COMPETITIVE AND SUSTAINABLE GROWTH (GROWTH) PROGRAMME

STATISTICS

Working Paper

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1 Objective

The SPIN Thematic Network aims not only to develop a Common European Strategy to increase the modal share of inland navigation in the transport of goods but also to encourage the acceptance and implementation of this strategy. Therefore the first working group has to explore the framework conditions to achieve this objective. The relevant prerequisite is the knowledge of waterway performance of infrastructure and ports, the market potentials and the statistical data concerning inland navigation. Statistical data is one of the basic preconditions to evaluate the results of any strategy in relation to the status quo. The working paper "Statistics" will show what kind of data is needed and how they have to be prepared to achieve any evaluation.

Hence the main objective of the working paper "Statistics" is the development of a guideline for statistical recording and evaluation. This guideline will be used as a benchmark for the content and handling of the existing statistical sources about inland waterway transports in Europe. The results of this assessment should be used to establish an efficient system of data collection and statistical preparation for European inland navigation. Only the necessary statistics are to be prepared. However, they are to be prepared for all European countries in the same way. So every European or regional study or strategical evaluation will be based on a appropriate statistical data-base.

2 Benchmarks for Statistical Recording Concerning Inland Navigation

As mentioned above the main objective of this working paper is the development of a guideline for all statistical recording concerning inland waterway transports. This guideline shows what information is to be covered by statistical records. It is based on experiences of experts in the economic and technical field of inland navigation concerning statistical material they used or would have needed.

As a matter of course every statistics about inland navigation is to cover the same kind of information for different regions. This assures not only, that interregional comparisons are possible, but also that the statistical base for every study is of the same quality. The different items for which a benchmark for statistical recording has been elaborated are a register of inland vessels, transport volumes and the related transport performance, interfaces and relevant infrastructure, transport costs and transport prices, accidents in inland navigation, and the age and skills of the employees.

2.1 Register of Inland Vessels

A useful register of inland vessels is needed for many purposes. It is not only needed for statistical evaluation of the existing fleet, but also for forecast of the fleet development. For almost all kinds of statistical evaluation of inland navigation, knowledge about the relevant fleet is essential. Therefore, a register of inland vessels, which is updated frequently, is the best base. The following list shows the most important purposes, for which a register of inland vessels is needed.

To calculate the ***capacity of any waterways*** you will need to know the kind of ships travelling on it. You need to know at least the length, the width and the deadweight of all kinds of ships in the fleet, which is using and which is able to use this waterway.

Also for forecasting the ***traffic density*** of different waterways a register of inland vessels as well as a forecast of the fleet-development must be known. The traffic density is the base for the calculation of the ***probability of accidents***. Therefore, you will need the relevant fleet. Hence, not only the ships used for freight transport have to be well known, but also the passenger vessels.

Political institutions, which are responsible for the rules for inland navigation and at least implicitly responsible for the safety of inland navigation, need information about the probability of accidents in order to improve the rules of navigation or for technical standards. If these institutions want to improve the technical standard, they need to know how many ships are affected by the new standard. Only with the knowledge of the fleet the ***costs of general technical improvement*** can be quantified. To take a decision these institutions also need information about the average age of the fleet calculated with the dates of last modification of the vessels for two reasons. First they must know how urgent the new rules are needed, that means how many ships do not have an adequate technical standard. Secondly they must know how many ships need the improvement to calculate the investment costs.

Close to this point is the analysis of the age of every national fleet. This is a measure for the ability to ***compete for the national fleets***. The older the fleet the less the ability to compete and the higher is the need of new investments. On the other hand this shows different propensities to invest in the different countries.

Last but not least every ***cost-benefit-analysis*** of waterway projects is based on calculation of expected benefits of the fleet, which will be using this particular waterway. Therefore, a forecast based on the actual fleet has to be made, which can

only be made with knowledge about the actual fleet, that implies the necessity of a register of inland vessels.

Also for the evaluation of strategies to promote inland navigation a register of inland vessels is needed. For example if there are more or even more of younger or modernised vessels found in the register after political action, this action was efficient.

Such a register of inland vessels and a similar one for river see vessels should have the following attributes to be useful for the above described purposes. Similar to the IVR-Register[1] it might have different sheets, though the design of the data bank is not so important.

The first sheet should be one with general information:

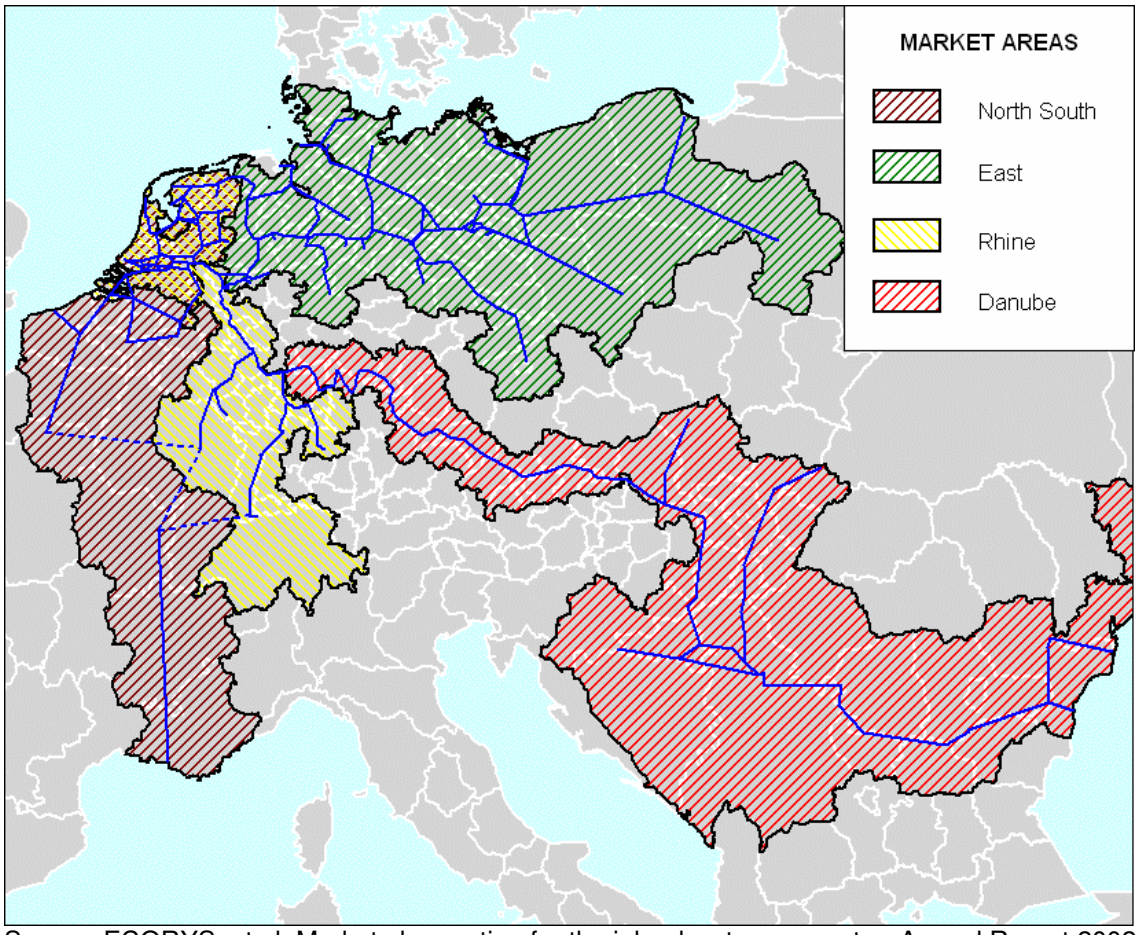
- Ship-ID
- owner (name, address)
- ship-type (tanker, general cargo motor vessel, ro-ro vessel, container-vessel, push-boat, general cargo push-barge, tanker push-barge, passenger-vessel, coaster, other equipment)[2]
- flag
- year of construction
- dockyard
- year of last modification
- class (date of next inspection)
- operating area/fleet (Rhine-fleet, North-South-fleet, Danube-fleet, Easterly-fleet, and other national isolated fleets, coaster)

The following figure shows, what is meant by the aggregated areas Rhine-area, North-South-area, Danube-area, Easterly-area.

1 International Association for the representation of the mutual interests of the inland shipping and the insurance and for keeping the register of inland vessels in Europe (http//www.rvr.nl).

2 This classification of ship-types is oriented on the one made for the statistics of accidents of inland vessels in: PLANCO Consulting GmbH (2002).

Figure 2-1 The Aggregated Corridors for Inland Waterway Transport



Source: ECORYS; et al, Market observation for the inland waterway sector, Annual Report 2002.

The second sheet should be about the hull:

- Ship-ID
- length
- width
- draught empty
- maximum draught
- deadweight
- double hull yes/no (only for tankers)
- container-rack yes/no
- TEU
- ADNR-Type

The third sheet should be about the drive propulsion system

- Ship-ID
- number of propellers
- number of motors with power per motor
- bow thruster yes/no power of bow thruster

The following examples of the sheets show how the information should be arranged.

Table 2-1: General Vessel Information (Register of Inland Vessels)

Ship-ID	Owner	Ship type	Flag	Year of construction	Dockyard (construction)	Last moderni-sation	Next inspection (class)	Fleet
7000772	Rhenus Alpina AG, Wiesendamm 4, CH-4019 Basel	Tanker	CH	1970	Hilgers AG	1987	2009	Rhine

The information about the owner is needed for further questions about the ship and relevant market information, it is necessary for surveys. The ship-type is relevant to know in which market segments the vessel is active. Nowadays the flag is not as important as the fleet or the owner, because the flags of the ships change quiet often. The more reliable information is the owner or the operating fleet, but the flag is necessary to compare the national fleets. Obviously the year of construction is the information for the calculation of the average age of the fleet in different countries. For the same purpose the date of the last modernisation is needed. The dockyard is important because of the information about and for the European shipbuilding industry. The next inspection shows when the next regular stop of activity will be, which is important for calculation of the costs and duration of temporary provisions.

Table 2-2: Hull Information (Register of Inland Vessels)

Ship-ID	Length in m	Width in m	Draught empty in m	Maximum draught in m	Deadweight in t	TEU	Double hull	Container rack	ADNR-Type
7000772	110	9,54	1,1	2,9	2104	0	yes	no	2

The information about the hull of the vessel is not only needed for technical purposes, but also for estimating the capacity of specific inland waterways. Hence these information are needed for every cost-benefit-analysis of waterway-projects. Of course they are also needed for other purposes, e.g. for the estimation of the costs of accidents one need to know what kind of ships might be involved in accidents.

Table 2-3: Information about the Drive Propulsion System (Register of Inland Vessels)

Ship-ID	Number of propellers	Number of motors with power per motor in kw	Bow thruster (power in kw)
7000772	1	970	0

This third sheet with information about the drive propulsion system could also be part of the second sheet, so there would be only two sheets one with general data of the vessel and one with the technical data. If one wants to subdivide the technical data in two further categories, it should be made in the way, which is shown above. The technical data is e.g. needed to evaluate accident-statistics. Additionally the age and standard of the motor could be recorded for ecological purposes.

The data bank should be updated every year, not because of many new ships, but because of the possibility of modification of the included ships and other reasons. Also the statistical recording should be all-embracing. That means every ship should be calendared. Many of the existing registers for inland vessels calendar only a part of the fleet. Every inland vessel should be recorded in one data bank like cars in Germany.

2.2 Transport Volumes and Related Transport Performance

At first sight transport volumes and transport performance is evident for showing how powerful inland navigation is. At second sight these information are essential for many purposes.

Transport volumes and transport performance are mostly needed for any kind of ***competition analysis***. The point of interest can be the competition between different fleets, divided by flags, different modes of transport, but also for evaluation of environmental aspects the knowledge of transport performance is essential. The transport performance should be denounced in ton-kilo-meters (tkm). Also the comparison of the transport performance of one-ship-companies with multi-ship-companies is an important point for different economic questions.

For most evaluations on freight transport the transport volumes and transport performance of every relevant transport mode has to be considered. If this is possible, one can calculate the ***modal split for different regions and relations***, which is necessary e.g. for ***environmental evaluation*** of freight transport. Together with the operating fleet in a specific region the transport performance describes the economic and ecological efficiency of inland navigation. To describe this in an

adequate way the transported goods have to be subdivided into groups. This should be made with the help of the NSTR-classification. This classification is the most detailed one, and can be aggregated into the DIW- or the Planco-scheme. Also the direction of the transport has to be considered.

A special field of interest are ***intermodal transports***. This kind of transport which combines the advantages of at least two kinds of transport-modes is not good recorded up to now. It is obvious, that a statistics about the transport-volume and the transport performance is helpful for evaluating strategies to promote inland navigation. If the transport volumes or the performance gets bigger, the strategy was successful.

The following tables show examples how the information about transport volumes and concerning transport performance should be recorded. The first one shows the data concerning the general transport information and the second shows the data concerning the goods and the vessel.

Table 2-4: General Transport Information

Transport ID	Point of loading	Point of unloading	km inland waterway	Second mode of transport	Origin	Destination	km second transport mode
5056	Rotterdam	Duisburg	261,02	Rail	Rotterdam (Origin second transport mode Duisburg)	Berlin	453,65

Similar to the proposed register of inland vessels a transport-ID is needed, if more than one table is used for statistical recording. An optimal recording of transport volumes shows for every transport the port where the waterway transport starts to the destination-port. Also the kilometre on the waterway should be shown. Hence the transport performance in tkm is easy to calculate with the help of the second table. Also should be recorded whether there is a second mode of transport used for the complete transport-distance and the transport-distance for this second mode should also be recorded. Hence the complete transport-distance is easy to calculate. Whether the second transport-mode comes chronological before the waterway transport or after it can be seen by a look at the ports. Is the destination-port of the waterway transport the starting point of the second transport-mode, it is apparent that the first part of the complete transport is the waterway transport. Otherwise the starting point of the waterway transport is the destination of the second mode of transport.[3]

[3] Similar statistics for intermodal rail transports should be established.

Table 2-5: Specific Transport Information

Transport ID	Flag of the vessel	Company type	Vessel type	NSTR	Tons	TEU
5056	Germany	One-Ship-Company	Container-vessel	99 special goods	800	84

The specific transport information are needed for the above described competition analysis. One have to know the vessels' types to specify the relevant market for a competition analysis. Also the other information in this table are needed mostly for competition-analysis. The transport information should be updated every year.

2.3 Interfaces and Infrastructure

Interfaces and infrastructure are essential for inland navigation. Without ports with adequate equipment, inland navigation is impossible. For the existing transports no further information about the ports are needed. It is obvious, that the existing infrastructure enables inland navigation to realise the transports as they are. But already for calculating the ***capacity for the transhipment*** of different goods in the port detailed information about the equipment available has to be taken into consideration. Hence the calculation of utilisation ratio is only possible with the information mentioned above.

Also for the ***comparison of different transport-chains*** one has to know not only where the ports are, but one also has to know if it is possible to handle the specific goods in the port. The information about all inland ports and their infrastructure together with the transhipment-capacities show the restriction for modal shifts towards inland navigation. It shows the need of further investments too. Of course not only the public owned inland ports should be recorded, but also the private ports with their corresponding equipment have to be calendared.

But not only the ports with their equipment are the point of interest, but also the infrastructure of the ***inland-waterways*** are of great interest. Often the inland-waterways themselves are the limiting factor for more transport on them. They can limit the possible draught of the vessels. Also the bends or locks can limit the maximum length or width of the vessels. Often the height of the bridges over the waterways are problematical for container-transports. Also the mean times of low water and of ice flood are interesting for calculating the possibility for transport on the waterways.

So there is the need for two kinds of statistical recording concerning interfaces and infrastructure. First the interfaces with their equipment, the ports, should be recorded, secondly the infrastructure, the waterways should also be recorded. Variation in the statistical recording of the interfaces and infrastructure indicate a reaction to changing frameworks. Hence such variations in connection with a strategy to promote inland navigation shows the success of the strategy or the reaction of the transport mode inland navigation to political negligence.

The statistical recording of the waterways should have the form of the example shown in the following table. The updating of this recording is easy, because the relevant data are at the governmental offices for the waterways. Hence this recording should always be up to date.

Table 2-6: Inland-Waterways

Name	Ports	Vessel-length in m	Vessel-width in m	Maximum possible draught in m	Average days of low water per year	Average days of icing per year
Neckar	Heilbronn, Stuttgart, Plochingen	105	11,45	2,8	2	0

The statistical recording of inland ports with their equipment is much more laborious. Much more details are relevant for further studies. The following example for one port shows what is needed for an economic and technical evaluation of the inland waterway interfaces.

Table 2-7: Port-Information

Name	Contact	Waterway	Area in hectare	Number of cranes	Total crane capacity tons per hour	Container turnover	conveyor belt	Distance to nearest highway in km	Rail
Hafen Orsoy	NIAG	Rhine, km 794	10	4	50	no	yes	6	yes

The information about the contact-person and the port's location are obvious. The size of the port, size and the number of cranes with their maximum capacity are necessary for calculating the overall port capacity. Also the possibility of container transhipment is essential. The distance to the nearest highway and the existence of rail services shows how big the trading area is. These information are also relevant for the connection to the TEN-T network and the Motorways of the Sea network. There are the following objectives: freight flow concentration on sea-based logistical

routes, increasing cohesion and reducing road congestion through modal shift.[4] The last objective is one, which also is aimed by SPIN-TN.

This statistics should be updated at least every fifth year, or if there are any changes in the ports. This could be handled if the ports have to announce variations to the relevant statistical bureau.

2.4 Transport Costs

Transport costs is a very delicate topic for statistical recording. No shipping company likes to publish their cost-structure, but every one would like to know the cost structure of the competitors. Hence a statistical recording of the cost structure of inland navigation is problematic due to the data problem, which arises because none likes to give the relevant information.

The cost structure is not only of interest for the competitors, but also for transport economical analysis. For calculating the ***transport demand elasticity***, which shows how many transports will switch from one transport mode to another if the costs will change marginal, the cost structure of every mode of transport must be known. The transport demand elasticity is essential for estimating the modal shift of various political activities, e.g. tax politics or toll.

Also for ***cost-benefit analysis*** of waterway projects the transport costs are needed for calculating, if a bigger vessel will shift transport from street or railway to waterway. Hence information about the cost structure are needed for a wide range of analysis, most of them are mentioned above.

The statistical recording of the cost structure of inland navigation should be made in the following way to cover the above mentioned characteristics:

For every operating area given in the register of inland vessels (Rhine-fleet, North-South-fleet, Danube-fleet, Easterly-fleet, and other national isolated fleets, coaster) an individual statistics of the cost structure should be established. At best additionally to the cost structure statistics of the operating areas statistics of the cost structure per fleet should be made in the same way. This would show the differences between the costs per national fleet, which will show the advantages and disadvantages of these fleet in competition with each other.

[4] European Commission (2004).

The cost should be subdivided at least into the categories: capital costs, labour costs, fuel costs and other costs. Other costs consists of costs for maintenance, insurance, labour union fees, taxes and mooring and canal dues. Hence these costs could be recorded in a more detailed way. To have the costs all in the same unit they should be recorded as monetary costs per year. With the additional information about the transport performance costs per tkm can be calculated. For comparison of different operating areas or flags the cost structure has to be shown in a relative way, that means the share of the above named categories of the total costs are helpful for these purposes.

Strategies to promote inland navigation often will have an effect on the cost structure. Hence the strategy can only be successful, if the cost structure will change in the desired direction. So the statistical recording of the cost structure shows the effects of the strategy.

The cost structure has to be recorded for groups of transported goods. The groups of goods should be container, liquid goods, dry general goods and packaged goods. Also different vessel types have to be distinguished. It lends itself to take the categories used in the market observation for the inland waterway sector[5] (Motorship <450t; Motorship 450 – 1200t; Motorship >1200t; Push convoy <5000t Push convoy >5000t; Containerships; and for liquid cargo[6]: Tanker <1200t; Tanker >1200t). A more detailed classification would bring too small samples for building averages. A statistics of the cost structure of inland navigation in relative terms should look like the following table:

Table 2-8: Cost Structure of Inland Navigation (Shares in %)

Ship	General goods					Container	Liquid cargo	
	Motor Ship	Motor Ship	Motor Ship	Push Convoy	Push Convoy	Container-ship	Tanker	Tanker
	< 450t	450t – 1200t	> 1200t	< 5000t	> 5000t		< 1200t	> 1200t
Capital costs	28	29	24	60	50	31	28	24
Labour costs	40	38	51	15	15	30	13	16
Fuel costs	8	9	3	4	5	10	9	5
Other costs	24	24	22	21	30	29	50	55

The cost statistics should be updated at least every year, just because of the inflation. But because of seasonal influences it would be better to update every

5 ECORYS; et al (2002).

6 A further distinction between gas tankers and other tankers or something like that will not work, because of too small market sizes with small numbers of shipping companies by more detailed recording. So the will to deliver information will be very low.

quarter of a year. Because of seasonal influences the fuel costs and the other costs vary during a year. The capital and labour costs do not change within one year. The seasonal changes in the fuel costs and other costs are not only caused by price movements of the fuel, but also because of varying navigational conditions, e.g. low water or ice-formation. Bad navigational conditions entail less shipments, that means less costs of shipments like canal dues. The average over many years shows, that these seasonal influences will cause similar cost structures for the same quarters. Therefore it would be optimal to have a quarterly reporting of the cost structures.

2.5 Transport Prices

Prices in a competitive environment should just cover the costs. This is only true in textbook-economics. The prices of inland navigation are not just the result of competition between various shipping companies, but also a result of the competition between the transport mode inland navigation and the competing transport modes on special transport relations. Hence transport prices of inland navigation have to be recorded, even if the costs are very well documented.

The prices are needed to show the situation of inland navigation in ***competition to the other transport modes***. In combination with the cost structure prices are also an indicator for the ***competition in inland*** navigation.

Hence ship owners should be interested in the price information. So they cannot watch only their own contracts but are also able to compare their prices with them of their competitors. With price information they also have the possibility to have a look at their ***companies efficiency***. It might be possible to find causes for the realised utilisation ratio by having a look at the prices and the cost structure of a company.

Rising prices can show that the demand for inland navigation transports has grown. Hence such price-movement could be an indicator for a successful strategy of promoting inland navigation. For instance if the safety advantage of inland navigation is well promoted the demand for inland navigation could increase, which could result in higher prices.

The price recording should show the transport prices in inland navigation for different goods in different operating areas. At least the goods categories bulk, liquid, general cargo and container should be distinguished. At best the prices should be recorded for the 12 DIW goods groups and containers. A more detailed recording, e.g. in the NSTR-classification would be problematical, because of too small sample sizes for

every category. Beside the statistical problems of small sample sides a second problem would arise. The more detailed the published information are the less is the willingness to give information by the ship owners.

In order to compare the prices the best is to have them in Euro/tkm, because the transport distance is a very important influencing factor for the prices. It would be very helpful to get information about the prices for different kinds of ships too. The prices of transports with a longer lasting contract should also be distinguished from transports on the spot market. These are different market segments with different processes of formation of prices. The following table shows an example how the price statistics should look like. The prices should be updated every year, even because of inflation.

Table 2-9: Prices in Inland Navigation per tkm for the DIW-Groups

DIW-Group	Contract Market in Cent/tkm	Spot Market in Cent/tkm
agricultural commodities	2,30	2,53
food- and feeding stuff	2,24	2,46
coal	2,50	2,75
mineral oil products	2,48	2,73
Iron-ore	2,52	2,77
iron/steel wastes, non-iron-ore, -scrap	2,39	2,63
iron, steel and non-iron-metals	2,42	2,66
stones and earths	2,19	2,41
chemical products, fertilisers	2,35	2,59
investment goods	2,55	2,81
consumer goods	2,56	2,82
container	2,60	2,86

2.6 Accidents

Inland navigation is very safe in comparison with the other transport modes. Only a few accidents happen and this is a good marketing argument for transports on the waterway. Therefore, the statistics of the accidents has to be well established to strengthen this argument. To ***show the security standard in inland navigation*** a good accident statistics has to be established.

This promotion argument for inland navigation should be further analysed. The different reasons for the accidents and the involved vessel types should be recorded

as well as the flag of the causer of the accident. These information show how the safety standard in inland navigation can be further improved.

An investigation of the reasons for accidents in inland navigation enables politicians to set a framework for this transport mode, which will reduce the probability of accidents. If the costs of the accidents will be recorded a cost benefit analysis of safety regulations will be possible too. Hence only efficient regulation will be established with the help of this instrument.[7]

For a meaningful statistical recording of the accidents in inland navigation the statistics should have the following attributes:

The scene of the accident must be recorded, that means on which waterway and in which section happened the accident. The types of the involved vessels, the accident causer, the kind of accident, the weather conditions and if possible the accident costs are to be recorded. The classification of the vessels should be the same like the classification used for the register of inland vessels. The flag of the accident causer should be recorded to see whether the vessel of some countries are more often guilty than others.

The classification of accident causes and of the kind of accidents could be the following:

7 For Germany such an instrument has been built. Planco Consulting GmbH (2002).

Table 2-10: Classifications of Causes of Accidents and of Kind of Accidents in Inland Navigation[8]

Causes of the Accidents	Kind of Accident
driving under the influence of alcohol	accident at work
lost anchor	fire
accident at work	ice damage
exhaust pipe damage	passenger accident
autopilot defective	grounding
bow thruster breakdown	collision with bank/construction
defective electrical system	collision with a shipping sign
ice-formation	collision with a lock
deficiencies at hull	lost cargo
deficiencies at shipping space	leakage
deficiencies at vessel apartment	accidental bodily injury
engine breakdown	damaged rudder
material wear	sunk vessel
human mistake crew	lost vessel parts
human mistake passenger	vessel crash
navigational mistake	flotsam
radar breakdown	water damage
rudder breakdown	
rend rope	
defective technics of the wheel house lowering device	
flotsam	

The statistical recording of accidents in inland navigation should have the following design:

Table 2-11: Accidents on Inland Waterways

Waterway Section	Vessel type Causer	Flag Causer	Involved Vessels	Cause of the Accident	Kind of the Accident	Cost in Euro	Weather Conditions	Number of Injured People	Number of Dead People
Rhine km 585 - 593	tanker	German	container vessel	navigation-al mistake	vessel crash	125.000	rainy	1	0

This kind of recording allows different kinds of evaluation, e.g. how often one flag causes accidents on a specific waterway or which accident cause was the most dangerous on all inland waterways. Of course the recording has to be updated yearly.

8 These classifications are the ones used for Germany in: Planco Consulting GmbH (2002).

2.7 Working Conditions

The statistical recording of working conditions should be a collection of the different rules in different countries concerning inland navigation, but it should be a collection of de facto working conditions in these countries too. These information are essential for a competition analysis of inland navigation in different countries and for different flags in the same country. It indicates the different qualities, that are reached in this categories.

The most important information in this content are the number of crew on board, that are given by rule and the working hours per day of crew. Concerning the working hours the distinction between hours given by rule or by agreement of tariff and the average of the realised hours per day of one year is absolutely necessary.

The statistical recording of the working conditions need to be made in two different ways. First the rules, that are given for specific operating areas like the river Rhine need to be collected in an overview. These rules are given for every vessel travelling on the waterways the rules are made for. Hence the flag of the vessel is irrelevant. Secondly the working conditions given by law for the different flags need to be collected, because these rules are part of the framework of the competition between different countries operating on the same waterways, e.g. the agreement of tariffs for Polish and the agreement for German sailors are very different.

The working conditions are the most important competition parameter. Hence an overview of the relevant rules for the operating areas and the flags should be made. This overview should be updated, if there are any changes in the rules. For the de facto conditions a census should be made yearly.

2.8 Employees

Similar to the statistical recording of the working conditions the recording concerning the employees in inland navigation is not only a collection of figures, but also an overview of the skills and the education of the employees.

The skills and education of the employees are competition parameter between the ship owners of different countries working in the same operating area. Higher educated employees with better skills are an indicator of higher quality. This is at least an important competition parameter in the field of transport of dangerous goods. In this way it can be the argument for higher prices.

But in contrast to the working conditions some data of the employment in inland navigation should be collected as figures. The number of employees in inland navigation grouped by their education level, that means how many skippers and how many sailors are in one country. Variations of these figures show how interesting the jobs in inland navigation are compared to others. Also these figures are important for political purposes. The share of the employment in inland navigation of the overall employment shows how important this class of business is for the employment market. But how important the inland navigation for national economies is can not be seen in this figures, because there are indirect economical effects of inland navigation. These indirect economical effects can not be seen in this figures, but they are not as often needed as the number of employees itself.

The numbers of employees in inland navigation should be recorded every year as it is done for other branches as well.

3 Current Situation of Statistical Recording Concerning Inland Navigation

This part of the Working Paper will give an overview of the existing statistical material about inland navigation in Europe. Comparing the results of the investigations about existing statistics with the benchmark will show the deficits and the parts which have to be improved. There might be further statistical material, which is not listed here. The material listed below are the sources named by experts in inland navigation and by contacting the relevant national statistical bureaus and their websites.[9]

The directive 80/1119/EWG of the European Council from November the 17th 1980 commits all member states with one or more inland waterways to establish a statistical recording of the freight transports on inland waterways. The following information have to be recorded by those countries: the main transport relations, the kind of transported goods, the vessel types, the flag of the vessel.[10] Regarding the benchmark the information given by Eurostat is not detailed enough. In addition to this many data in the published statistics are missing or marked as not available.

9 For the Ukraine, Belarus and Russia no further information were found, though contacting relevant institutions, e.g. the German embassy in Moscow. A former employee of the embassy, who was responsible for transport information told, that there are only very few information about inland navigation in Russia. Most of it are just some news in journals or newspapers.

10 http://europa.eu.int/comm/eurostat/newcronos/reference/display.do?screen=welcomeref&open=/transp/inlandww&language=de&product=EU_transport&root=EU_transport&scrollto=0

3.1 Register of Inland Vessels

The most popular statistical sources about inland vessels are the IVR-register[11] and the registers of the Danube Commission and the Central Commission for Navigation on the Rhine (CCR). The general problem of all registers of inland vessels is, that none of them has all vessels recorded. Even the above called registers do not do so, e.g. the IVR calendars only a few passenger vessels. The most of them are missing. This shows, that this statistics is not well enough controlled with the help of the national registers. There might arise discrepancies between the national registers and the registers of the IVR or the CCR. The same applies analogously for the register of the Danube Commission and the national registers of the Danube-countries.

In many countries there are national registers of vessels, that record all national vessels, e.g. in Germany the Central register of inland vessels (Zentrale Binnenschifffahrtsbestandsdatei)[12], which is administered by the Federal Waterways Directorate Southwest. This database is continuously updated. Recorded are the name of the owner, the home-port, the identification-number of the vessel and the application of the vessel with its necessary entries in the ships papers. Many of the data shown in the first table of the benchmark are missing in the national registers (Dockyard, year of last modification, operating area). Very important is the deficiency of the operating area of the vessel. This might be one cause for the discrepancies between the national and the international registers.

Though the IVR says, that the register contains all vessels of the Rhine-countries and Belgium, there are differences between the IVR-register and the national statistics as mentioned above. This is strange, because the IVR works together with the national authorities and gets the data from them. If all relevant countries deliver the data correctly and actually and the register of the IVR is also updated actually, there could not be any discrepancy between those registers. The only problem, which might arise is the missing operating area in the national registers. The same problem exists for the register of the Danube Commission and the national registers of the Danube-countries.

[11] The price of the IVR-register for non members of the IVR is at minimum 320 EURO per year (http//www.ivr.nl).

[12] Aggregated information about the national register are published annually by the German statistical Bureau in: Statistisches Bundesamt (2004).

An example for published aggregation of a national register of inland vessels is the website of the Dutch Central Bureau for Statistics ("Centraal Bureau voor de Statistiek, CBS). This website shows the number of inland vessel in different categories for the registered fleet, the active and the inactive fleet. Such overviews are helpful, if the size of a specific group of vessels has to be known, but for the purposes named above in the benchmark, these information are not detailed enough.[13] More detailed information similar to that German ones can be found in the annual report of CBS. The same applies to Belgium.

England does not publish an register of inland vessels, though information about coastwise transports in the United Kingdom and the relevant vessels therefore are part of the Transport Statistics Bulletin.

Other national statistical bureaus like the one in Switzerland get their information indirectly. In Switzerland the information about inland navigation comes from the Bureau of Rhine-Shipping (Rheinschifffahrtsbüro). Because of such secondary sources the national statistical bureaus of Switzerland admits varying qualities in the statistical records. The quality of the register of inland vessel in Austria is similar to the quality of the Swiss register. For Luxembourg and France no register has been found, but information about inland navigation is published in the internet.

Similar to this quality problem are the problems in the East European countries.[14] In Croatia a yearly survey on inland vessels in inland waterways is made. The number of different kinds of vessels is estimated with the help of questionnaires. So there is no reliable database in Croatia. In the Czech Republic and Slovakia a similar method is used with the same quality-problem. For Serbia and for the Ukraine a register of inland vessels exists with a similar quality to that in Germany.

Information about inland vessels in Poland, Hungary, Romania and Slovakia are not published. For the study about the potentials and future of German inland navigation the data about these countries were estimated with the help of interviews.

Finland provides just good information about maritime shipping, e.g. a register of Finish maritime vessels. For inland navigation are no reliable information published. The same applies for the Baltic countries.

[13] http://statline.cbs.nl/StatWeb/table.asp?STB=G1,G2,G3,G4&LA=nl&DM=SLNL&PA=37761&D1=0-80&D2=a&D3=0&D4=a&D5=l&HDR=T

[14] For Romania and Hungary no reliable sources were found.

Though the German national register of inland vessels in comparison to all other registers is very good administered, it is not as good as the benchmark requests. Another problem is, that the information of the German register is not public. The information is only given to some official institutions, hence for consulting purposes the information is only available if the customer of the consultant is such an institution.

3.2 Transport Volumes and Related Transport Performance

The transport volumes in Germany and in Austria are recorded in a very good way. In Germany the ports collect the data and give them to the German Statistical Bureau (Statistisches Bundesamt). The data are collected for NSTR-groups (Nomenclature Statistiques Transports Reviseé)[15]. Hence the statistical bureau records all transports by inland vessels from the starting point to their destination port. This is nearly what is required by the benchmark. Just the information about the flag of the vessel, the company type and the vessel type is missing. If this information would also be recorded like it is done in Austria the transports by inland navigation would be recorded in an optimal way. Transport volumes and transport performance in tkm can be calculated with this information without any problem. Because the transport-relations are given from port to port, the information are also given for the NUTS 3 regions (Nomenclature des Unites Territoriales Statistiques). So it would be easy to get this data standard for the European Community.

But there is more missing compared to the benchmark. The information about a second mode of transport are not recorded. So intermodal transports can not be distinguished from other transports. There are no information about intermodal transport with inland vessels too.

There is one last problem with the above described transport information. Those information are not published in a detailed way. The detailed information are only given to official institutions or consultants working for official institutions. The costs for this information are negligible. The customer has only to pay for the programming of the query.

Similar information are collected in all countries of the European Community, which have significant waterway transports. For example the French Statistical Bureau

[15] Aggregated information about the transport volumes are published annually by the German statistical Bureau in: Statistisches Bundesamt (2004).

publishes overall transport performance in different preparations for France on the internet.[16] The same applies to the Netherlands[17] and to the Czech Republic[18]. Also for Bulgaria, Hungary, Romania, Slovakia, Croatia and Poland similar information are collected.

In the United Kingdom additionally coastwise transports to the UK-ports are recorded and published in aggregated version. Those information about short-sea-shipping or river-sea-shipping is not documented in other countries.

3.3 Interfaces and Infrastructure

Information about the infrastructure of the inland waterways are for the European countries good recorded. In Germany the Federal Waterways Directions have all information about the infrastructure and publish them. But also for the so called Central European Waterways those information are available. The Society for European Inland Navigation and Waterways publishes maps with those information for Central Europe. Also for the East European countries information about the waterway infrastructure is recorded, even it is not so well documented. All in all the infrastructure of the European waterways is quite good recorded.

The problem is the recording of the interfaces. The Society for European Inland Navigation and Waterways publishes the West European Almanac for Shipping and Ports (WESKA) with information about inland ports in West Europe. The information in this almanac show every public and private port at the West European waterways. Sometimes the private ports showed there are no longer in use. So the reliability of the information is not optimal. Information about the equipment in the ports are not recorded. The locations of the ports are also documented in the East European countries, but information about the equipment in the ports is not published.[19] For the Danube the Manual of Danube ports shows all relevant data, but it is not published frequently.[20]

Even the European Federation of Inland Ports (EFIP) and the German Federal Association of Public Inland Ports (BÖB) do not have those information. A second

16 http://www.indices.insee.fr/bsweb/servlet/bsweb?action=BS_RECHGUIDEE&BS_IDARBO=12050000000000

17 http://statline.cbs.nl/StatWeb/table.asp?STB=G1,G2,G3,G4,G5&LA=nl&DM=SLNL&PA=37731&D1=a&D2=0-2&D3=0-2&D4=0&D5=0&D6=l&HDR=T

18 http://www.czso.cz/eng/edicniplan.nsf/p/1410-04

19 Also for Germany a register of ports without further information about the ports was published in 1995, but it has not been updated up to now. See Statistisches Bundesamt (1995).

20 http://handbuch.via-donau.org/handbuch_dh/index.html

problem that arises is, that there are no information about private owned inland ports. Because there is no law that provides that the public inland ports have to be member of one of these associations, it is not assured that these associations have information about all public ports.

Many ports themselves use their transhipment-volumes for marketing purposes. Not so many use their infrastructure and equipment for advertisement. That is a bit strange, because their ability for logistical services is the most interesting information for customers.

Hence even in the quite well documented West European region, there are many lacks in information. All these information are doubtless collectable, but none of those countries does so. For the Central European and East European countries with significant transport volumes on the inland waterways these information are worse to get. An overview of all inland ports with their infrastructure and equipment doesn't exist for any country. The greatest problem for such an overview are the private inland ports.

3.4 Transport Costs

The statistical recording of transport costs of inland navigation transports does not exist in a useful way. With the market observation for the inland waterway[21] sector some information about transport costs for West and Central Europe were collected. The data structure of the collected cost information was required by the benchmark. The problem was the rather small sample size. So the reliability was not extremely high. The second problem with the market observation is, that it does not exist in a continuous way. The market observation was done in this way only for two years. Before that time it was done in a different way. The only cost, which was published continuously were the fuel costs, but this is only one small part of the total cost.[22]

For the East European countries information about the transport costs in inland navigation are not published continuously. Obviously they are not recorded. Only the Manual on Danube Navigation delivers information about the transport costs in an adequate way, but this publication is published only solitarily.[23] Hence at the moment

[21] ECORYS; et al (2002).

[22] NEA Transport research and training B.V. offers a comparison for freight transport annually in which cost per tkm and similar indicators are presented and also transport prices, but not in the way the benchmark requires the information. The price of the NEA report is 240 Euro (http://www.nea.nl).

[23] http://handbuch.via-donau.org/handbuch_dh/index.html

transport costs in inland navigation are obtainable only with the help of interviews and questionnaires. Whereby interviews will lead to higher standard of reliability than questionnaires.

3.5 Transport Prices

Transport prices are published for the river Rhine by Bonapart and Vaart[24] two internet journals, which are working together in this field. They publish price indices for tkm, dry cargo and liquid cargo. These indices show the price movements on the spot market, but the information are not as detailed as shown in the benchmark. Also the journal "Binnenschifffahrt" publishes transport prices for different relations, but not for different goods. The prices shown there are the highest prices for the relations.[25]

Also the market observation for the inland waterway sector showed the price development from 1998 to 2002, but also not in a detailed way like it is required by the benchmark. There are some more sporadical investigations in the transport prices in inland navigation, but no real statistical recording. Information about the prices in Central or East Europe are not documented.

Even for the relatively good recorded operating Rhine area a distinction between the contract market and the spot market is not possible. For the spot market the indices of Bonapart and Vaart are not so far away from the benchmark, that they could not be used. Despite the statistical recording of the prices in inland navigation need to be improved.

3.6 Accidents

Accident statistics on inland waterways exists in Germany, which is published annually. Also in the United Kingdom an overview of the accidents on the inland waterways is given as part of statistics about all accidents in navigation. The Marine Accident Investigations Branch documents the data annually in a rather detailed way, but not as detailed as shown in the benchmark. In Belgium and in the Netherlands those statistics are not published periodically. For France and Austria as well as for the Central and East European countries no information about accidents on inland waterways have been found.

[24] http://www.bonapart.de
[25] Binnenschifffahrt, Vol. 59 (2004) 7/8, p. 8.

Germany seems to have the best statistical recording about accidents on inland waterways, but even this statistical material is not satisfying.[26] This statistics gives just an overview of aggregated data. No accidents causes or weather conditions, while the accidents happened, are shown there. Even the kinds of accidents are not detailed enough, though they are documented. About the accident costs no information are given. The high aggregation level is not necessary, because the data collection with the help of the accident report, which are filled in by the police, is rather detailed. Hence only more detailed evaluation of the data with the help of the categories shown in the benchmark would lead to an nearly optimal statistical recording. Up to now there is no satisfying form of accident statistics in Europe.

3.7 Working Conditions

The working conditions in inland navigation should be divided into the de jure conditions and in the de facto conditions. The de jure working conditions in inland navigation exist in every country with waterway transports. The before mentioned laws and regulations are published in every relevant country. But not all relevant regulations are collected in one overview, which would be extremely helpful. The best overview of regulations is given by the Central Commission for Navigation on the Rhine (CCR) on its website.[27] But even this overview is not complete. The working hours per day, the wages and so on, which are regulated by the agreement of tariffs in every country are missing. This situation arose, because only the regulations, which are valid for the complete river Rhine are listed by the CCR. For all other countries such an overview is missing except for Germany, though it would be easy to collect the information. The German Accident Prevention and Insurance Association for Inland Navigation publishes all relevant laws except the regulations published by the CCR on its website.[28]

The overview of the de jure working conditions is easy to establish and could be done by the Accident Prevention and Insurance Associations for Inland Navigation of the countries. The de facto working conditions are not recorded at all, that means information about the average working hours per day, the average wages, which are probably higher than the ones of the tariff agreements, and so on are not recorded

[26] Aggregated information about accidents on inland waterways are published annually by the German Statistical Bureau in: Statistisches Bundesamt (2004).

[27] http://www.ccr-zkr.org/

[28] http://www.bsbg.de/bsbg/gesetze/gesetze.html

for the inland navigation sector. In Germany such information for a wider range of branches are recorded by the national statistical bureau.

3.8 Employees

The number of employees in inland navigation with their skills and education is not recorded in any relevant country. Even in Germany such figures are missing, though the Accident Prevention and Insurance Association for Inland Navigation must have the figures without detailed information about the skills. Only for a wider range of branches such figures are collected by the national bureau of statistics in Germany. In contrast to the figures of the Accident Prevention and Insurance Association for Inland Navigation there are also numbers of self-employed people recorded, but just for the high aggregated level of branches transport and telecommunication. Hence an European statistics of employment in inland navigation is missing.

4 Recommendation for the Improvement of Statistical Records Concerning Inland Navigation

In this chapter recommendations for an improved statistical recording is made considering the possibilities of achieving such a system. It is not useful to require a system, which is just a theoretical optimal approach. It is better to ask for a system, which is as good as it can be given the existing framework for data-collection. Of course all data should not only be published on paper but also in electronic form. At best most of the data should be published in the internet.

4.1 Register of Inland Vessels

The national register of inland vessels in the Rhine-countries are well administered[29]. Hence it would be easy to achieve a register like required by the benchmark above. Therefore only a few more data have to be collected. The main missing information in the national registers is the operating area of the vessels. This should be an information which is easy to get from the ship-owners. If they do not answer this question, the home port could be an indicator for the operating area. Also the other missing data like dockyard and year of last modification should be easily recorded.

[29] In France the quality of the register is not as good as in the other Rhine countries.

With such improved national statistics a register of all European inland vessels can be achieved. This should be the aim of Eurostat to come to this status. The current published information from Eurostat are not detailed enough and have to much missing values.

In the European Non-EU-Countries a national register has to be established in the same way like it exists in Germany. Therefore it is the easiest way to commit the ship-owners in these countries by law to give the relevant information to the national statistical bureaus.

4.2 Transport Volumes and Related Transport Performance

The transport volumes for inland navigation are recorded quite well in Germany. The information are recorded with a standard used by the European Commission. The only important thing, which is missing are the information about intermodal transports. This could be done, if the data, which are collected by the ports would be a bit more detailed. Therefore for every transport with more than e.g. 50 km post-carriage the information about the second mode of transport need to be recorded as well. This seems to be very easy, but there is the problem of collection a big number of additional information. This could cause problems in the ports and for the ship-owner. For example a container vessel with 400 boxes on board and only half of them with a post-carriage of more than 50 kms means 200 data sets more to collect.

Though it would be good to collect this additional data, it would be much more important to get the data like they are recorded in Germany for the complete European Community and the other European Countries with a significant amount of inland navigation transports. It also would be easier to get the missing information about the flags, company types and the vessel types, than to get information about post-carriage. Because those additional data are easy to collect and no confidentiality problem exists, this should be done. There is no problem of confidentiality by the ship owners that is why the information about transport volumes should be public. Most of the inland ports advertise their transhipment data. So there should not be any problem regarding confidentiality at all.

4.3 Interfaces and Infrastructure

Even the BÖB and the EFIP do not provide all relevant data, though it would be helpful for marketing activities. Private owned ports are not recorded at all. The ports

shouldn't have any problems to give away the information about their infrastructure and their equipment. The better their potentials are published, the easier customers will get the information they need. So there should be no problem to establish a documentation of all inland ports with their infrastructure and their equipment. The collection of the data could be done by the national statistical bureaus with the help of questionnaires. As soon as a database is established, it has to be updated at least every five years. This could be handled easily if the ports have to announce variations of their infrastructure or equipment to the statistical bureaus.

4.4 Transport Costs

There is no reliable recording of transport costs for inland navigation available. A complete new recording should be established. It should be easy to get the information about transport costs in the categories shown in the benchmark by the ship owners especially because it would be helpful for them to see their own economical efficiency in relation to the averages.
The collection of information about the cost structure is problematic, because these information are confidential and many ship-owners do not want to give them away. To make it easier for them to give the information to a statistical bureau it would be helpful to give the owners the evaluated data back free of charge. All others should have to pay for them. That means first the confidentiality is guaranteed because of publishing only the averages as described in the benchmark and second the ship owners get back something they are interested in in return to their given information to the statistical bureaus. Of course the statistical recording of the transport costs should be updated every year.

4.5 Transport Prices

There is no reliable recording of transport prices in inland navigation except for the river Rhine done by Bonapart and Vaart. For the ship owners it should not be problematic to reveal their prices per tkm. Published only in averages they do not need to be afraid to give away secret information, but get a good overview of the prices, which are paid on the market. This is only possible for the spot market.

The prices in the contract market are problematical. The contracts will last for different periods and will be the result of individual bargaining with partners working together for many years. Hence no one would like to make those bargaining results public. Though the benchmark requires a statistical recording for both markets, it is

only recommended to establish one for the spot market. The contract market is too heterogeneous for aggregating and to confidential for publishing.
For the spot market it should be possible to establish a statistical recording like the benchmark shows for the operating areas mentioned above. Even for the East European market this should be possible.

4.6 Accidents

There is quite a good documentation of the accidents by the police, but these information have to be put in a statistical recording like shown in the benchmark, which e.g. for Germany would be no bigger problem as mentioned above. Just an additional estimation of the accident costs and all data for the optimal version of an accident statistics in Germany would be possible. Hence the other countries should follow this example and should evaluate the collected data with the help of the classifications given by the benchmark. With the help of this tool a statistical recording of the accidents like shown in table 2-11 is possible without much more effort. The statistics should be updated annually.

4.7 Working Conditions

In most of the countries all of the information about regulations and law for inland navigation can be found, but an overview does not exist. Such an overview should be made by the National Accident Prevention and Insurance Associations for Inland Navigation, because they have most contact to the laws and regulations and are involved by creating them. An overview of all relevant laws in Europe should be published be the European Commission or by Eurostat. An updating of this publication should be done, if some regulations have changed.

The de facto conditions like working hours per day and average wages, which are paid, should be recorded by the national statistical bureaus. In Germany this is done for the statistical yearbook for a higher aggregated branch than inland navigation. It is done for transport and telecommunication. Hence this has to be done in a more detailed way and an optimal recording about the working conditions in inland navigation would be established. Of course for all other European countries it has to be done in the same way. This statistics should be updated every year.

4.8 Employees

The number of employees and their skills and education is not well documented. There should be a new statistical recording which shows the information like in the benchmark. The number of employees should be recorded by the national statistical bureaus like it is done in Germany for a higher aggregation level of branches. Therefore the data only has to be less aggregated. This should be updated annually.

A recording with the skills and education of the employees has to be established. It does not exist up to now. This could be done by the national statistical bureaus with information given by the vocational schools for inland navigation and the federal directions for inland waterways. This would show how high the lower limit of education of the employees is, because not all additional skills got by further education will be recorded. A comparison between the skills of the employees of different countries would be possible, because for all countries only the lower limits would be recorded. This statistics should be updated annually. An overview of the results of this statistical recording should by published by Eurostat.

5 Conclusions

Following an action list for improvement of the statistical recording is shown. The list begins with top priority of action to be done. The order of the subchapters in the recommendation shows the priorities as well as the following list.

Table 5-1: Strategy Directions for an European Register of Inland Vessels

Aim 1	Establishment of a useful European register of inland vessels	
Aim 2	Establishment of a useful national registers of inland vessels	
	Proposed actions	Responsible Actors
A	Improvement of the national registers at least to the German standard	National statistical bureaus
B	Recording of the information about the last year of modification and the operating area of the vessels	National statistical bureaus
C	Delivery of the national registers to EUROSTAT	National statistical bureaus
D	Establishment of a useful European register of inland vessels with the same structure like the national registers	EUROSTAT

Table 5-2: Strategy Directions for a Statistical Recording of Transport Volumes and Related Transport Performance

Aim 1	Establishment of a useful European statistical recording of transport volumes and transport performance of the inland navigation	
Aim 2	Establishment of a useful European statistical recording of transport volumes and transport performance of intermodal transport	
	Proposed actions	Responsible Actors
A	Collection of the data of the second mode of transport	Ports
B	Recording of the collected data	National statistical bureaus
C	Improvement of the national transport statistics to the German standard with additional information about intermodal transport	National statistical bureaus
D	Delivery of the national registers to EUROSTAT	National statistical bureaus
E	Establishment of a useful European statistics of transport volumes and performance for the inland navigation and intermodal transport	EUROSTAT

Table 5-3: Strategy Directions for a Statistical Recording of Interfaces and Infrastructure at the Inland Waterways

Aim	Establishment of a useful European continuously recorded statistic of interfaces and infrastructure of inland waterways	
	Proposed actions	Responsible Actors
A	Collection of the data about the infrastructure and equipment in the ports (even of the private ports)	Ports
B	Recording of the collected data	National statistical bureaus
C	Establishment of useful continuously administrated national statistics about infrastructure and interfaces like shown in the benchmark	National statistical bureaus
D	Delivery of the national statistics to EUROSTAT	National statistical bureaus
E	Establishment of an European statistics of interfaces and infrastructure in the same way like it should be done with the national statistics	EUROSTAT

Table 5-4: Strategy Directions for a Statistical Recording of Transport Costs in the Inland Navigation

Aim	Establishment of a useful European continuously recorded statistics of transport costs in the inland navigation	
	Proposed actions	Responsible Actors
A	Collection of the data about the cost structure in inland navigation, the data should be given in shares of cost categories of the total costs	Shipping companies, which will get the statistical evaluated information free of charge. Other institutions and companies are to pay for the statistics
B	Recording of the collected data	National statistical bureaus
C	Establishment of useful continuously administrated national statistics about the cost structure in inland navigation like shown in the benchmark	National statistical bureaus
D	Delivery of the national statistics to EUROSTAT	National statistical bureaus
E	Establishment of an European statistics of the cost structure in the same way like it should be done with the national statistics	EUROSTAT

Table 5-5: Strategy Directions for a Statistical Recording of Transport Prices in the Inland Navigation

Aim	Establishment of a useful European continuously recorded statistics of transport prices in the inland navigation	
	Proposed actions	Responsible Actors
A	Collection of the data about the prices in inland navigation for the DIW-groups per tkm	Shipping companies
B	Recording of the collected data	National statistical bureaus
C	Establishment of useful continuously administrated national statistics about the transport prices in inland navigation	National statistical bureaus
D	Delivery of the national statistics to EUROSTAT	National statistical bureaus
E	Establishment of an European statistics of transport prices in the same way like it should be done with the national statistics	EUROSTAT

Table 5-6: Strategy Directions for a Statistical Recording of Accidents on the Inland Waterways

Aim	Establishment of a useful European continuously recorded statistics of accidents on the inland waterways	
	Proposed actions	Responsible Actors
A	Collection of the data about the accidents on inland waterways	National water police
B	Anonymous recording of the collected data	National statistical bureaus
C	Establishment of useful continuously administrated national statistics about the accidents on inland waterways like shown in the benchmark	National statistical bureaus
D	Delivery of the national statistics to EUROSTAT	National statistical bureaus
E	Establishment of an European statistics of the accidents on inland waterways in the same way like it should be done with the national statistics	EUROSTAT

Table 5-7: Strategy Directions for a Statistical Recording of the Working Condition in the Inland Navigation

Aim 1	Establishment of an European overview about laws for inland navigation	
Aim 2	Establishment of an European statistic of de facto working conditions in inland navigation	
	Proposed actions	Responsible Actors
A	Collection of the relevant laws and rules for inland waterways	National Accident Prevention and Insurance Associations / National statistical bureaus
B	Publication of the overview and delivery to EUOSTAT	National statistical bureaus
C	Publication of all national overviews of relevant laws and rules in the inland navigation	EUROSTAT
D	Collection of the de facto working conditions in inland navigation	National Accident Prevention and Insurance Associations / National statistical bureaus
E	National statistical recording of the de facto working condition in inland navigation and delivery to EUROSTAT	National statistical bureaus
F	Establishment of an European statistics of the de facto working conditions in the inland navigation	EUROSTAT

Table 5-8: Strategy Directions for a Statistical Recording of the Employees in the Inland Navigation

Aim 1	Establishment of an European statistics of the employees in inland navigation	
	Proposed actions	Responsible Actors
A	Statistical recording of the employees in inland navigation with their skills and education and delivery to EUROSTAT	National statistical bureaus
B	Establishment of an European statistics of employees in inland navigation on the base of the national statistical recordings	EUROSTAT

6 Annex

6.1 List of abbreviations

- ADNR — Accord Européen relatif au transport international des marchandises dangereuses par voie de navigation du Rhin
- BÖB — Federal Association of Public Inland Ports
- CCR — Central Commission for Navigation on the Rhine
- DIW — German Institute for Economic Research
- EFIP — European Federation of Inland Ports
- ID — Identification Number
- IVR — International Association for the representation of the mutual interests of the inland shipping and the insurance and for keeping the register of inland vessels in Europe
- km — kilometre
- kw — kilo watt
- m — metre
- NSTR — Nomenclature Statistiques Transports Reviseé
- NUTS — Nomenclature des Unites Territoriales Statistiques
- t — tons
- TEN-T — Trans-European Transport Networks
- TEU — Twenty Feet Equivalent Unit
- tkm — ton-kilo-meters
- UK — United Kingdom
- WESKA — West European Almanac for Shipping and Ports

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