in Ports,
- Logistics in transport – distribution, forwarding, supply chain;
- Operation of containers, container ships, container terminals and sea ports.

The staff members who lecture at the Department of Water Transport, of the University of Zilina have completed minimally the third degree (PhD degree). Most of the courses are lectured by internal experts. It is only rarely that services of guest lecturers are provided.

There were expressed interests/suggestions with regard to information material and practical contacts given in the answers to the questionnaires.

#### **A.4 Conclusion with matrix of main IWT-related topics covered in general logistics education**

When looking at the responses received it becomes clear that each course contains different elements of logistics education and different subjects linked to IWT.

The various pedagogical approaches with regards to the different topics chosen for the different target groups addressed is not looked at in this analysis.

It is a mere summary of existing IWT related topics in general logistics education.

An exact comparison of the different subjects touching on inland navigation in the different countries can therefore not be made.

The following table attempts to provide an overview of topics and subjects mentioned in the different country reports. We have tried to group them into main themes such as:

- Communication and technology
- Environment
- Infrastructure
- Intermodality
- Market
- Policy and Law
- Ports
- Specific research topics on innovations, strategy or intermodality
- Vessels and cargo
- Transport geography including the capacity of waterways

When looking at the outcomes of the research in the different countries – despite some outstanding initiatives – it becomes evident that there is a great need for tailor made information materials and a more strategic approach to include IWT in the general logistics information.

The findings of this work will be taken into consideration when delivering the next Deliverable – Strategy for the integration of IWT knowledge in general logistics education.

Countries (level of education)	IWT-related topics	AT		BE		HR	F	DE		HU	NL		RO	SR	SL	
		Voc. Ed.	Uni	Sec. Ed.	Uni	Uni	Uni	Voc. Ed.	Uni	Uni	Uni Appl.	Uni	Uni	Uni	Sec. Ed.	Uni
Communication and technology	Telematics in IWT/technology	x	x		x	x	x		x	x		x		x		
Communication and technology	Water transport technology					x			x			x				
Communication and technology	Technical equipments in ports					x										x
Environment	Sustainable development						x					x				
Infrastructure	Infrastructure			x		x	x									
Intermodality	Comparison of transport modes	x	x	x		x	x	x	x	x	x	x	x	x	x	
Intermodality	Hinterland Transport				x											
Intermodality	Integral and intermodal systems					x	x		x	x	x		x			
Intermodality	Combined transport						x			x						
Intermodality	Operation of container transport															x
Market	Attributes of IWT (strengths and weaknesses of IWT)	x	x	x			x					x		x		
Market	Transport planning	x	x			x							x	x		
Market	Market and prices	x	x	x	x		x	x	x					x		
Market	Organisations and different sector players/transport policy			x			x		x							
Policy and Law	Transport documents (customs, bill of lading)			x			x	x				x	x			
Policy and Law	Relevant legal knowledge			x		x	x	x	x	x		x	x			
Policy and Law	Water transport and security					x						x		x		
Ports	Port and Maritime Economics				x	x										
Research	Transport Economics and Policy				x											
Research	Monitoring systems										x	x				
Research	Transport economics										x	x	x			
Research/innovation	Naval fleet developments-innovations			x		x			x							
Research/Intermodality	Logistics strategy development										x	x				
Vessels	Types of goods and ships	x	x	x		x	x	x	x					x		
Waterways	Important waterways and ports (transport geography)	x	x	x		x	x	x	x					x	x	x

## A.5 Annexes

### A.5.1 Annex I: Model Questionnaire

Below you will find the model questionnaire which has been used in order to retrieve the required information:

In order to exploit the potential of Inland Navigation better, the European Commission (DG TREN) launched PLATINA, the Platform for the implementation of NAIADES, a coordination action within the 7<sup>th</sup> Framework Programme for Research and Technology Development ([www.naiades.info](http://www.naiades.info)).

#### **Questionnaire: General Logistics and Inland Waterway Transport**

The Work Package “Jobs and Skills” of the PLATINA project aims at integrating more Inland Waterway Transport (IWT) knowledge in the general logistics education. We are interested in learning about your educational and training offers in transport logistics with a focus on IWT. We would like to know the contents taught regarding IWT in your institution and would appreciate information on your **curricula or training contents** on IWT related subjects. Thank you for taking your valuable time to answer 4 short questions below:

#### **1. General Information:**

Name of your institution:

Address:

Website:

Email:

Contact person (phone & email)

#### **2. Information on logistics education and continuing training with a focus on IWT**

- a) Which general logistics courses (vocational education and/or continuing training?) with what type of diploma/degree do you offer? Are your courses certified and if so, by whom? Please list:
  
- b) Which of your courses contain elements of transport on Inland Waterways? Please specify:
  
- c) What is the duration of your courses and how many hours are dedicated to IWT?

- d) What is the specialized background of your teachers/trainers/professors teaching IWT elements?

**3. IWT related Curricula/Training content**

If possible please list the objectives and contents of the IWT related topics, modules or units:

We are interested in obtaining information on the lessons covering IWT and would therefore greatly appreciate excerpts from your curricula/training contents covering IWT either by email, mail or fax as indicated below.

**4. Future contact**

Are you interested in intensifying IWT in your courses and would you like to obtain more information including lesson materials on IWT?

If so, whom should we contact? Please specify contact details:

The progress of our work will be displayed on the NAIADES website.

We thank you for your cooperation and stay at your disposal for further questions.

Kind regards,

A.5.2 Annex II: Inventory of country specific logistics institutions

Since we distributed the questionnaires in different countries, we tried to collect the information by means of a comparable format.

We differentiated the national information according to levels of education:

- Vocational education
- University of Applied Science/Cooperative Education
- University
- Other training institutes

In the attached Excel sheets you will find the following information for each country separately.

Country specific details of the relevant institution and the offered course programme are described.

Location	Vocational School (original language)	Vocational School (english)	Logistical courses	Duration in years
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Contact details are provided:

Contact Person	Address	Phone	Email	Homepage
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An overview of subjects related to IWT and information on the staff involved in such lectures is also given. Participants of the questionnaire could indicate whether they are interested in receiving further information materials.

Information on logistics education			IWT related Curricula/Training content	Future Contact welcome (Yes or No)
Subjects with Elements of Transport on Inland Waterways (Name)	Duration of Courses	Background of Teachers		

Excel tables from the following countries are attached:

- Austria
- Belgium
- Bulgaria
- Croatia
- France
- Germany
- Hungary
- Netherlands
- Romania
- Serbia
- Slovakia